EATING HABITS OF CROATIAN HEALTHCARE AND NON-HEALTHCARE UNIVERSITY STUDENTS

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Abstract

Eating habits affect people’s health and potentially carry bad consequences, such as some carcinogenic (e.g. colon cancer) and chronic diseases, and students are considered a risk group of bad nutrition habits. By entering the student age, the life and nutritional habits of the young people change and therefore the aim of this research is to determine the dietary habits of university students, their attitudes towards poor nutrition and the consequences of the same, and their interest in further education on the proper diet.

The study on nutrition habits of students was conducted through a web-based questionnaire (Google forms) from January 08 to September 19, 2018 with 800 students participating from all Croatian universities. There was 32.4% of healthcare students and 67.6% of non-healthcare students (86.1% of female students and 13.9% of male students). The questionnaire contains 27 questions pertaining to the: place of residence, age, sex, nutrition habits and attitudes towards the consequences of poor diet. The results obtained were analyzed using computerized program for descriptive statistics.

The eating habits of healthcare students do not differ from those of non-healthcare students. The results show that students have a positive input of fruits and vegetables, they regularly eat breakfast, consume carbonated drinks in small quantities, but have a lack of intake of: fish, olive oil and whole grains. In practice, students consume fast food at a very high percentage (50%). Also, students’ knowledge of the consequences of unhealthy eating is high, 86% of them think that poor nutrition can be the cause of some diseases. More than half of the students, 63.5% of them, think that there should be some kind of education about the right diet regardless of the university orientation.

More work should be done on disseminating awareness and educating young people in order to reduce the rate of carcinogenic and chronic diseases that unhealthy diets bring.

Key words: Eating habits, University students, Attitudes, Knowledge, Carcinogenic diseases.

1. Introduction

Hippocrates once said, “Your food is your medicine, and your medication is your food”, and no matter how hard it is, no other statement can replace it. His teaching has shown that digestion has a very important role in maintaining the health of the organism. This statement will remain contemporary and will be a message that no pharmaceutical company can surpass. The importance of optimal nutrition was recognized by the ancient Egyptians who, already in 1500 BC, prescribed certain foods for their patients and changed their diet. Likewise, they believed that all infections were the result of an internal balance disorder, so the diet drew the importance it deserved. Today the situation is different. The nature we want to change, the food with which we want to overcome what the nature gives, the ability to synthesize new molecules, foods, and promising drugs, all push us into an unknown future.

In the last 20 years, the daily lifestyle has changed considerably. There was an increase in working hours, more and more women were employed, more and more divorces and lack of free time occurred. So people have less and less time to cook quality and full meals, and often choose the seemingly easiest option, which is fast food. Fast food can be defined as ready-to-eat food,
ready for consumption in self-service or restaurants where “off-the-shelf food” is purchased, with short-term waiting [1]. Various studies have been conducted in which the correlation between fast food consumption and age of respondents can be noticed. With the growing age of respondents, the frequency of fast food consumption is reduced, and most of the consumption is declining between 40 and 45 years [2].

Students often rank in a high-risk group for fast food consumption because of the fact that the University obligations take away a lot of time, so it’s easy to consume food that is inexpensive, easily accessible and quick to prepare. A study was exploring the motives for fast food purchases by American and Spanish students and it was found that culture and gender influence the perception of fast food; however, the taste and the favorable price were the main reasons for fast food purchases by most respondents [3]. By leaving to college, students change their roles, and often the environment, as a large number of students have to move to college for the duration of their studies. Students become independent, but they also change their life habits, among other things, as well as eating habits. There are many factors that affect student eating habits: eating habits at home, economic status, the environment in which they come, the amount of free time and time to eat, the availability of quality foods. Eating habits come from their parent’s home and from what the students used to consume at home, but that does not guarantee that someone is going to eat healthy and watch for their body. Furthermore, not everyone is in the same economic capacity and can not afford all the healthier meals that are more expensive compared to some fast-food baking. Students at that age do not attach great importance to the diet and do not realize that during this period the acquired habits will probably not change and how much it can cost later in life. This is also confirmed by researches that show that students often skip breakfast, eat less than 3 times a day, a large number never consumes fish, and the intake of fruits and vegetables is inadequate. What can be noticed is that even the knowledge of the importance of healthy eating often does not result in proper food intake because these people even skip the meals more often [4].

