

DIETARY HABITS AND HEALTH-RELATED BEHAVIORS AMONG MEDICAL DENTISTRY STUDENTS - A CROSS-SECTIONAL STUDY

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Abstract

The aim of the study is to identify dietary habits and other health-related behaviors among dentistry students enrolled in first year of study in a medical university. **Material and methods:** a number of 81 students (74.1% female) aged $M = 19.29 \pm 0.84$, ranged 18-23 years old were included in the research. The majority of the students reside in urban areas (77.8%, $N = 63$). Socio-demographic, medical, dietary and health-related data were registered. Statistical analysis was done using SPSS v.20. **Results:** 21% of students usually walk to reach their school. They usually sleep 6.34 ± 1.39 hours. 55.5% of students go to sleep between 12 pm and 1 am. 33.33% reported that they used diets in order to reduce their BMI. More than half of students (58%) denied smoking and $\frac{1}{4}$ denied drinking alcohol. 66.7% of students had a normal BMI. More than 85.2% don't have regular meals. A positive correlation was found between egg consumption and water intake ($r=.304$, $p=.006$) and number of fruits eaten per day ($r=.304$, $p=.006$). More concretely, the more students eat eggs, the more they drink water and eat fruits. Also, there is a negative correlation between the number of fruits students eat per day and number of fast-food meals per week ($r=-.249$, $p=.025$). In other words, the more fruits students consume, the less fast-food they eat. **Conclusion:** It is important for dentistry students to make themselves aware about effective dietary habits during their academic years in order to adjust their nutritional behavior and improve their quality of life.

Keywords: dentistry students, health-related behaviors, dietary habits

INTRODUCTION

The particularities and responsibilities of students during their academic life were identified as being responsible for their physical and psychological quality of life. A high number of hours spent sitting on a chair, the use of computer, changes in academic schedule, the difficulty in eating healthy food or having regular meals, the lack of physical activity and the care for the body weight were found to influence the health level of students, compared to the general population.

Some studies pointed out the importance of family environment for health-related behaviors, including dietary habits. Students living with their family during academic life were found to consume more healthy food and cooked meals compared to students who were living away from their families. Data are more different when students change country or also culture [1-3].

An increased prevalence of dyslipidemia, obesity and cardiovascular disease was identified due to unhealthy

diets, a sedentary life and poor quality of food among medical students [4]. Leaving homes (decreasing the number of healthy meals), economic restraints and the freedom to choose food (usually fast-food) increase the practice of bad dietary habits [5,6]. Some studies suggest that the dietary habits established during academic years, shape the future student's health path by turning into

MATERIAL AND METHODS

The cross-sectional study was conducted between October-December 2017, and includes 81 first year dentistry students in a Romanian medical university. The students voluntarily participated to the study. After being informed about the purpose of the study and agreed to take part in the research, participants were assured about the confidentiality of their data. The questionnaires were delivered by the researchers and students had to complete and return the papers the same day. Students were informed that they could withdraw from the research anytime they liked, with no consequences.

A 100 questionnaires were delivered to students. 95 of them were returned to the researchers. Finally, 81 documents were considered for the study. The exclusion criteria were: documents were not fully completed or papers were returned after December, 30.

A self-administrated questionnaire was delivered to the students. The questionnaire consists of three parts: the first one gathered socio-demographic data like: age, gender, environment, religion and medical data: the existence of a chronic

RESULTS

Descriptive analysis

Socio-demographic data

Eighty-one students enrolled in dentistry faculty, first year, were included in

accepted behaviors [7,8].

The aims of the present study are: a) to identify some dietary habits among dentistry students in a medical university from Romania, b) to evaluate the self-declared behaviors influencing health-status (smoking, physical activity etc.) and c) to point gender differences.

disease, medical treatment, the body-mass index and sleep-related data. The second part contained questions regarding physical activity, transportation, lifestyle habits (smoking, drinking) and eating related information (breakfast, snacks, lunch, and dinner, eating during the night, usual hours to eat). The third part of the questionnaire focused on dietary and nutrition data and the type of food that students prefer to consume (meat products, milky products, fish, eggs, fruits, vegetables, sweet products and water/tea/juices/coffee).

