

Eating habits, nutritional status and obesity in students of Gastronomy and Business Management

Hábitos alimentarios, estado nutricional y obesidad en estudiantes de Gastronomía y Gestión Empresarial

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ABSTRACT

Dietary habits influence the nutritional status and obesity of students in the Gastronomy and Business Management program at Le Cordon Bleu University, as analyzed in this study. Considering the nature of the research, a quantitative approach was applied, with a substantive or foundational type, a descriptive-correlational design and a hypothetical-deductive method. The study sample consisted of 35 students. The survey technique was used, incorporating questions focused on the three dimensions outlined for this research. The instrument used to gather relevant information from sixth-semester students in Gastronomy and Business Management was the Questionnaire on Dietary Habits and Nutritional Status. The study concluded that there is a significant relationship between dietary habits and nutritional status, as well as between nutritional status and obesity. These relationships were observed predominantly at medium and high levels, allowing for the establishment of a significant link between dietary habits and nutritional status, as well as between nutritional status and obesity. The findings are valuable for defining the dietary habits of students in Gastronomy and Business Management.

Keywords: Eating habits, overweight, nutrition, body mass index.

RESUMEN

Los hábitos alimentarios influyen en el estado nutricional y obesidad en estudiantes de Gastronomía y Gestión Empresarial de la Universidad Le Cordon Bleu de acuerdo con lo estudiado en la presente investigación y considerando la naturaleza del estudio se tuvo un enfoque de tipo cuantitativo, fue de tipo sustantivo o de base, con un diseño descriptivo correlacional y método hipotético deductivo. La muestra del estudio se conformó con 35 estudiantes. La técnica utilizada fue la encuesta, y donde se incluyeron preguntas orientadas a las tres dimensiones planteadas para la presente investigación; estos instrumentos que



fue dirigido a estudiantes de gastronomía y Gestión Empresarial del sexto ciclo permitió recabar la información respectiva fue: Cuestionario sobre hábitos alimentarios y estado nutricional y se concluyó que existe relación significativa entre los hábitos alimentarios y estado nutricional y estado nutricional y obesidad, los cuales se observan en mayor proporción en los niveles medio y alto y nos permiten establecer la relación significativa entre hábitos alimentarios y estado nutricional, así como también la relación significativa entre estado nutricional y obesidad; los resultados son muy interesantes para definir los hábitos alimentarios en estudiantes de Gastronomía y Gestión Empresarial.

Palabras clave: Costumbres de alimentación, sobrepeso, nutrición, índice de masa muscular.

INTRODUCTION

In the process of growth and development of adolescents and young people, it is necessary to consider that eating habits and nutritional status are fundamental conditions for developing levels of attention and concentration. These are basic and critical processes that contribute to learning about eating habits, nutritional status and obesity (Fitzgerald *et al.*, 2010). Humans beings have a series of customs and habits which influence our lives, determining success and failures in the various activities. Hence, it is very important to focus on these types of recurring behaviors. Such behaviors are influenced by sociocultural, economic, religious and personal factors, all of which help shape an individual's eating habits (Word Health Organization (WHO), 2005).

When it comes to dieatary habits, these are considered to be conscious, collective and repetitive behaviors unique to each person, leading them to select, prepare and consume a certain foods, influenced by the psychosocial, cultural and formative aspects of the person. Habits are made up of customs, attitudes and forms of behavior which are developed in specific situations of daily life, thus forming behavioral models and learning patterns that are sustainable over time.

These habits can have either a favorable or unfavorable impact on nutrition and health. Some recommended criteria include:

- The daily eating patterns of parents and adults will gradually shape the preferences or habits to follow by imitation.
- Personal hygiene, including daily bathing and hand washing.
- Good eating habits include a selection of foods with varied nutrients, vitamins, proteins, minerals and carbohydrates; all in necessary proportion; Initially, this requires an understanding of which foods are beneficial for the body. Once this is known, healthy options are chosen, and harmful options, such as salt, sugar, fats, refined flours, and artificial colorants, are avoided.