Food habits are gained in childhood, in a family home, but what is worrying is that these habits usually deteriorate when the college time comes. Fast food consumption and cheap meal solutions are starting to create new habits, but also a very good foundation for the development of some chronic diseases, and therefore the aim was to investigate the dietary habits of the student population and their awareness of what poor nutrition really is. It was also the goal to explore their interest in education on this topic.

2. Materials and Methods

The survey was conducted through a web service (Google forms) in the period from January 8, 2018 to September 19, 2018. The survey was anonymous, the data did not appear individually, and the participation was voluntary.

2.1 Materials

There were altogether 800 subjects, out of which 259 (32.4%) were healthcare students and 541 (67.6%) non-healthcare students. The study involved 689 (86.1%) female students and 111 (13.9%) male students.

2.2 Methods

The survey was conducted in the form of a questionnaire. The questionnaire consists of 27 questions, of which 3 have the option of multiple choice. Questions relate to place of residence, some questions pertaining to dietary habits of students (how many times they eat red meat, white meat, fish, what do they eat when they are at university etc.) and some questions pertain to the attitudes and information of the students about the diseases which can be caused by poor nutrition. The results obtained were analysed using descriptive statistics.

3. Results and Discussion

Most of the participants were female. The age of research participants ranged from 18 to 45 years; the largest number of participants was in the range of 22 to 25 years and most of the participants attend non-healthcare oriented universities and the largest number of students have their place of residence in Central Croatia (Table 1).

<table>
<thead>
<tr>
<th>Sociodemographic data</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>689</td>
<td>86.1</td>
</tr>
<tr>
<td>Male</td>
<td>111</td>
<td>13.9</td>
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<tr>
<td><strong>Age</strong></td>
<td></td>
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<tr>
<td>18 - 21</td>
<td>312</td>
<td>39</td>
</tr>
<tr>
<td>22 - 25</td>
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<td>26 - 35</td>
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<tr>
<td>35+</td>
<td>9</td>
<td>1.1</td>
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<tr>
<td><strong>Faculty orientation</strong></td>
<td></td>
<td></td>
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<tr>
<td>Health orientation</td>
<td>259</td>
<td>32.4</td>
</tr>
<tr>
<td>Non health orientation</td>
<td>541</td>
<td>67.6</td>
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<tr>
<td><strong>Place of residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Croatia</td>
<td>393</td>
<td>49.1</td>
</tr>
<tr>
<td>Northwestern Croatia</td>
<td>151</td>
<td>18.9</td>
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<tr>
<td>East Croatia</td>
<td>85</td>
<td>10.6</td>
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<tr>
<td>Northern Adriatic and Lika</td>
<td>66</td>
<td>8.3</td>
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<tr>
<td>Central and Southern Adriatic</td>
<td>105</td>
<td>13.1</td>
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Five smaller meals are recommended per day, and in this study, students have shown that the majority of them (100 healthcare and 212 non-healthcare) eat 3 times a day (Figure 1).

Similarity is noted in the research conducted on nursing students in Osijek where it also shows that the largest number of students, 48.9% or 85, also eat 3 times a day [1].

Skipping meals is a big problem with students, as the meal they mostly skip is breakfast. Breakfast provides 20% of daily energy intake, so it is very important not to skip it [5]. Taking these results into account, it can be concluded that most students have breakfast at least 7 times a week, 111 of whom are health-oriented and 212 are non-health oriented (Figure 2).

This proves that the results of this research are different from those conducted in Osijek, where more than half of the students, 89 or 51.1%, do not regularly eat breakfast [6].

Students, regardless of orientation, have a similar pattern of breakfast and a very positive one, with the most used food groups being bread and substitutes with a representation of 552 students from both groups, followed by milk and dairy products with a representation of 474 students (Figure 3).

It may be noted that both groups of students have similar combinations of breakfasts, while the ideal breakfast should consist of integral cereals, fruits and dairy products [7].

By studying how many times a week do students consume fruit, most students in both groups declare that they consume it less than 3 times (294 of them), but it is a positive fact that 190 students are consuming fruit 3 times a week (Figure 4).

There is a research conducted in Osijek that backs up these results because it shows that the largest number of students, 46% or 100, consumes fruit 1-3 times a week [1].

What can be noticed is that healthcare students are more likely to consume vegetables than fruits, and this is evidenced by the fact that 119 healthcare students reported eating vegetables 5 times a week, while only 33 students consume it less than 3 times a week (Figure 5).