The body mass index (BMI) was calculated using WHO data and the categories were: a BMI < 18.5 kg/m² was categorized as underweight, 18.5–24.9 kg/m² as the normal range, 25.0–29.9 kg/m² as pre-obese, 30–34.9 kg/m² as obese class I, 35.0–39.9 kg/m² as obese class II and ≥ 40 kg/m² as obese Class III. [9].

The statistical analysis was done using SPSS version 20. Mean and standard deviation and percentage were used for descriptive analysis. Comparative analysis was performed using Student t-test and ANOVA to compare mean eating habits across socio-demographic variables registered.

the research. The response rate was 95% and 81% of questionnaires were included in the research.

Students were aged $M = 19.29 \pm 0.84$, ranged 18-23 years old. The majority of

respondents were female (74.1%; N = 60). The majority of the students live in urban areas (77.8%, N = 63). Regarding religion, almost ¾ declared that they were Christian-orthodox (90.1%, N = 73).

Transportation

Regarding the distance from home to school, participants reported an M = 5.22 ± 3.82 km and M = 20.06 ± 8.13 minutes spent to reach the faculty.

Students were asked to point which way of transportation they usually use to

reach faculty courses. The results showed that they prefer using the bus (65.4/66.3%), car (24.7%), walking (21%) and a small proportion use the bicycle to reach school (1.2%).

BMI and medical data

Only 7 students (8.6%) declared that they have health problems (gastritis, hypothyroidism, anemia or asthma) and 5 of them sustained that they are under treatment.

Weight and height data were collected for all participants. BMI results are presented in Table 1:

Table 1
Categories of weight and *Body Mass Index* per gender

Gender	Weight and BMI		
male	Weight		73.19 ± 13.45
	BMI		22.44 ± 3.11
	Category	underweight	1 (4.8%)
		normal	15 (71.4%)
		pre-obese	5 (23.8%)
obese		0	
female	Weight		56.03 ± 8.06
	BMI		20.45 ± 2.87
	Category	underweight	16 (26.7%)
		normal	39 (65%)
		pre-obese	5 (8.3)
obese		0	
total sample	Weight		60.48 ± 12.26
	BMI		20.96 ± 3.04
	Category	underweight	17 (21%)
		normal	54 (67.7%)
		pre-obese	10 (12.3%)
obese		0	

Students were also asked if they are content about their weight: 54.3% declared that they are content (58.3% of female and 42.9 % of male) and 45.7% admitted that they are not content about their weight (41.7% of female and 57.1 % of male).

The results of oneway ANOVA showed that there are no significant differences between participants on the hour they wake up/go to bed, hours of sleeping, the number of main meals/breakfasts/lunches/dinners per week, number of snacks, number of fruits they eat per day, how many times they eat meat/eggs/fast-food per week, water intake or number of hours spent practicing sports according to their BMI.

For the variables where we have three or more independent (unrelated) groups (temperament, burnout), we used the One-way analysis of variance (ANOVA) in order to establish if there are any statistically significant differences between the means of these groups.

Diets

33.33% of students reported that following diets in order to reduce their BMI: 35% of female subjects and 28.6% of males declared that they were in a diet over the years, in order to reduce their weight. Regarding religious fast, 38.3% of subjects

declared that they keeping it, 41.7% of female students and 28.6% of male students sustained that they are respecting religious fasts, so they adjust their food to the imposed restrictions.

Sleep-related data

The number of sleeping hours is $M = 6.34 \pm 1.39$ and more than 1/3 of them were trying to have their nap after lunch (37%). Students were asked about the time they usually go to bed. 27.1% of them go to sleep between 10-12 pm, 55.5% go to bed between 12 pm and 1 am and 17.4% after this hour. Regarding the usual time they wake up, 27.1% mentioned that they wake up between 5-7 am, 33.3% between 7-8 am and 39.6% between 8-9.30 am.

