International Journal of Education Humanities and Social Science

ISSN: 2582-0745
Vol. 2, No. 04; 2019

DISCORDANCE IN THE BODY MASS INDEX OF THE STUDENTS TO THE ENTRY TO THE LICENSE IN NUTRITION OF A UNIVERSITY IN THE SOUTHWEST OF MEXICO

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ABSTRACT
Mexico ranks second in obesity worldwide and first in childhood obesity, being a public health problem; given the magnitude and significance of this phenomenon, the work of nutrition professionals is essential to combat it, however, there are cases of nutrition professionals who fight against their own overweight or obesity, whom their patients may perceive differently with regarding those nutrition professionals who are at a healthy weight.
For this reason, the present work seeks to determine the correspondence of the Body Mass Index of the students from the entrance to the degree in nutrition, which allows later to design intervention strategies for those students disagreement and at the end of their undergraduate studies there, is congruence with their vocational training.
The present study has a quantitative approach with a non-experimental transversal design, where the BMI was used to determine congruence, which was recorded in the evaluation card of the Body Composition Laboratory. For the analysis of the data, descriptive statistics were used. The results indicate that more than half of the study subjects presented BMI inconsistent with the profession they wish to practice. It is considered essential to consider the design of strategies that help, first, to determine the factors that give rise to this phenomenon in the study population and then, propose an intervention program so that at the end of the degree there is such congruence.

Key Words: Formative congruence, obesity, nutrition students, graduation profile.

INTRODUCTION
Overweight and obesity are conditions that are related to genetic susceptibility, psychological, social and metabolic disorders; presenting an increased risk for the development of comorbidities such as: hypertension, type 2 diabetes mellitus, cardiovascular and cerebrovascular diseases, as well as some neoplasms in the breast, endometrium, colon, prostate, among other conditions (Moizé, 2014 & NOM-008-SSA3 -2017). The prevalence of obesity increases progressively throughout the world. Mexico ranks second in obesity worldwide and in particular, the first place in childhood obesity, being a public health problem given the magnitude and significance (ENSANUT MC 2016 & NOM-008-SSA3-2017).

ISSN: 2582-0745
Vol. 2, No. 04; 2019

In view of this, future generations of nutrition professionals will have a leading role in the fight to reduce obesity, since, in addition to educating; they should support and direct their overweight patients towards healthy lifestyles. However, scientific evidence demonstrates a reality that can change in students of health-related careers, who show a high body mass index (BMI) due to various factors (Torres-Román, et al., 2017).

Numerous studies document prejudiced attitudes of doctors, nurses and other healthcare professionals towards obese patients (Puhl, et al., 2013). On the other hand, there are cases of nutrition professionals who manifest nutritional health problems and fight against their own overweight or obesity, and perhaps their patients perceive them differently with respect to those nutrition professionals who are slender. So it is worrying that these diseases along with negative stereotypes are present in the field of health care.

The nutritionist training represents a nodal aspect in the context of the knowledge society and in the framework of globalization processes that impose great challenges to professional education. Some authors point out that the profession not only provides a set of technical knowledge, but that from the professional training mental schemes are generated that make up a professional habitus, therefore, a particular way of relating to the world.

The Mexican Association of Members of Faculties and Schools of Nutrition, has been working for the training of the Bachelor of Nutrition in Mexico since it was established in 1992, defining it as a professional capable of providing nutritional care to healthy, at risk or sick individuals, as well as to groups from different sectors of society; to administer food and nutrition services and programs; to propose, innovate and improve the nutritional and sanitary quality of food products (AMMFEN, 2016). For this reason, as part of their professional practice, nutritionists must maintain an adequate nutritional status to be consistent with their training, which will allow the nutrition professional to compete in an increasingly demanding labor market

In education programs in Nutrition in Mexico, a training centered on the treatment of several theoretical-fundamental dimensions and practices that have been defined by consensus (AMMFEN, 2012) predominates. In this context the nutritionist training should not only focus on the integration of theoretical and practical knowledge of the central axes of the discipline (clinical nutrition, population nutrition, food technology, food services and cross-cutting fields), but also training of attitudes, aptitudes and habits in its procedure, with a formative congruence of what it preaches to the population.

Romero Hernández, Castillo and Álvarez (2008), in a study on promoting formative congruence in students of nutritional education programs, determine that nutritionists themselves define characteristics that they should meet, considering the appearance of the professional with body weight within the parameters considered as healthy; Similarly, the study shows that nutrition professionals perceive that the overweight and obese nutritionist has the following characteristics:

1. Little knowledge about the profession.

ISSN: 2582-0745
Vol. 2, No. 04; 2019

2. You will not have the confidence in the treatments that you indicate to the patients for the treatment of overweight and obesity.
3. It does not put into practice the knowledge itself.
4. It gives a bad image to the profession.