On the other hand, nutritional status is a condition of bodily health as a result of the balance between the needs for energy intake through nutrients, in the quantity and quality that the human body needs to develop its respective functions. It is the condition that the organism obtains from the relationship between individual nutritional needs and the ingestion, absorption and use of the nutrients contained in food.

Aguilar and Contreras (2013) stated that the body's health condition, as a result

of the balance between the needs and energy intake of nutrients in a person, will determine their health condition and that they are observed through various factors such as: lifestyle, physical activity, socioeconomic status and eating habits. The latter are those that will allow us to evaluate and identify abnormalities such as malnutrition due to excess and deficiency.

It is the interpretation of the information obtained from biochemical, anthropometric and/or clinical studies; which is basically used to determine the nutritional situation of individuals in the form of surveys, surveillance or research.

The World Health Organization (WHO, 2013) showed that it was undeniable that nutrition and food are important processes for human existence. Poor nutrition is associated with deficiencies in food intake, impairments in various physiological functions and an increased risk of developing and contracting diseases. Consequently, nutrition and food intake are regarded as foundational principles in the health-disease process.

For Otero (2012), nutrition goes beyond eating, it is a complex process that encompasses aspects from the social to the cellular level. Nutrition is defined as the set of phenomena through which nutritional substances are obtained, used and excreted.

In contrast to eating habits, we refer to obesity, as a product of bad eating habits and poor nutrition with fatal consequences for people, especially during adolescence and young adulthood.

According to the WHO (2017), obesity is determined by an increased Body Mass Index (BMI) (greater than or equal to 30 as defined by the WHO). It is

a known risk factor for chronic diseases such as heart disease, diabetes, high blood pressure, stroke and some forms of cancer.

The most frequently applied indicators for determining the presence and degree of obesity are body weight (kg) and Body Mass Index (BMI: kg/m^2). Based on these parameters from an epidemiological point of view, obesity has been defined as excess weight or BMI above the average values or certain percentiles, in relation to normal weight tables or BMI tables, respectively. Clinically, the existence of obesity is shaped indirectly, because direct methods are not always available to evaluate body fat. Meanwhile, clinical definitions of obesity consider anthropometric measurements such as: weight, height, body circumferences and the thickness of skin folds, correlating them with the health risks associated with excess body fat (WHO, 2017).

With current knowledge in physiology, genetics, molecular biology and evidentiary epidemiological studies, we can establish that the etiopathogenesis of obesity is a complex phenomenon. At first glance, the theory of a chronic increase in intake in relation to expenditure is simple, since obesity is a specific and heterogeneous disorder in its origin, in which genetic and environmental factors are involved.

Rodríguez (2003) noted that the origins of obesity are multifactorial, including genetic inheritance factors, the behavior of the nervous, endocrine and metabolic system, as well as lifestyle. While high-calorie intake leads to obesity, genetic and environmental factors also influence weight. However, there remains the potential to adopt appropriate dietary

habits and physical activity to manage this condition.

MATERIALS AND METHODS

The population consisted of 35 students from the Gastronomy and Business Management programs at Le Cordon Bleu University, taking into account that students of Gastronomy and Business Management were chosen because, due to the characteristics of their training, they continuous exposure to food preparation. The students surveyed were from the sixth cycle in the subject of Restaurant and Bar Establishment Management. The data collection technique was considered through the survey. Which was designed

specifically for the present research and which was validated at the Enrique Guzmán y Valle University. It was a single survey that included the three variables necessary to collect the necessary data.

RESULTS AND DISCUSSION

Eating habits depend in many cases on the styles and forms of eating that occur in each of the places that are geographically located in the different regions. In the specific sample studied, these habits may vary due to the student's educational activities, especially in culinary and pastry workshops, where they are in constant contact with food, as detailed in table 1.

Table 1.

Distribution of the sample, according to the eating habits variable.

