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Nutritional Assessment and Consumer Trends in Women University Students of Health Sciences in Madrid, Spain

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Abstract

Objective: The aim of the study was to know dietary habits and nutritional knowledge of women nursing students.

Material and methods: Participants of the study were a random sample composed of 200 female students of health sciences. This sample represented the 95% of total, and the 5% was excluded (men and chronic illness). We studied three-day record study, including a weekend. At the same time, we measured the weight, the height, diameter of hip and diameter of waist.

Results: The energy intake was 1720 Kcal/day, and as in similar studies the % energy from fat and proteins was higher than % energy from carbohydrates. Statured fatty acid intake was statistically significant higher than recommendations. Body mass index (BMI) was normal in 81.1% of women (21.3 Kg/m^2). The rest was 10% underweight and 8.9% had overweight/obesity.

Conclusions: This information provided by this study, should be used in order to improve Nutritional studies in nursing schools.

Keywords: Nutritional assessment; Nutritional trends; University students; Women

Introduction

The adulthood period, over 18 years, is increasingly recognized as an important period of health behavior formation. Assessment of nutritional status is important in order to identify potential risk groups. Today it is possible, with the modification of the diet, to delay the appearance of diseases caused by both deficiency and above all by excess. We know that there is an increasing prevalence of related pathologies, such as obesity, diabetes, dyslipidemia, high blood pressure, different types of cancer or heart disease, etc. The location of fat seems to be more important than its total amount, thus studies have shown that there is a good correlation between the waist circumference and the intra-abdominal fat and of this one with the cardiovascular risk [1,2].

Spain has traditionally been a country where the dietary pattern was a healthy diet, Mediterranean diet, which has been abandoned by a less healthy, as the Anglo-Saxon, because of changes in living habits [3,4]. Currently young people are concerned about their image and body weight, and a high percentage follow varied guidelines aimed at weight loss, with inappropriate behaviors. The quality of diet in young people and university students is important to be studied, since it coincides with changes in their lifestyle, being also a vulnerable stage by the power of advertising (miracle diets, healthy foods, etc.), which causes them to modify their eating habits, which will sometimes be for life [5]. As for the female population, it will go through different physiological situations throughout its life that will cause its recommended intakes to be modified [6]. Characterizing the prevalence of health behaviors in university students may help to identify useful targets for health promotion. There are authors [7] that indicate that the dietary model presents an imbalance in the percentage contribution of the immediate principles, being necessary to promote the consumption of fruits, vegetables, legumes and olive oil. The WHO (1985; 1997) emphasizes the need to develop methodological strategies capable of promoting positive attitudes towards healthy habits and long-lasting behaviors [8,9]. Quantifying the knowledge (risk awareness), attitudes, and behaviors in this population may inform interventions that improve health behaviors and ultimately mitigate chronic disease risk.

The objective is to know in future health professionals the dietary habits assessed through a 3-day recall survey and frequency of food consumption, as well as their anthropometric measures and their physical activity.

Materials and Methods

A group of 200 students from health sciences at Universidad Francisco de Vitoria was studied, 100% of the students enrolled in this course accepted to participate voluntarily in this study after giving their informed consent, not having dropped out during the study. But 5% were excluded due to gender (mainly of the students are women, so the few men was rejected) or chronic illness. The age of participants was between 18 to 35 years, representing those over 25 years old 4%. Those who did not suffer from chronic diseases and who were not pregnant were selected after passing a questionnaire/medical record.

Anthropometric data (weight and height) were carried out by a nurse and following WHO standards (1999) (World Health Organization) [10]. The weight / size was made dressed and without shoes with a scale Tanita TBF 300 GS. The body mass index (BMI) allows classification according to the different categories [11] and was calculated from the weight and height data using the equation: BMI=Weight (kg)/size^2 (m).

The waist and hip diameter was measured with a metric tape of inextensible material (range 0-150 cm). Values higher than 0.85 in women was considered in risk.

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A questionnaire was used for this study that included: life habits; frequency of food consumption (fruits, vegetables, vegetables, meat and fish), alcoholic beverages and salt and 3-day recall, including weekend. The DIAL program was used to evaluate the 3-day recall [12]. During the study period, all students were given blood to determine total plasma cholesterol and vitamin D.

Statistical package SPSS 21.0 was used to analyze the results, standard statistical software available at the Francisco de Vitoria University. Differences between groups were assessed using Student's t-tests and ANOVA, with statistically significant differences being considered for $p<0.05$

Results and Discussion

The average age of students was 20.4 ± 2.9 years, 96% is represented by students between 18-25 years and the remaining 4% is made up of students between 26-35 years old. As the latter percentage was so small, it was not considered to influence the final results.