The same situation is shown by the research conducted on nursing students in Osijek, who in the largest percentage, 27.6% or 48, eat vegetables every day, while the smallest percentage shows that they eat it 1 - 3 times a month [6]. For non-healthcare students the results are similar because the highest percentage shows that students eat vegetables 5 and more times a week, and this is stated by 214 students (Figure 5). According to all data obtained, it can be concluded...
that the vegetables here are consumed to a much greater extent compared to Saudi Arabia where the smallest number of participants, 7.9% eat vegetables 4 or more times a week, while the average consumption is only several times a month [8].

As far as whole grains are concerned, the largest number of students from both groups usually consume them once a week, 287 of them in total, and ¼ of total students consume whole grains 3 times a week, while 158 students do not consume whole grains at all (Figure 6).

Whole grains are considered to be the base for proper nutrition as they are an outstanding source of energy and are also the main source of dietary fibre, and some research show their role in protecting the mucous membrane from chemical carcinogens [9].

Consumption of milk and dairy products is most commonly conducted 5 times and more per week with students of both orientations, with a total representation of 369 students, and the lowest percentage shows that milk and dairy products are being consumed 3 times a week (Figure 7).

These results are satisfactory as milk and dairy products appear to be a major source of calcium that is considered to be directly associated with reducing the risk of some chronic diseases such as colon cancer [10].

Both groups of students consume red meat 5 times or more monthly, 289 of them (Figure 8).

This number does not pose any risk if every meal containing red meat is regulated and does not exceed the recommended amount and is not excessive. Research has shown a bad influence of red meat on the human digestive system, especially if the meat is fried or smoked [11].

Also, eating white meat is also in the highest percentage of 5 and more times a month with a total representation of 481 students (Figure 9).

One study shows that people eat white meat up to 5 - 6 times a week at the highest percentage, while another survey shows the highest percentage is consuming meat 1 - 3 times a week [1, 6].

What research studies agree is that meat consumption is high, while fish consumption is inadequate, as evidenced by the results suggesting that the largest fish intake on a monthly base is less than 3 times with a total representation of 462 students (Figure 10).

It is recommended to consume fish at least twice a week, but this is not the case here. This result is confirmed by other studies that account for the highest percentage of fish consumption 1 - 2 times per month with a percentage of 52%, while 25% of students stated that they never consume fish [6].
Furthermore, the use of olive oil was questionable (Figure 11).

It has great energy value, contains fat that makes food more digestible and affects cholesterol reduction because it is known that foods rich in cholesterol become less harmful if they are seasoned with olive oil [12]. As can be seen in Figure 11, the largest number of participants never use olive oil, totalling 316 students.

The student population is often associated with increased intake of sweets and industrial-produced snacks, so 296 total participants say they consume them less than 3 times a week but what is worrying is that as many as 230 participants consume snacks 5 times or more per week (Figure 12).

Although dietary habits of students around the world differ, most commonly they have the same unhealthy food intake, so Bulgarian students have been shown as a population that consumes the most candy, cake, pie and snacks. That study was conducted in: Germany, Poland, Bulgaria and Denmark, and Polish and Danish students were presented as populations with much better nutrition habits [13].

Drinking of carbonated beverages was questioned, and almost half of the respondents in both groups responded that they do not consume them at all, them 374 (Figure 13).

It can be concluded that this study had a more positive outcome than the one conducted in Spain, which shows that 58.8% of the general student population consumes carbonated drinks every day [14].

Salt is a mineral that we use to improve the taste and to preserve different types of food [15]. According to some research, Croatians use about three times more salt than the recommended amount, even 12 - 16 grams of salt [16]. In this study, it was the aim to find out how many people need to add salt in meals in which the salt was already added, and most participants answered that their meal was salty enough, 543 of them in both groups (Figure 14).

However, the number of participants who need to put salt in already salty meals is 257 (Figure 14), which is not a negligible number. One study shows that every seventh student consumes food that is too salty [13]. On the other hand, another study conducted in Croatia shows that most respondents, 62.6% or 279, add salt only if the meal is not salty enough, and 45 respondents add salt almost always before testing [17].

The situation was similar with spices, it can be assumed that 180 healthcare students who said they did not add salt, also said they did not add spices. In the case of non-healthcare students it is similar to the situation, as 366 say they do not add spices (Figure 15).
However, 254 students from both groups remain, who subsequently add spices to the previously spiced food. One study shows that the largest percentage of students likes to eat moderately spiced food, 48.9% or 218, and they like to eat it several times a month, 173 or 38.8% [17].