	No. Students	Level	Percentage	Percentage Valid	Percentage Gather
	9	High	25.71	25.71	25.71
	20	Medium	57.14	57.14	82.85
	6	Low	17.14	17.14	100
Total	35		100		

Table 1 shows that 57.14 % of the sample perceives the eating habits variable at the medium level, 25.71 % at the high level and 17.14 % at the low level. The highly significant majority of the sample perceives the eating habits variable between medium and high levels.

For this research "Eating habits, nutritional status and obesity" it is very important to define the nutritional status of a person, which will allow the risks of obesity to be established. The findings align with those reported by Alcivar and Gutierrez (2017) in their thesis, Nutritional Status and Dietary Habits of Retired Older Adults, Association April 12 - Cuenca (Ecuador), from the University of Cuenca, Ecuador. Their study aimed to correlate

the nutritional status and dietary habits of retired older adults in the Association April 12 in Cuenca, Ecuador. The descriptive, quantitative and transversal method was applied with finite sample of 60 older adults. Data was collected from the individuals studied through the Mini Assessment of the Elderly (MNA) and a food survey. Regarding the results, they determined that the nutritional status of the elderly was normal (47 %), overweight (37 %) and obese (16 %); without finding people who are thin according to the WHO classification. He referred to eating habits that 76.6 % consume vegetables only once a day, 63.3 % consume fruits only once a day, 33.3 % only consume dairy products once a day, 43 % consume water three times per

day, 70 % consume fish once a week and finally 83 % do not consume sweet desserts. Finally, it was concluded that the older adult had adequate eating habits according to the frequency of meals, thus determining the relationship with nutritional status.

Lean pork and beef in equal proportion were used as raw materials,

which were frozen for one day and then cut into 2 x 2 cm pieces. The curing process was carried out at a temperature of 3 °C for 24 hours using nitro salt (KNO₃). The meat was chopped with a grinding machine to obtain pieces with a diameter of 4 to 6 mm, the same was done with the previously frozen fat, to achieve a thickness of 3 mm.

Table 2.

Distribution of the sample, according to the nutritional status variable.

	No. Students	Level	Percentage	Percentage Valid	Percentage Gather
	12	High	34.28	34.28	34.28
	19	Medium	54.28	54.28	88.56
	4	Low	11.42	11.42	100
Total	35		100		

The meat was then mixed with the fat and seasonings to add flavor to the product. In addition to salt and sugar, garlic, Whiskey and ground black pepper were also added as condiments. The proportions of the inputs for the production of salami and the curing of the meat are shown in table 1. The quantities of the inputs refer to one kg of processed meat, composed of 500

g of pork and 500 g of beef.

The results indicate that the Rho of Spearman is .8871 points, with p-value = 0.000 ($p < 0.05$), we reject the null hypothesis and we can say that: There is a significant relationship between eating habits and nutritional status in students of Gastronomy and Business Management at the University Le Cordon Bleu, Peru.

Table 3.

Relationship between eating habits and nutritional status

		Eating habits	Nutritional status
Rho of Spearman	Eating habits	Correlation coefficient	1.0000
		Sig. (Bilateral)	0.000
		N	35
	Nutritional status	Correlation coefficient	0.8871
		Sig. (Bilateral)	0.000
		N	35

There are sufficient reasons to reject the null hypothesis, so it is inferred that: There is a significant relationship between eating habits and nutritional status in students of Gastronomy and Business Management at Le Cordon Bleu University, Peru. There are sufficient reasons to suggest that there is

a significant relationship between eating habits and nutritional status in students of Gastronomy and Business Management at Le Cordon Bleu University, Peru.

The approaches of Sáenz (2012) have been considered in his research where the objective was to compare the level of malnutrition institutionalized

older adults and community residents were raised. It was descriptive, comparative, observational and transversal; where the anthropometry technique and the application of the MNA were carried out. As a result, both institutionalized populations and community residents had a risk of malnutrition of 90 % and 82 % respectively. There was inadequate consumption of dairy products per day in institutionalized older adults 39 % and in the community 58 %.

