



Do the Castilian-Manchego University Students Follow a Mediterranean Diet?

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Abstract

Objective: To determine the adherence to the Mediterranean diet of a university population and to analyze various factors that could condition its nutritional quality.

Material and Methods: Distribution of the kidmed test to a sample of 50 university students. The kidmed index (0 to 10) indicated whether adherence to the Mediterranean diet was low (0 to 3), average (4 to 6), or high (7 to 10). Each respondent recorded sex, age, weight, size and province of origin.

Results: The sample was 33 males and 17 females aged between 18 and 25 years. 9.5% of university students had a low kidmed index, 62.1% intermediate and 28.4% high. Overweight university students had a significantly higher percentage of low adherences (15.5%) ($p < 0.05$) than those with a normal nutritional status (8.5%).

Conclusion: 71.6% of university students needed to improve their food pattern (medium-low adherence to the Mediterranean diet). Students with low adherence had a higher risk of being overweight. It would be desirable to develop nutritional education programmes in university curricula.

Keywords: Mediterranean Diet; Dietary Habits; Kidmed Index; University Population

Introduction

The traditional diet of the Mediterranean countries has been characterized by a high consumption of vegetables, fruits, nuts and cereals, especially olive oil; together with moderate consumption of fish, eggs and dairy products, preferably yoghurt or cheese, and reduced consumption of meat and animal fats [1]. The Mediterranean diet not only guarantees a supply of calories and nutrients in sufficient quantities and appropriate proportions but also contributes to the prevention of cardiovascular diseases, diabetes, cancer, degenerative diseases, etc. and, in general, to a higher life expectancy.

The modernization of society has entailed a series of sociological and/or cultural changes that inevitably affect dietary habits and preferences. Less time is spent on food

purchases and food processing, and in return processed foods are preferred, which generally lead to excessive consumption of animal foods, especially meat and meat products, and refined sugars, with the consequent increase of saturated fats and cholesterol in the diet.

This virtual deterioration of food patterns has led to fears of a gradual disappearance of the Mediterranean diet and would justify, to a large extent, the study of the quality of eating habits in the general population and, especially in those sectors most likely to be influenced, such as the youth population. In order to evaluate the degree of adherence to the Mediterranean diet, various indices have been prepared based on qualitative and/or quantitative aspects of the consumption of the different components {typical of the Mediterranean diet, but usually require a laborious process of information collected on food consumption. The quality

test of the Mediterranean diet or Kidmed index is currently available, which allows the degree of adherence to the Mediterranean diet to be determined quickly, and whose usefulness has been satisfactorily tested [2].

The objective of this paper is to determine the adherence to the Mediterranean diet of a university population (University of Castilla La Mancha), and to analyze various factors that could condition its nutritional quality.

Material and Methods

Adherence to the Mediterranean dietary pattern has been evaluated by applying the Kidmed Adhesion Test Serra-Majem L, et al. [3] to the Mediterranean Diet to a sample of 50 university students from different Faculties and Schools on the Albacete campus of the University of Castilla-La Mancha (Sciences, Nursing, Pharmacy and Medicine), in the first semester of the academic year 2019/2020. Each respondent also recorded sex, age, anthropometric variables (weight, size) and the province of origin. According to their origin, the

respondents were distributed in the following geographical areas: Centro (Castilla-La Mancha, Madrid, Castilla y León) and Sureste (Valencian Community, Murcia, Andalusia). It included all those university students from other countries, already resident in Spain or who were doing an Erasmus Erasmus curriculum (Table 1).

The Kidmed test consists of 16 questions that must be answered in the affirmative/negative (yes/no). The affirmative answers in the questions representing a positive aspect in relation to the Mediterranean diet (there are 12) add up to 1 point, and the affirmative answers in the questions representing a negative connotation in relation to the Mediterranean diet (there are 4) Remaining 1 point [4]. The total score obtained results in the Kidmed index, which is classified into three categories:

- From 7 to 10: Optimal Mediterranean diet (high adherence).
- From 4 to 6: need to improve the food pattern to adapt it to the Mediterranean model (medium adhesion).
- From 0 to 3: very low quality diet (low adherence).