Answers given for defecation (Figure 16) is very closely related to bowel movement.

It is a very positive answer to the question about the regularity of defecation, to which 708 students from both groups are responsible for being regular.

Given that a large number of students move to the place of their studying, dietary habits are largely altered, which is evidenced by the fact that the largest number of students in both groups, 397 mostly consume fast food (Figure 17).

During a study on Croatian students, it was concluded that the largest number of respondents, 42% of them consume fast food a few times a month [18], while the US students have the highest percentage of consumption 1 - 3 times a week [19].

Given that 132 participants stated that they were consuming food pre-cooked at home, it was important to find out what's in these meals (Figure 18).

In both groups the most representative food group was meat with a representation of 653 students, followed by vegetables (567 students), fruit (217 students) and the last was cake in 70 students of both groups.

Interesting were answers of students towards nutrition (Figure 19).

Questionnaire results show that most students consider poor nutrition to cause some diseases such as colon cancer, 690 of both groups.

In this study, one of the goals was to identify students’ awareness of the potential dangers of unhealthy food (Figure 20).

In total of 167 students believe that they are at risk of getting colon cancer because of their diet, which is by no means a small percentage.

Following, students were asked how they would change their diet so that they would not be at risk of developing a disease such as colon cancer (Figure 21).

Majority of students would eat more fruits and vegetables, 185 healthcare students and 402 non-healthcare students, and then comes the change of the meal content, not skipping breakfast, changing the number of meals.

The problem lies in the fact that not all students have access to the necessary nutrition education (Figure 22).
As evidenced by the percentage of as many as 499 non-healthcare students do not have any type of lectures or something similar within the faculty, while 1/3 of the healthcare students corresponds to the existence of such types of lectures.

Most of the healthcare students, 196 of them, consider that such a type of education should exist at each faculty, regardless of their orientation, and there are also 312 non-healthcare students that agree with them (Figure 23).

This is a total of 508 students interested in this education. Research shows that healthcare educated students have more positive attitudes about this type of education and have a higher level of dietary knowledge [20]. This can be attributed to the fact that non-healthcare students usually have no such education available, which is disappointing given the growing problem of illnesses that can be caused by poor nutrition.

4. Conclusions

- By studying the results of this research, it can be concluded that the responses of healthcare students do not differ much from those of non-healthcare orientation. They are very similar in some responses and the same in others.

- It is praiseworthy that the vegetables in both groups are consumed to a maximum of 5 or more times a week, as is the case with both milk and dairy products. Unfortunately, both groups have inadequate input of whole grains because a large percentage never consumes cereals, and the most common percentage of consumption is only once a week.

- Red meat is consumed most frequently 5 times a month, but it does not pose a great risk if it is not excessive. Unfortunately, the intake of fish is rather small. It is recommended to consume fish at least twice a week, but students of both groups usually eat fish less than 3 times a month, and it is also a disappointing situation with olive oil that is in the highest percentage never used.

- 1/3 of students eat sweets more than 5 times a week, which is too large intake, as well as the fact that more than half of the participants consume carbonated beverages, some of which are more than 3 times a week.

- Also, 1/3 of the participants are adding salt and spices to the food they get (which is pre-salted and spiced), and half of the respondents eat fast food.

- Students have some good sides regarding nutrition, but unfortunately their diet makes them a risk group for some chronic diseases such as colon cancer because they have a big intake of saturated fats, processed sugars and they consume vitamins and minerals as well as nutritional fiber in a very small doses. Their awareness of what a bad diet can cause is quite high, but unfortunately all remains knowledgeable, and practice is inadequate.

- It can be concluded that the prejudice that a student’s diet is poor is partially confirmed because students have a fairly positive input of vegetables, slightly less positive regarding fruits, but have inadequate intake of fish and a high intake of red meat, snacks and candy.

- As far as interest is concerned with further education, non-healthcare students tend to be less interested in colon cancer education, which can be attributed to the fact that it is not in their domain, while the interest in healthcare students is very high. Likewise, this may be attributed to the fact that the majority of non-healthcare students do not have any kind of lectures within the faculties that would educate them about diseases and the importance of healthy eating.

Figure 21. Display of answers: What would you change in your diet so you would not be at risk of getting a disease such as colon cancer?

Figure 22. Display of answers: Is there a way to inform yourselves about bad nutrition and its effects on the health that is outside of your study program on your University?

Figure 23. Display of answers: Do you think that this type of education should exist on every University no matter what the orientation is?
5. References