Inadequate water consumption per day, in institutionalized older adults 86 % and community 63 %. Likewise, inadequate

consumption of fruits and vegetables, institutionalized 27 % and community 11 %. Finally, they concluded that older adults from both populations were at nutritional risk.

The results indicate that Spearman's Rho is .8843 points, with $p\text{-value} = 0.000$ ($p < 0.05$), the null hypothesis was rejected and we can say that: There is a significant relationship between eating habits and obesity in students of Gastronomy and Business Management at Le Cordon Bleu University.

The results indicate that the Rho of Spearman is .8813 points, with $p\text{-value} =$

Table 4.

Relationship between eating habits and obesity

		Eating habits	Obesity
Rho of Spearman	Eating habits	Correlation coefficient	1.0000
		Sig. (Bilateral)	0.000
		N	35
	Obesity	Correlation coefficient	0.8843
		Sig. (Bilateral)	0.000
		N	35

0.000 ($p < 0.05$), the null hypothesis was rejected and we can say that: There is a significant relationship between nutritional

status and obesity in Gastronomy and Business Management students at Le Cordon Bleu University, Peru.

Table 5.

Nutritional status and obesity

		Nutritional status	Obesity
Rho of Spearman	Nutritional status	Correlation coefficient	1.0000
		Sig. (Bilateral)	0.000
		N	35
	Obesity	Correlation coefficient	0.8813
		Sig. (Bilateral)	0.000
		N	35

The conclusion is that there are sufficient reasons to reject the null hypothesis, so it is inferred that: there is a significant relationship between nutritional status and obesity in students of Gastronomy and Business Management at

Le Cordon Bleu University, Peru.

Coincidences were found in the results obtained by Gardi, *et al.* (2019) in their research, where the objective of the study was to estimate the prevalence of obesity in adolescents from the

Experimental Educational Institution of the Enrique Guzmán y Valle National University of Education and identify its association with unhealthy eating habits. Methods: The research was descriptive cross-sectional in adolescents from 14 to 16 years old, in the period from September 2016 to December 2016, from the Experimental Educational Institution of the Enrique Guzmán y Valle National University. Eating habits and obesity were studied. The adolescents were interviewed and surveyed about their food consumption practices, weight measurement, and corporal measurements, all this with prior informed consent. Results: 450 adolescents were studied, the sample being 82 with no differences in sex. 37.80 % were obese, 21.95 % were overweight and 39.02 % were of normal weight. Unhealthy eating habits predominated.

Likewise, similarities are found with the conclusions reported by: Barrón *et al.*, whose objective was to determine the eating habits, nutritional status, physical activity and lifestyle of active MA. Using the descriptive, quantitative and cross-sectional method with a sample of 183 elderly people, anthropometric measurements and BMI calculation were carried out. The current dietary guidelines of that country were also used. As a result, it was evident that the eating habits of older adults ate 3 to 4 meals with 65 % and 32 % respectively. Within dairy consumption (77 %), it was adequate for 2 servings a day. On the other hand, 80 % added salt to their rations and 42 % did not consume saturated fats. In this way they concluded that nutritional status with eating habits, physical activity and lifestyle intake, only a significant relationship was evident with dairy consumption.

Taking into account the approaches of: Farinago and Pérez (2014) Nutritional status, of health and quality of the diet of older adults residing in the León Ruales nursing home and in the San José and San Vicente de Paúl nursing homes, jurisdiction of Ibarra and Antonio Ante. June – December 2014. Technical University of the North. Ecuador. Whose main objective is to evaluate the nutritional health status and dietary quality of older adults residing in three nursing homes in the jurisdiction of Ibarra and Antonio Ante. We studied 83 older adults through anthropometry, where the study was descriptive cross-sectional. As results, older adults presented a nutritional status according to malnutrition due to deficiency 41 % and excess 16 %, and normal 43 %. Conclusions: The elderly received a nutrient-deficient diet within these closed institutions, degenerating the quality of life of the elderly and being vulnerable to pathological complications and malnutrition.

