

ASSESSMENT OF AWARENESS ABOUT PROPER NUTRITION AMONG STUDENTS OF THE BURDENKO VORONEZH STATE MEDICAL UNIVERSITY

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Proper eating habits, as a key factor in maintaining good health, should be trained in the university and college students. This study aimed to assess the awareness of students of different faculties of the Burdenko Voronezh State Medical University about healthy nutrition. It involved 197 young people studying at the general medicine, pediatric, and preventive medicine faculties. The survey included questions concerning the frequency of meals, eating habits, and the role of vitamins and trace elements. According to the results, most students know much about proteins and carbohydrates, but their knowledge about fats, vitamins, and trace elements is less extensive. A significant portion of students admit inadequate meal planning and frequent snacking between main meals. About half of the participants prefer healthy snacks, while the rest choose less benign options. The awareness of how much water to consume should also be improved. Most students realize the link between poor nutrition and the risk of developing chronic diseases such as obesity, diabetes, and disorders of the cardiovascular system. The interfaculty differences revealed emphasize the importance of raising students' awareness of proper nutrition, focusing on the practical aspects of rational selection of food and its importance for maintaining good health and preventing diseases.

Keywords: proper nutrition, students, medical university, survey, nutrition knowledge, eating habits, student health

Author contribution: Komissarova OV — selection and analysis of the literature, analysis and generalization of the results, article authoring and formatting; Khatuaev RO — online survey preparation, processing of the results of the study, participation in article authoring.

Compliance with ethical standards: the study was consistent with the principles of biomedical ethics. The survey was anonymous, which ensured confidentiality of the information provided. Each participant was informed about the objectives and methods of the study and gave a prior informed consent.

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ОЦЕНКА ЗНАНИЙ О ПРАВИЛЬНОМ ПИТАНИИ СТУДЕНТОВ РАЗНЫХ ФАКУЛЬТЕТОВ ВОРОНЕЖСКОГО МЕДИЦИНСКОГО УНИВЕРСИТЕТА ИМЕНИ Н. Н. БУРДЕНКО

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У студенческой молодежи необходимо формировать правильные пищевые привычки — это ключевой фактор поддержания здоровья. Целью настоящей работы было оценить осведомленность студентов разных факультетов Воронежского государственного медицинского университета имени Н. Н. Бурденко о здоровом питании. В исследовании приняли участие 197 студентов лечебного, педиатрического и медико-профилактического факультетов. Использованная для проведения опроса анкета включала в себя вопросы, касающиеся частоты приема пищи, пищевых привычек, а также осведомленности о роли витаминов и микроэлементов. Результаты показали, что большинство студентов демонстрируют высокий уровень знаний о белках и углеводах, однако их знания о жирах, витаминах и микроэлементах менее обширны. Значительная часть студентов признает недостаточное планирование питания и частые перекусы между основными приемами пищи. Около половины студентов предпочитают здоровые перекусы, тогда как остальные выбирают менее полезные варианты. Знания о достаточном потреблении воды также нуждаются в улучшении. Большинство студентов осознают связь между неправильным питанием и риском развития хронических заболеваний, таких как ожирение, диабет и сердечно-сосудистые заболевания. Выявленные различия между факультетами подчеркивают важность повышения осведомленности обучающихся о правильном питании, акцентируя внимание на практических аспектах рационального питания и его значении для поддержания здоровья и профилактики заболеваний.

Ключевые слова: правильное питание, студенты, медицинский университет, анкетирование, знания о питании, пищевые привычки, здоровье студентов

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Соблюдение этических стандартов: исследование соответствовало принципам биомедицинской этики. Анкетирование было анонимным, что обеспечивало конфиденциальность предоставленной информации. Каждый участник был проинформирован о целях и методах исследования и дал информированное согласие на участие до начала опроса.

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Among students, unbalanced nutrition and deflection from the proper dietary patterns mainly stem from the insufficient knowledge about the functional, metabolic, and hygienic aspects of the action of nutrients in the body [1]. Educational institutions pay insufficient attention to catering. Consequently, the youth's food preferences and diets often fail to meet the requirements, so the actual nutritional status of students is suboptimal, which negatively affects their health and studies [2, 3]. The analysis of their eating habits revealed significant dietary deviations, including insufficient or excessive

consumption of proteins, carbohydrates, fats, vitamins, and minerals [4]. This leads to alimentary-dependent diseases, such as body weight deficiency or excess, dissonant physique and functional disorders, and disrupted operation of the gastrointestinal tract [5–8]. The effective ways of countering these trends involve optimization of the respective aspects of education: early disease prevention, health-saving activities, and popularization of the proper nutritional patterns and healthy lifestyle [9]. Awareness of how well students know the principles of healthy eating, rational dietary structure and patterns, allows identification of the gaps

in their knowledge and thus enables development of the effective health improvement programs for them [10].