Consumption of drinks, alcohol or tobacco

More than half of students denied smoking and approximately ¼ of them denied drinking alcohol and carbonated beverages. For students who were smoking, the number of cigarettes is $M = 8.43 \pm 6.98$ per day. Almost 1/5 of them drink tea or carbonated beverages and 42% of students declared that they drink coffee daily. More than half of the students drink alcohol occasionally. The frequency of their answers is presented in *Table 2*.

Table 2.

The frequency of answers regarding drinking and smoking

	daily	weekly	monthly	occasionally	not at all
drinking tea	19.8%	34.6%	3.7%	35.8%	4.9%
drinking coffee	42%	18.5%	1.2%	21%	17.3%
drinking carbonated beverages	19.8%	29.6%	1.2%	28.4%	21%
drinking alcohol	2.5%	11.1%	3.7%	58%	24.7%
smoking cigarettes	24.7%	6.2%	0	11.1%	58%

Physical activity data

A small part of respondents are practicing sport daily (9.9%). One third of students find time for physical activity weekly. Among the favorite activities students mentioned: jogging (34.6%), walking (12.3%), going to the gym (11.1%), playing tennis (6.2%), riding a bike (6.2) and swimming (3.7%). Some other sports mentioned were football, or playing basketball. The average time for practicing their favorite sport is $M = 3.20 \pm 2.55$ hours per week.

Water Consumption

The majority of students drink less than 2 liters of water per day ($M = 1.64 \pm 0.90$). 7.4% of respondents appreciate that they consume less than 1 l/day, for 56.7% of them the water intake is between 1-1.5 l/day and 35.7% consume at least 2 litres of water

per day. More than half of students (54.3%) drink water during their classes.

Fast-food

More than $\frac{3}{4}$ of respondents eat fast food (85.2%) with an $M = 1.88 \pm 1.5$ times per week. Amongst their favorite fast-foods, students mentioned: pizza (54.8%), hamburgers (12.3%), shaorma (8.2%), and fries (6.8%).

Eating habits

Because the student's schedule changes over the course of the academic year, this research aimed to identify the eating habits among dentistry students. The majority of students have at least two daily meals, but not regularly, lunch being the most important meals of the day. Almost all students declared that they eat snacks during the day and over 40% were looking for food during the night. Eating habits data are detailed in *Table 3*

Table 3.

Eating habits among medical dentistry students - *Nutritional data*

Characteristics	M ± st. dev. or %
Frequency of daily meals	
1 meal	7 (8.6%)
2 meals	49 (60.5%)
3 meals	24 (29.6%)
4 meals	1 (1.2%)
Regular meals	
yes	12 (14.8%)
no	69 (85.2%)
Daily breakfast	24 (29.6%)
Daily lunches	50 (61.7%)
Daily dinners	49 (60.5%)
The most important meal	
breakfast	20 (24.7%)
lunch	47 (58.0%)
dinner	14 (17.3%)
Serving snacks	76 (93.8%)
Eating during the night	33 (40.7%)

Students were asked to self-evaluate the consumption of fruits, vegetables, cereals, dairy products, meat and, eggs. Data are presented in *Table 4*.

Table 4.

Data regarding the consumption of fruits, vegetables, cereals, dairy products, sweets, meat and eggs.

	(N, %) (M ± st dev)
Fruits	
Daily	24 (29.6)
twice per week	18 (22.2)
3-4 times per week	35 (43.2)
no consumption	4 (4.9)
Cereals	
Daily	39 (48.1)
twice per week	16 (19.8)
3-4 times per week	22 (27.2)
no consumption	4 (4.9)
Milky products	
Daily	29 (35.8)
twice per week	13 (16)
3-4 times per week	33 (40.7)
no consumption	6 (7.4)
Vegetables daily	
yes	41 (50.6)
no	40 (49.4)
Eating sweets daily	
yes	53 (65.4)
no	28 (36.6)
Meat meals	4.46 ± 2.24
Eggs meals	2.91 ± 3.29

Correlational analysis

Pearson correlations revealed the following significant associations:

-a negative correlation between the number of main meals a student has during the week and the hours elapsed from waking up to having breakfast ($r=-.280$, $p=.042$), meaning that the more main meals a student has, the sooner he/she eats after getting up.