Therefore, this research has as its main objective, to determine the correspondence of the Body Mass Index of the students upon admission to the degree in nutrition, which subsequently allows designing intervention strategies for those students disagreement and at the end of their undergraduate studies exist congruence with their professional training.

METHODS AND MATERIALS

A study with quantitative approach and exploratory scope, descriptive with a transversal non-experimental design was carried out.

Participants

The sample was non-probabilistic, in which all first-year students of the 2016 generation were included, to the degree in nutrition of a university in southwest Mexico.

Recruitment procedure, data collection

To carry out the study, authorization was first obtained from the directors of the educational program of degree in nutrition, as well as the informed consent duly identified and signed by the participants. An agenda was organized to organize the participants' attendance at the institution's body composition laboratory and obtain the anthropometric data.

Instruments and measurements

To determine the formative congruence in relation to the body weight of new students, the anthropometric indicator Body Mass Index (BMI) was used an indicator that is obtained by dividing the weight expressed in kg, by the height in meters squared.

For the interpretation of the results of the BMI, the cut-off points indicated by the World Health Organization (WHO) (Maldonado-Gómez et al., 2017) were used as can be seen in Table 1.

Table 1. Interpretation of BMI according to WHO

Cut-off points	Diagnosis
< 18.5	Under weight
18.5 - 24.9	Normal weight
25 - 29.9	Overweight

ISSN: 2582-0745
Vol. 2, No. 04; 2019

> 30	Obesity

The weight measurement was carried out in accordance with the guidelines established by the National Institute of Medical Sciences Salvador Zubirán(INCMNSZ), using a SECA model 700 floor scale, with a range of 50 g - 220 Kg., With a stadiometer 60 cm - 200 cm. For the correct measurement, the subject was placed on the equipment in an erect and relaxed position, wearing light clothes and without material or accessory with significant weight (keys, coins, rings, watch, etc.), barefoot, without socks, without presenting edema, facing the scale with the fixed view in a horizontal plane. The palms of the extended hands resting laterally on the thighs, with the heels slightly apart forming a light V and without making any movement. This measurement was made in duplicate.

The determination of the size was made according to the guidelines established by INCMNSZ; using a floor scale brand SECA model 425, with a range of 1000 g - 160 Kg., with stadiometer of 75 cm - 193 cm. The participant was asked to remove everything that covered his feet (shoes, shoes, sandals, socks, etc.) and the head (hat, cap, headband, comb, ribbons, etc.). The maximum extension height technique requires measuring the maximum distance between the floor and the cranial vertex. To do this, the position of the head must be in the Frankfort plane. That is, the lower orbital arch should be aligned horizontally with the swallow of the ear: an imaginary line, perpendicular to the longitudinal axis of the body. Once the Frankfort plane is secured, the evaluator is placed in front of the subject, and is asked to place the feet and knees together, heels, back of the buttocks and head well attached to the back plane of the stadiometer; the subject is then taken with the hands placing the thumbs under the jaw and the rest of the fingers take the head by the sides. You are asked to take a deep breath and gentle upward traction occurs, requesting relaxation and stretching. At that moment a triangular object is placed on the vertex, which in turn supports the centrimeter tape, and the size value is read in centimeters.

Ethical aspects

This work adhered to the national ethical principles set forth in NOM-012-SSA3-2012 and international for medical research in human beings (Helsinki, 2000).

Statistical analysis

The results were processed with the statistical package SPSS version 24.0 for Windows. Descriptive statistics (frequencies, percentages, measures of central tendency and dispersion) were used.

RESULTS AND DISCUSSION

According to the document published by the European Federation of Dietitians Associations (FEAD), nutrition professionals play a key role in the management of obesity in adults and children; at different levels, which includes health promotion and prevention of disease development, until intervention, forming part of a multidisciplinary team (Moizé, 2014).

ISSN: 2582-0745
Vol. 2, No. 04; 2019

According to the document, nutrition professionals are especially qualified to translate the language of scientific evidence on energy intake and expenditure, nutrition and eating behavior; through the development and implementation of dietary and behavioral proposals that are accessible and focused on the individual. Nutrition professionals have the responsibility of transferring the observed scientific evidence to the real life of the patient.

In this study, congruence was determined in relation to the body weight of the newly admitted student to the educational program of degree in nutrition, of the generational cohort 2016, to generate strategies and intervention programs from the first years of his profession.