Kidmed Questionnaire		
1	Breakfast a dairy (milk, yogurt, etc.)	+1
2	Breakfast a cereal or derivative (for example, bread)	+1
3	No breakfast	-1
4	Breakfast industrial pastries, biscuits or pastries	-1
5	I drink a natural fruit or juice every day	+1
6	I take a second piece of fruit every day	+1
7	I eat fresh vegetables (salads) or cooked regularly once a day	+1
8	I eat fresh or cooked vegetables on a regular basis more than once a day	+1
9	I take 2 yogurts and/or 40 gr of cheese a day	+1
10	I take fish at least 2-3 times a week	+1
11	I go once a week or more to an out-of-home food center (for example, burger place, pizza place, etc.) or order food to be brought home	-1
12	I like legumes (chickpeas, lentils, etc.) and take them 2-3 times a week	+1
13	I drink pasta or rice almost daily (5 or more days a week)	+1
14	At home olive oil is used	+1
15	I take natural nuts often at least 2-3 times a week	+1
16	I take candy, candy, ice cream several times a day	-1

Table 1: Item Adherence to the Mediterranean Diet Points.

The results are expressed as averages and percentages with their confidence intervals (95% CI). These percentages were compared to "student's t". The statistical analysis ("Student's t") was carried out using SPSS 17.0 software for Windows (Chicago, USA).

Results

The sample obtained consisted of 33 men (61.9%) and 17 women (38.1%). The ages of university students surveyed were between 18 and 25 years, with an average age

of 20.6 years (IC-95%: 20.4-20.8). The age distribution was as follows: 18-19 years (n = 25), 20-21 years (n = 12), 22-23 years (n = 9) and 24-25 years (n = 4).

Table 2 presents and compares the results of the kidmed test between the sexes. 9.5% of the total sample had a low kidmed index, 62.1% intermediate and 28.4% high; where the mean Kidmed index value is 6.17 (IC-95%:6.02-6.32).

Kidmed Test	Males (%)	Number of women (%)	Total (%)
Have a fruit or fruit juice every day	72.4	75.9	74.6
Eat fresh or cooked vegetables once a day	52.1	68.3	62.1
Eat fresh or cooked vegetables more than once a day	12.0		18.1
Take fish at least 2 or 3 times a week	49.8	56.9	54.2
Attend a burger shop once a week or more	33.2	13.9	21.2
Takes legumes more than once a week	78.3	64.0	69.5
Take pasta or rice almost daily (5 or more times a week)	47.0	22.7	31.9
Eat a cereal or derivative (bread, etc.)	78.8	86.7	83.1
Take nuts at least 2 or 3 times a week	33.2	24.1	27.5
They use olive oil at home to cook	72.5	73.8	73.2
He doesn't eat breakfast every day	19.8	15.0	16.8
Have a dairy (milk, yogurt, etc.)	92.2	91.8	91.9
Breakfast in industrial pastries	23.6	12.2	16.5
Take 2 yogurts and/or cheese (40 g) each day	53.9	43.9	47.7
Take sweets or treats several times a day	16.1	15.0	15.4
< or equal to 3 (low adhesion)	12.9	7.4	9.5
4-7 (intermediate adhesion)	60.8	62.9	62.1
> or equal to 8 (high adhesion)	26.3	29.7	28.4

Table 2: Quality test of the Mediterranean diet in university students by sex.

Although there were no significant differences between the mean values of the Kidmed index for both sexes (females: 6.3 and males: 6.0), the percentage of males with a low adherence to the Mediterranean diet was significantly higher (12.9%) than that of females (7.4%). There were also statistically significant differences ($p < 0.05$) between the two sexes. Men would go to a burger shop once or more a week, eat legumes more than once a week, eat pasta or rice almost daily, eat nuts at least 2 or 3 times a week, They had industrial pastries for breakfast and had 2 yoghurts and/or cheese every day more frequently than women; while women ate fresh or cooked vegetables once and/or more than once a day and ate cereals or derivatives (bread, toast, etc.) more frequently than men.

There were no statistically significant differences between the kidmed index in relation to age, university studies and geographical area of origin.

Discussion

The indices of the quality of the Mediterranean diet arose from the need to have tools to evaluate and, more specifically, to determine the degree of adherence of the population's food patterns to the diet; and, in fact, different indices have been developed and used based on qualitative and/or quantitative aspects of the consumption of the different components typical of the Mediterranean diet. Although its specificity has been questioned as the term 'Mediterranean diet' is relatively imprecise and, moreover, its conceptual laxity is increased in relation to its known variants; epidemiological studies, which are not experimental, have confirmed the importance of adherence to the Mediterranean diet in human health and its interrelation with certain lifestyles. The kidmed test, very easy to complete by the respondent and interpret by the respondent, Based on the above indices and/or principles underpinning the Mediterranean food pattern, it is possible to quickly determine the degree of adherence of a population

to the Mediterranean diet. The resulting Kidmed index is an instrument that, on the one hand, allows the immediate identification of the population with unhealthy eating habits; and, on the other hand, it has been found that a higher score guarantees a supply of nutrients in sufficient quantities and appropriate proportions, which would justify their use.