Oleas *et al.* (2014) carried out a study whose objective was to evaluate the nutritional status, eating habits and physical activity of older adults. Descriptive and cross-sectional research with a finite population of 90 elderly people of both genders. (19 p.1) Results: daily consumption of dairy products (16.67 %) and do not consume dairy products (11.1 %), daily consumption of eggs (5.6 %) and do not consume eggs (18.9 %), daily meat consumption (10 %) and do not consume meat (8.9 %), daily consumption of fruits and vegetables (26.7 %), do not consume fruits and vegetables (1.1 %), add salt to their meals (54.4 %) and do not add salt to their meals (45.6 %). Concluding that 37 % presented signs and symptoms of nutritional risk and 66.7 % presented some

type of diseases related to their food intake, where habits related with food and physical activity are inadequate. The instruments used in this research are favorable because after tabulating the information issued in the questionnaire on nutritional status, it yields 91.66 points, which gives it an excellent level of validity.

CONCLUSIONS

Mostly the sample relates to the eating habits variable, at a total level and

by the dimensions: food selection and food preparation, between medium and high levels. There is a significant relationship between eating habits and nutritional status in students of Gastronomy and Business Management at Le Cordon Bleu University, Peru. There is a significant relationship between eating habits and obesity in students of Gastronomy and Business Management at Le Cordon Bleu University, Peru.

BIBLIOGRAPHICAL REFERENCES

- Alcívar, M. & Gutiérrez, J. (2017). *Estado Nutricional y Hábitos Alimenticios del Adulto Mayor jubilado, Asociación 12 de abril* [Tesis de bachiller, Universidad de Cuenca] Repositorio Institucional Universidad de Cuenca. <http://dspace.ucuenca.edu.ec/handle/123456789/27213>
- Aparco, J., Bautista-Olórtegui, W., Astete-Robilliard, L. & Pillaca, J. (2016). Evaluación del estado nutricional, patrones de consumo alimentario y de actividad física en escolares del Cercado de Lima. *Revista Peruana de Medicina Experimental y Salud Publica*, 33(4), 633-639. <https://dx.doi.org/10.17843/rpmesp.2016.334.2545>
- Barceló, M. & Borroto, G. (2001). Estilo de vida factor culminante en la aparición y tratamiento de la obesidad. *Revista Cubana de Investigaciones Biomédicas* 20(4): 287-295. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03002001000400009&lng=es&tlng=es.
- Barrón, V., Rodríguez, A. & Chavarría, P. (2017). Hábitos alimentarios, estado nutricional y estilos de vida en adultos mayores activos de la ciudad de Chillán. *Revista Chilena de Nutrición*. 44(1), 57-62. <https://dx.doi.org/10.4067/S0717-75182017000100008>
- Bayes de Luna, A., Alegria, E., Attie, F. & Lopez-Sendon, J. (2002). *Cardiología Clínica*. Elsevier-Masson. https://www.todostuslibros.com/libros/cardiologia-clinica_978-84-458-1179-5
- Caro, F., Kolaczynski, J., Nyce, M., Ohannesian, P., Opentanova, I., Goldman, H., Lynn, B., Zhang, P., Madhur, S. & Considine, V. (1996). Disminución del cociente líquido cefalorraquídeo/leptina sérica en la obesidad: un posible mecanismo de resistencia a la leptina. *The Lancet* 348. 159-161 [https://doi.org/10.1016/S0140-6736\(96\)03173-X](https://doi.org/10.1016/S0140-6736(96)03173-X)
- Fitzgerald, A., Heary, C., Nixon, E. & Kelly, C. (2010). Factors influencing the food choices of Irish children and adolescents: a qualitative investigation. *Health Promotion International*. 25(3):289-98. doi: 10.1093/heapro/daq021.