The study population was formed by the total number of first-year students (N = 130), of an educational program of nutrition degree of the 2016 generational cohort, of which 76.92% (100) were women and 23.08% (30) were male (table 2).

Table 2. General characteristics of the study population.

	Total (N = 130)				Female (n = 100)				Male (n = 30)			
Parameter	Average	DE	V.Mín.	V. Máx.	Average	DE	V.Mín.	V. Máx.	Average	DE	V.Mín.	V. Máx.
Weight (kg)	62.81	14.43	41.5	105.5	59.96	13.19	41.5	105.4	72.32	14.34	48.9	101.6
Height (cm)	159.92	8.07	140	180	157.35	6.47	140	1.73	168.46	6.9	150	180
BMI	24.41	4.52	15.62	38.76	24.12	4.5	15.62	38.76	25.38	4.32	17.52	36.43

Source of authors' own elaboration, based on the database.

50% of new students are at "minimum weight" and the other 50% have a nutritional health problem according to the WHO cut-off points, indicating that there is congruence in 50%, that is, This percentage is in the average of the stereotype that the population expects for this type of professionals, since entering the university, these data are similar to those reported by Romero Hernández et al., (2008); Torres-Zapata et al., (2017) and Maldonado-Gómez et al., (2017).

ISSN: 2582-0745
Vol. 2, No. 04; 2019

However, in the same proportion are the problems of malnutrition (low weight, overweight and obesity) since the beginning of their professional training (table 3), the problem of malnutrition, is more accentuated in overweight and obesity. These results are similar to those reported by Robles et al., (2014) and Amaya et al., (2015).

Table 3. Nutritional status by BMI.

	Diagnosis	Cut-off points	f	%	Average	DE	V. Max.	V. Min.
POPULATION	Under weight	< 18.5	9	6.92	17.15	0.61	17.75	15.62
	Normal weight	18.5 - 24.9	65	50.00	21.83	1.7	24.99	18.64
	Overweight	25 - 29.9	42	32.31	27.02	1.38	29.94	25.15
	Obesity	> 30	14	10.77	33.27	2.62	38.76	30.24
FEMALE	Under weight	< 18.5	8	8.00	17.1	0.63	17.75	15.62
	Normal weight	18.5 - 24.9	50	50.00	21.65	1.62	24.67	18.64
	Overweight	25 - 29.9	34	34.00	27.04	1.46	29.94	25.15
	Obesity	> 30	8	8.00	34.2	2.6	38.76	30.77
MALE	Under weight	< 18.5	1	3.33	17.2	---	---	---
	Normal weight	18.5 - 24.9	15	50.00	22.42	1.82	25	19.22
	Overweight	25 - 29.9	8	26.67	26.94	0.94	28.86	25.62
	Obesity	> 30	6	20.00	32.03	2.09	36.43	30.24

Source of authors' own elaboration, based on the database.

In both genders there is the same proportion of the problem, which indicates that intervention strategies must be carried out, with the aim of reducing malnutrition and that, when these students graduate, there is formative congruence between their body weight and the profession they will exercise .

ISSN: 2582-0745
Vol. 2, No. 04; 2019

Education is a determining factor in the formation of the individual within society; however, the knowledge derived only from it is not enough to modify health risk behaviors; It is necessary to adapt the behaviors, creating a sense of risk perception and prevention culture, which depends on each one.

Several authors have highlighted that the university population is an especially vulnerable group from the point of view of nutritional health (Pi, 2015), so the student of the degree in nutrition is no exception. On the other hand, at the beginning of the studies in this career, only the income profile defined in the study plan is evaluated, describing the aspects that the applicant must possess, such as initial basic knowledge (chemistry, biology, biochemistry, etc.) , general skills (communicating, managing information in an organized way, etc.) and attitudes (responsibility, interest in community service); but in a few educational institutions, nutritional status is assessed upon admission and, even less, they are followed up until the conclusion of the studies. It should be clarified that the student's BMI should not be an indicator to determine if it is accepted or not in the educational program, but rather, an indicator that should function as a regulator in their training.

CONCLUSIONS

The work of nutritionists is essential for the population to acquire good eating habits, through actions of prevention, education, care, rehabilitation and health care, providing tools to combat obesity and overweight.

Although 50% of the study subjects have a weight that is not consistent with the profession they chose, this does not indicate that they will be inadequate nutrition professionals, but that the challenge will be greater in their professional training.

The expert knowledge of the profession confers power over the patient and other health professionals, which makes it important to generate an intervention program that sensitizes students to promote self-care, so that at the time of graduation there is congruence in their nutritional status with the profession they chose to exercise.

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