-a negative correlation between the number of breakfasts a student has during

the week and the hours elapsed from waking up to having breakfast ($r=-.544$, $p<.001$) and smoking ($r=-.543$, $p=.001$), meaning that the more they eat breakfast, the more they eat it sooner after getting up and the less they smoke.

-a negative correlation between the number of breakfasts a student has during the week and the number of time they eat fast-food during the week ($r=-.543$, $p=.001$). More specifically, students who have

breakfast constantly are less prone to eat fast-food.

-a positive correlation between the number of fruits students eat per day and fish consumption per month ($r=.276$, $p=.013$), water intake per day ($r=.256$, $p=.021$), how many times a day they drink water ($r=.421$, $p<.001$), and how many hours they spend practicing sport ($r=.364$, $p=.002$). Also, there is a negative correlation between the number of fruits students eat per day and smoking ($r=-.522$, $p=.002$) and fast-food ($r=-.249$, $p=.025$). In other words, the more fruits students eat a day, the more they eat fruits, the more they drink water, the more they exercise and the less they smoke and eat fast-food.

-a positive correlation between egg consumption and water intake ($r=.304$, $p=.006$) and number of fruits eaten per day ($r=.304$, $p=.006$). More concretely, the more students eat eggs, the more they drink water and eat fruits.

-a positive correlation between fast-food intake and the number of snacks ($r=.360$, $p=.001$) and cigarettes ($r=.495$, $p=.004$). More concretely, the more students eat fast-food, the more they tend to snack and smoke. Also, there is a negative correlation between fast-food consumption and fruit ($r=-.249$, $p=.025$) and water consumption ($r=-.222$, $p=.047$). More specifically, students who have a habit of eating fast-food eat less fruits and drink less water.

-a positive correlation between the number of snacks and cigarettes ($r=.377$, $p=.034$), meaning that the more students smoke, the more they snack.

Spearman correlations showed a number of statistically significant associations:

- a positive association between dairy consumption and fruit intake ($r=.240$, $p=.031$) and smoking ($r=.295$, $p=.007$). More specifically, students who have a habit of eating dairy products also have a habit of

eating fruits and smoking cigarettes.

-a positive association between drinking tea and fruit consumption ($r=.234$, $p=.037$), meaning that the more students drink tea, the more they eat fruits.

- a negative association between intake of carbonated drinks and fruit consumption ($r=-.302$, $p=.006$). More specifically, students who have a habit of drinking carbonated beverages also eat less fruits. Also, there is a positive correlation between intake of carbonated drinks and smoking ($r=.295$, $p=.007$) and alcoholic drinks ($r=.277$, $p=.012$).

DISCUSSIONS

Eating snacks throughout the day is a habit amongst dentistry students, our study showing that almost all dentistry students consume them. This unhealthy habit could have bad consequences on physical health, and could increase the rate of obesity and create dental problems. In addition, almost half of students consume between 1-1.5 liters of water per day, and dehydration could impact their health and academic performance - cognitive function [10].

Physical activity is important during this period of life, assuring a good quality of physical and psychological life. Our study pointed that almost 10% of students are practicing sport daily. Male students are involved in more hours of physical activity than their female counterparts. Some other studies also pointed out that there are gender differences, illustrating that males practice more sport than women. Physical activity is important for women, many studies found correlation between female's physical activity and osteoporosis. A study by Colares et al [11] identified that men practice more sports compared to women and reported rates are higher than the results of the present study. The weekly

practice of sport among students doing Health Science related degrees barely reached 60% among men and 35% among women in Colares's study.

Male students seemed to be less content about their weight. This results is congruent with other researches [12,13] and this could be another source of distress for medical students, in general, apart from stress related to academic tasks [14,15]. Women are more careful regarding the quantity and quality of food. Our results proved that women are more content about their body weight and they did not exceed diets or restrictions, compared to men, as other studies pointed [16,17]. In western countries the ideal body is the thin one. A study of MacNeil et al [18] pointed out that women tended to underestimate the size of

their body

The strong points of the study. This research present the dietary habits among dentistry students in Romania and no other study has focused on this life-aspect of students from dentistry. *The limitation of the study.* This study has some limitations. First, the small number of students mean that the results cannot be generalized for all dental students. Secondly, the research presents results specific for freshman students. A larger sample of students could provide a more representative sample of the health behaviors of dental students over the academic years. The third limitation is due to the fact that the number of male students was smaller compared to women so no comparative analysis could be provided for this research.