- Fujisawa, T., Ikegami, H., Yamato, E., Takekawa, K., Nakagawa, Y., Hamada, Y., Oga, T., Ueda, H., Shintani, M., Fukuda, M. & Ogihara, T. (1996). Association of Trp64Arg mutation of the beta3-adrenergic-receptor with NIDDM and body weight gain. *Diabetologia*, 39(3), 349–352. <https://doi.org/10.1007/BF00418352>
- McGill, J., Schneider, D., Arfken, C., Lucore, C. & Sobel, B. (1994). Factors responsible for impaired fibrinolysis in obese subjects and NIDDM patients. *Diabetes*, 43(1), 104–109. <https://doi.org/10.2337/diab.43.1.104>
- Macias, M., Gordillo, S. & Camacho, R. (2012). Eating habits in school-age children and the health education paper. *Revista Chilena de Nutrición*, 39(3), 40-43. <https://dx.doi.org/10.4067/S0717-75182012000300006>
- Monge, J. (2007). Hábitos alimenticios y su relación con el índice de masa corporal de los internos de enfermería de la UNMSM [Tesis profesional, Universidad Nacional Mayor de San Marcos] Repositorio de la Universidad Nacional Mayor de San Marcos. <https://hdl.handle.net/20.500.12672/478>
- Moreno, G. (2000). Introducción a la Metodología de la Investigación Educativa II: Editorial Progreso.S.A. https://books.google.co.ve/books?id=9eARu_jwbgUC&printsec=frontcover#v=onepage&q&f=false
- Nicholls, R. (1998). Imprinting in Prader Willi and Angelman syndroms. *Trend Genet.* 14:194p.
- Oleas, M., Alba, D. & Mantilla, S. (2014). *Estado Nutricional, Hábitos Alimentarios y Actividad Física en adultos mayores del servicio pasivo de la policía de la Ciudad de Ibarra – Ecuador*. [Tesis de licenciatura. Universidad Técnica del Norte]. Repositorio de la Universidad Técnica del Norte <http://repositorio.digital.utn.edu.ec/bitstream/123456789/3499/1/06%20NUT%20145%20TESIS.pdf>
- Peña, M. & Bacallao, J. (2001) La obesidad y sus tendencias en la Región. *Revista Panamericana de Salud Publica*, 10(2) 75-78. http://www.scielosp.org/scielo.php?script=sci_arttext&pid=S102049892001000800001&lng=en&nrm=iso&tlng=es
- Sáenz, B. (2012). *Riesgo de desnutrición de adultos mayores institucionalizados y de los que residen en la comunidad*. [Tesis de Licenciatura, Universidad Nacional de San Marcos]. Repositorio de la Universidad nacional Mayor de San Marcos https://cybertesis.unmsm.edu.pe/bitstream/handle/20.500.12672/7189/Saenz_lb.pdf?sequence=1&isAllowed=y
- Taco, S. & Vargas, R. (2015). *Estilo de vida y estado nutricional del adulto mayor en el distrito de Polobaya, Arequipa*. [Tesis para título profesional de Enfermería, Universidad Nacional de San Agustín]. Repositorio Universidad Nacional de San Agustín <https://repositorio.unsa.edu.pe/server/api/core/bitstreams/bfc4f2bd-851a-4b50-ad1b-a8a1a0201cff/content>

- Ruiz, E., del Pozo, S., Valero, T., Ávila, J. & Varela, G. (2013). Libro Blanco de la Nutrición en España. Fundación Española de la Nutrición. p.31. Dieta y estado nutricional de la población. https://www.sennutricion.org/media/Docs_Consenso/Libro_Blanco_Nutricion_Esp-2013.pdf
- WHO (2005). Nutrition in adolescence- Issues and challenges for the health sector. In WHO discussion papers on adolescence. Geneva. Switzerland: WHO Press. <https://www.who.int/publications/i/item/9241593660>