Given the intense rhythm of students' lives, proper nutrition plays a key role in maintaining their health and well-being [11]. Food, in general, affects all aspects of a person's existence, including physical and mental prowess, and overall well-being. Realization of the importance of a balanced diet is especially important for students, since they experience significant academic and social loads [12].

Proper nutrition is a vital factor ensuring optimal functioning of the body [13]. Students, due to lack of time and frequently occurring stressful situations, often fail to properly organize their food intake [14]. Consequently, they can opt for ready-to-eat or fast-to-cook products that are not necessarily healthy, which has a negative effect on their health. Raising the students' awareness of the principles of proper nutrition can help improve their physical and mental condition, and up the level of their performance in general [15–20].

This study aimed to assess the eating habits, awareness of the various sides of nutrition in the context of life, and some aspects of eating behavior of students of the Burdenko Voronezh State Medical University (VSMU).

METHODS

The study revolved around a survey of 197 2nd year students of the general medicine, pediatric, and preventive medicine faculties of VSMU. The mean age of the participants was 19.6 ± 1.5 years. The survey took place at the beginning of the academic year, three weeks after the start of classes.

A special questionnaire was developed to assess the knowledge of students about nutrition; it consisted of 20 questions covering the main aspects thereof, including the frequency of meals, the role of macro- and micronutrients, snacking habits, and water consumption.

The questionnaire was divided into several sections. The first section requested the participants' demographic data, such as age, gender, and faculty. The second section sought to uncover the frequency of meals and the students' ability to take them on a regular basis (breakfast, lunch, and dinner). The third section contained questions revealing the participants' knowledge about proteins, fats, and carbohydrates, as well as their roles in the body, and the main sources thereof. The fourth section revolved around vitamins and trace elements, their importance for health, and where they can be found. The fifth section dealt with snacking habits, snack preferences, and the effect of snacking on overall health. The sixth section was about water consumption and understanding the importance of hydration for the body.

The questionnaire was designed to reveal not only the basic knowledge of students about nutrition, but also their food-related habits. The questions were of a yes/no and open-ended types. The participants had to complete the survey within two weeks. They filled out the questionnaires anonymously, which helped to get honest and frank answers. All questionnaires were collected and processed for subsequent statistical analysis.

We used the methods of descriptive statistics to analyze the data. The results of the survey were processed with the help of StatTech v.2.8.8 (Stattech; Russia); the results of the processing were grouped by faculty and analyzed with the aim to identify common trends and differences in the nutrition-related knowledge. We calculated means, standard deviations, and percentages. Analysis of variance (ANOVA) allowed establishing the significant differences

in the eating habits and the level of knowledge about nutrition between students of different faculties. The differences were considered significant at $p < 0.05$.

RESULTS

The analysis of the results of survey of VSMU's students revealed a number of interesting trends and differences in the knowledge about nutrition possessed and eating habits practiced peculiar to different faculties. The Figure below gives the faculty-wise distribution of students.

Most students of the Faculty of General Medicine take food 2–3 times a day. Seventy-five percent of the respondents regularly have breakfast, 80% have lunch, and only 60% have dinner. About half of the students mentioned frequent snacking between main meals, which indicates possible violations of the dietary patterns and poor nutrition planning. Over 70% of the students correctly named the main sources of protein, but only 50% understood their importance for tissue growth and repair, as well as the metabolic processes. Proper knowledge about fats was less common. Only 60% of the respondents knew about their role in metabolism and the importance of fats for the absorption of fat-soluble vitamins, and just 40% of the students could list good sources of fats. As for carbohydrates, 55% of the students knew about their importance for energy balance and could name the key sources of carbohydrates. Many students were unaware of the differences between simple and complex carbohydrates. Only 45% of the students correctly identified the sources and functions of essential vitamins. The knowledge about trace elements, such as iron and calcium, was also limited. About 50% of students prefer healthy snacks such as fruits and nuts, while the rest choose less healthy options (potato crisps, sweets, carbonated drinks). Only 40% of the respondents drink the recommended 1.5–2 L of water per day, and the remaining 60% consume less and prefer to quench their thirst with sweet fizzy drinks, which can negatively affect their hydration status and health in general. Most students understand that poor nutrition can lead to various diseases (obesity, diabetes, cardiovascular diseases), but only half of them knows of the relationship between nutrition and the risk of developing such.