BMI is the most frequently used indicator in obesity studies. The average energy intake of students is 1720.7 kcal, energy that is mainly provided by 3-4 meals (Table 1). For example, if we performed a comparative study of BMI versus energy intake of the students, we see that the differences are significant ($p<0.05$). 80% of the participants had a BMI within normal (21.3 ± 2.5 kg/m^2), while 11.1% had low weight, 8.9% were overweight and none had obesity. The waist hip ratio is an indicator of cardiovascular risk, is also within the normal range 0.75 ± 0.06 (0.66-0.92).

When the students were asked, do you eat breakfast every day? the answer was that they mostly do it daily (Table 1) and the question "Number of meals a day? most make 3-4 meals/day, meals that 90% of the students do outside the home. The differences found were significant ($p<0.01$). If we related daily BMI-breakfast, the results are not significant (Table 1), in two studies, one conducted in Dubai and in the AVENA study, these were significant, and in them girls who did not eat breakfast tended to consume more food the rest of the day and therefore they gain weight [13,14], we have not been able to relate the omission of the breakfast with the greater BMI of the students. There are no significant results when comparing the number of daily meals with BMI, however, if there is a significant ($p<0.05$) relationship between BMI and students that reduce the amount of food eaten.

The growing sedentary of the society is becoming a public health problem [15], thus 43% of the population between 15-24 years of age does not practice any sport [16]. This sedentary lifestyle is greater in the female sex (82.9%) similar values to those observed in Granada students [17]. In a study carried out in different students [18-25] it has been observed that coronary diseases, dyslipemias and diabetes, directly related to the high levels of sedentary of young people, are emerging at an early stage. As for the activity they did daily, and as can be seen in Table 2, the differences are significant when students were asked about daily exercise, walking at least 30 minutes/day, efforts made and time spent watching TV. Among the students who watched TV (data not shown), when asked if they ate or drank while they watched, 50% (n=91) responded affirmatively and the differences observed were significant ($p<0.05$), this was observed by Zaal et al. [13].

In terms of macronutrient intake (Table 3), it was observed a high protein intake of 85.8 g/day compared to the recommended daily intakes (1.48 g/kg/day versus 0.8 g/kg/day recommended) and consequently the caloric intake (21.2%) almost doubles the recommended value (10-15%). The caloric intake of lipids was 42.3% of the energy intake, a figure that is above the recommended value, so a lower intake of energy from carbohydrates was detected (43%), which represents only the 85% of the recommended daily intake. The caloric profile is therefore unbalanced with a high percentage of calories provided by proteins and lipids and a lower percentage contributed by carbohydrates. This coincides with other studies, and even in some studies it has been observed that women present worse eating habits than men [26,27] although other authors such as Fernández et al. [21] report that men had a lower diet quality. The energy provided by these macronutrients is obtained mainly from 3-4 meals, which are the ones that are mostly carried out by the students (Table 1). With regard to where they eat during the week, 95% claim to do it outside the home (University), feeding mostly on precooked foods, high protein foods rich in fats, potato chips, industrial pastries and sugary soft drinks (data not shown).

Regarding the quality of the fat (Table 3), it was observed that 18% comes from saturated fatty acids (SFA), a value that doubles the recommended value (<7%), 19% of monounsaturated (MUFA), the same was observed in other studies [24,26-30], and 8% of polyunsaturated fatty acids (PUFA). Which respect to PUFA, 88.9% of the student's present values within adequate limits, while 11.1% exceed them ($p<0.01$).

Cholesterol intake was 304.9 mg/d, slightly higher than recommended (<300 mg/day). This could be related to the elevation of blood lipids that in recent decades have been observed in Spanish adolescents [22,23].

The low intake of fiber (Table 3) could be associated with the low consumption of fruits and vegetables in the students, consumption that has a protective effect against cancer and at the cardiovascular level [24]. We did not observe significant differences between their consumption and BMI (data not shown).