CONCLUSION

It is important for students to be aware about effective dietary habits during their academic years to influence their future quality of life. Further research is required to assess the impact a student's diet has and how this shapes their future relationship with food

References

1. Lupi S, Bagordo F, Stefanati A, Grassi T, Piccinni L, Bergamini M., Donno, A.D. Assessment of lifestyle and eating habits among undergraduate students in northern Italy. *Annali dell'Istituto superiore di sanita*, 2015, 51(2): 154-61.
2. Al-Rethaiaa AS., Fahmy AEA., Al-Shwaiyat N.M. Obesity and eating habits among college students in Saudi Arabia: a cross sectional study. *Nutrition journal*, 2010, 9(1):39.
3. Socolov S, Munteanu C, Alwan S, Soponaru C, Iorga M. Socio-Demographic Characteristics, Educational Motivation and Geo-Cultural Comfortability Related to the Process of Adaptation of Freshman International Students in a Romanian University. *Medical-Surgical Journal*, 2017, 121(4):787-93.
4. Yahia N, Achkar A, Abdallah A, Rizk S. Eating habits and obesity among Lebanese university students. *Nutrition journal*, 2008. 7(1): 32.
5. Papadaki A, Hondros G., Scott J.A., Kapsokefalou, M. Eating habits of university students living at, or away from home in Greece. *Appetite*, 2007, 49(1):169-76.
6. Pan Y.L, Dixon Z, Himburg S, Huffman, F. Asian student's change their eating patterns after living in the United States. *Journal of the Academy of Nutrition and Dietetics*, 1999, 99(1):54-57
7. Steptoe A. Wardle J. Cui W. Bellisle F. Zotti A.M. Baranyai R. Sanderman R. Trends in smoking, diet, physical exercise, and attitudes toward health in European University students from 13 countries, 1990–2000. *Prev. Med.* 2002, 35, 97–104.
8. Von Bothmer M.I, Fridlund B. Gender differences in health habits and in motivation for a healthy lifestyle among Swedish University students. *Nurs. Health Sci.* 2005, 7:107–18.
9. <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle/body-mass-index-bmi>

10. Ekpenyong, CE. Akpan, I.A.M. High prevalence and associated risk factors of dehydration among college students: implications for health and academic performance. *International Journal of Community Medicine and Public Health*, 2017, 4(4), 1043-55.
11. Colares, V; Franca C; Gonzalez, E. Health-related behavior in a sample of Brazilian college students: Sex differences. *Saúde Públ.* 2009, 25:521–8.
12. Neighbors LA., Sobal J. Prevalence and magnitude of body weight and shape dissatisfaction among university students. *Eating behaviors*, 2007, 8(4):429-39.
13. Mukai T., Crago M, Shisslak, CM. Eating attitudes and weight preoccupation among female high school students in Japan. *Journal of Child Psychology and Psychiatry*, 1994, 35(4):677-88.
14. Iorga M, Muraru D, Soponaru C, Petrariu, F.D. Factors Influencing The Level Of Depression Among Freshman Nursing Students. *Medical-Surgical Journal*, 2017, 121(4):779-86
15. Zugun-Eloae C, Iorga M, Gavrilesco I. M, Florea SG, Chelaru A. Motivation, stress and satisfaction among medical students. *Medical-Surgical Journal*, 2016, 120(3):688-93.
16. Connor-Greene P.A. Gender differences in body weight perception and weight-loss strategies of college students. *Women & Health*, 1988, 14(2):27-42.
17. Rozin P, Bauer R, Catanese D. Food and life, pleasure and worry, among American college students: Gender differences and regional similarities. *Journal of personality and social psychology*, 2003, 85(1):132
18. MacNeill LP, Best LA. Perceived current and ideal body size in female undergraduates. *Eating behaviors*, 2015, 18:71-5.