The selected sample reflected the epidemiological characteristics of the middle university of the Albacete campus. They were young people, between 18 and 25 years of age, from different geographical areas of the national territory.

When analyzing the responses of the different items, it is noted that only 28.4% of the young people surveyed reported having food habits compatible with the Mediterranean pattern (high adherence). As this is the first time that the kidmed index has been used in a population of these characteristics, in fact, it has been used almost exclusively in the child and adolescent population. There are no comparable previous data. The Spanish studies published in this regard show optimal adherence to the Mediterranean diet of 48.5% and 42.9% in the paediatric age and adolescence, respectively; although these figures are significantly lower in other Mediterranean countries. Considering that the university students, a few years ago they were teenagers, and saving the methodological differences, one could consider the existence of a progressive deterioration of the adherence to the Mediterranean diet that is already beginning to infer among teenagers. In general, it should be noted that the university students surveyed did not reach the consumption recommendations for most of the foods that form the basis of the Mediterranean food pyramid; that is, fruit (only 32.1% took a second piece daily), vegetables (barely 18.1% took a second daily ration), nuts (barely 27.5% took them during the week) and pasta or rice (barely 31.9% took them almost daily); and, in addition, the consumption of yogurt and/or cheese was also proportionately low. On the other hand, it should also be stressed that a relatively large percentage of these young people had industrial pastries (the 16.5 per cent of respondents) or drank sweets daily (15.4 per cent of respondents); and it should be noted that these foods are at the top of the nutritional pyramid and therefore their frequency of consumption should be sporadic. The Mediterranean diet, at the same time as a prototype healthy diet, represents a lifestyle limited to a climate framework and/or given geographical location; and, in this sense, the tendency of university students to attend hamburger restaurants (21.2% of those polled did it once a week or more) and/or the lack of regularity in breakfast (16.8% of those polled did not eat breakfast daily) largely denote a loss of the cultural heritage represented by the Mediterranean diet. Olive oil is an essential element of the Mediterranean culture that is invariably prevalent in the different ethnic

groups and/or Mediterranean countries of today and is largely responsible for the beneficial effects attributed to this dietary pattern [5].

71.6% of university students, without differences between the sexes, showed the need to improve their eating pattern as a consequence of the loss of traditional dietary habits of our geographical environment which, on the one hand, it would allow us to consider that in a significant proportion of university students there would be a certain risk of suffering some deficiency and/or nutritional imbalance and, on the other hand, it raises concerns about a virtual disappearance of the Mediterranean diet in the short and/or medium term. Significant differences have also been observed between the nutritional statuses of these young people in relation to the degree of adherence to the Mediterranean diet. I mean, those college kids who showed a worse nutritional quality and/or low adherence to the Mediterranean diet had a higher risk of being overweight, which corroborates the protective effect of a balanced diet and, in this particular case, the Mediterranean diet on overweight, as has been pointed out by various authors [2].

The results obtained show that the population in general, and more specifically university students, need nutritional education. This population group should be aware that the

Mediterranean diet, as a prototype of healthy eating, contributes to maintaining an optimal state of health and that, although it includes all foods, their frequency of consumption should follow the guidelines indicated in the nutritional pyramid [6]. Therefore, the dietary rules applicable to these university students would consist basically in increasing the daily consumption of fresh fruit, fresh and/or raw vegetables, pasta and/or rice, nuts, milk and derivatives, mainly yoghurt and/or cheese as well as vegetables and fish at least 2 or 3 times a week; in addition to encouraging the consumption of olive oil as the only culinary fat. On the other hand, occasional consumption of industrial pastries and sweets should be recommended; and the importance of a daily breakfast including cereals, dairy products and fruit should be insisted. Should warn that this study suffers from a series of methodological limitations, since variables such as sociodemographic characteristics, family socioeconomic status, level of parenteral and/or maternal studies, physical activity, sedentary habits (nap, television, computers, study hours, etc.) which define the lifestyle of the respondents and which could, to a certain extent, condition the degree of adherence to the Mediterranean diet. Education programmes should be designed with a view to ensuring that the general population, and young people in particular, are able to eat a healthy diet. To this end, the public authorities should promote dietary advice in primary care programmes and develop nutrition education programmes in the formal

education. Moreover, given the far-reaching relationship between diet and health status, consideration could be given to the possibility of including dietary and human nutrition subjects in university curriculum [7].

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