Conclusion

Although the size of the sample may reduce the possibilities of

BMI	Energy intake (kcal/day)	Have breakfast every day			Number of meals		Intake reduction of food		
		N	F	S	3-4 comidas	5-6 comidas	N	F	S
Underweight 11.1% (n=18)	1250.87 ± 571.6	4(2.2%)	6(3.3%)	10(5.6%)	19(10.5%)	1(0.6%)	2(1.1%)	12(6.7%)	6(3.3%)
Normalweight 80% (n=146)	1736.6 ± 533.5	33 (18.3%)	36 (20%)	75 (42.7%)	120 (66.7%)	24 (13.3%)	53 (29.4%)	71 (39.4%)	20 (11.1%)
Overweight 8.9% (n=16)	2153.6 ± 663.7	5 (2.8%)	5 (2.8%)	6 (3.3%)	13 (7.3%)	3 (1.7%)	6 (3.3%)	10 (5.6%)	0
Total (n=180)	1719.7 ± 583.6	42 (23.3%)	47 (26.1%)	91 (50.6%)	152 (84.4%)	28 (15.6%)	61 (33.9%)	93 (51.7%)	26 (14.4%)
P * F*	0.000 12.321	0.563 0.576			0.090 2.443		0.014 4.411		

N: Never; **F**: Frequently; **S**: Always; *ANOVA

Table 1: BMI, energy intake, number of meals and reduction in food intake in students.

BMI	I spend the day without activity			I walk every day 30 minutes			Physical exercise daily			I see every day TV		
	N	F	S	N	F	S	N	F	S	N	F	S
Underweight	7(3.9%)	12(6.7%)	1(0.6%)	8(4.5%)	7(3.9%)	5 (2.8%)	12(6.7%)	6(3.4%)	2(1.1%)	10(5.6%)	9(5%)	1(0.6%)
Normalweight	76(42.2%)	52(28.9%)	16(8.9%)	51(28.5%)	56(31.3%)	37 (20.7%)	71(39.7%)	47(26.3%)	25(14%)	114(63.3%)	27(15%)	3(1.7%)
Overweight	9(5%)	6(3.3%)	1(0.6%)	6(3.4%)	7(3.9%)	2 (1.1%)	8(4.5%)	8(4.5%)	0	13(7.2%)	3(1.7%)	0
Total	92(51.1%)	70(38.9%)	18(10%)	65(36.3%)	70(39.1%)	45 (24.6%)	91(50.8%)	61(34.1%)	27(15.1%)	137(76.1%)	39(26.7%)	4(2.2%)
P*F	0.656 0.422			0.710 0.343			0.427 0.854			0.018 4.125		

N: Never; **F**: Frequently; **S**: Always; *ANOVA

Table 2: BMI and physical activity in students.

N=180	Media ± DE	IDR[14]
Energy (kcal)	1720.7 ± 546.4	2200
Proteins (%E)	21.2 ± 8.6	10-15%
Proteins (g)	85.8 ± 37.7	41
Fat (%E)	42.3 29.4	<35%
SFA (%E)	18.5 22.2	<7%
MUFA (%E)	19.0 9.4	13-18%
PUFA (%E)	8 ± 6.8	<10%
Carbohydrates (%E)	42.6 ± 25.3	>50%
Fiber (g/day)	18.52	>25
Fiber (%RDA)	74.1 ± 5.2	
PUFA/SFA	0.6 ± 0.84	>0,5
(PUFA+MUFA)/SFA	1.9 ± 1.0	>2
Cholesterol (mg/day)	304.9 ± 146.5	<300

RDA=Recommended Daily Intake; SFA=Satutared Fatty Acids; MUFA=Monoinsatutared Fatty Acids; PUFA=Poliinsaturated Fatty Acids

Table 3: Mediun energy intake, proteins, lipids, carbohydrates, colesterol and fiber, after 3 days recall.

generalizing the results obtained, we believe that it provides descriptive information, which could be useful from the point of view of preventive medicine. Our results coincide with that reported by other studies on the change in eating habits of young people, characterized by a high intake of saturated fats and proteins at the expense of a low consumption of cereals, fruits, vegetables and vegetables, and consequently a low intake of fiber.

Given that in addition the group studied were students from health sciences, we believe that it is essential an adequate nutritional training that can contribute to improve their own dietary habits, and arouse their sensitivity to the errors or nutritional deficits of patients who in the future be in their charge.

Is already known the increase in cardiovascular risk in the population of western countries, and even reaches young people and adolescents, due to the increase in overweight, obesity and sedentary lifestyle. We consider that the health professionals are a very suitable group to promote a nutritional education that helps to prevent inadequate behaviors and can contribute to better prevention of cardiovascular diseases and all those in which good dietary habits are clearly implied.

The data obtained from this study have allowed us to demonstrate to the students themselves their dietary errors and have contributed to increase their interest in clinical nutrition and healthy habits. It is also useful to promote teaching in Health Sciences at our University.

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