The students of the Pediatric Faculty demonstrated a good level of knowledge. Most of them eat 2–3 meals a day: 80% regularly have breakfast, 85% — lunch, and 70% — dinner. About 45% of the students admitted that they often snack between main meals. Some 75% of this group of participants correctly pointed out the main sources of protein and showed clear understanding of its role in tissue growth and repair. The knowledge about fats turned out to be less extensive: 65% of the students knew about their role in metabolism and how important they are for the absorption of fat-soluble vitamins, but only 45% could name good sources of fats. About 60% of the students were aware of the importance of carbohydrates for energy metabolism and could name the main sources of carbohydrates. The awareness of the differences between simple and complex carbohydrates was limited. About 50% of the students could correctly identify the sources and functions of essential vitamins. The knowledge about the importance of trace elements could be improved, though. About 55% of the participants prefer healthy snacks, while the rest opt for less benign options. Only 45% of the respondents drink the recommended 1.5–2 L of water per day, the rest consume much less. Most students understand that poor nutrition can cause various diseases, but only 55% are aware of the role of nutrition in the development of these diseases.

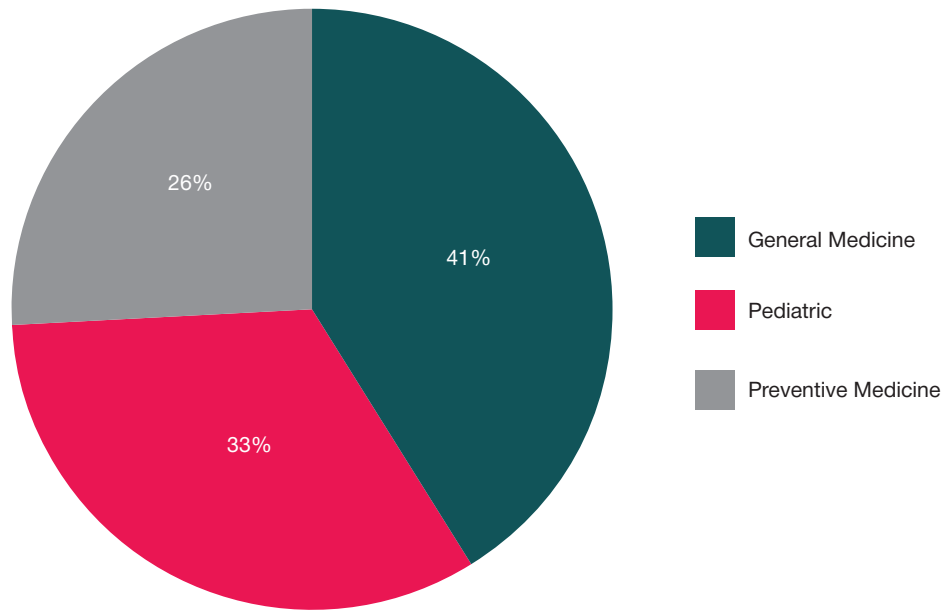


Fig. Faculty-wise distribution of students

Students of the Preventive Medicine Faculty demonstrated good knowledge about nutrition. Most of them eat three meals a day, with 85% regularly having breakfast, 90% — lunch, and 75% — dinner. About 40% of the students admitted frequent snacking between main meals. Some 80% of the participants from this group correctly identified the main sources of protein, and demonstrated understanding of the part they play in the body's vital activities. The knowledge about fats was also quite extensive: about 70% of the students were aware of the role of fats in metabolism and their importance for the absorption of fat-soluble vitamins, and some 60% named healthy sources of fats. This group possessed more information about carbohydrates than students from the other two faculties. About 65% of the respondents knew why carbohydrates are important for energy metabolism, and could name the main sources thereof; 63% of the students were aware of the differences between simple and complex carbohydrates. About 60% of the participants correctly indicated the sources and functions of essential vitamins. The level of knowledge about trace elements (iron, calcium, etc.) was quite high. About 60% of the students prefer healthy snacks, while the rest opt for less benign options. Some 50% consume the recommended 1.5–2 L of water per day, the rest drink less. Most students of the Preventive Medicine Faculty understand that improper nutrition can lead to various diseases, and 58% of them are aware of the relationship between food and the risk of developing these diseases.

To assess the significance of differences in eating habits and nutrition knowledge between the groups, we set up ANOVA. The number of meals per day was chosen as the key indicator, which enabled identification of the dietary trends peculiar to students of different faculties. The ANOVA revealed significant interfaculty differences in the number of meals taken per day, with $p < 0.05$.

The mean values of the number of meals per day were distributed among students of various faculties as follows: students of the Faculty of General Medicine had 2.92 meals a day, students of the Pediatric Faculty — 2.88 meals, and students of the Preventive Medicine Faculty — 2.83 meals. The F-statistic value was 4.12, and p -value was at 0.018, which indicates significant differences in the dietary patterns peculiar to the students of different faculties. These indicators show that

the differences in the number of meals per day between students of different faculties do exist and are statistically significant.

DISCUSSION

The data resulting from our research confirm the conclusions of studies that point to the insufficient awareness of nutrients among students. Similar works demonstrate that this cohort of population often has an unbalanced diet due to both lack of time and insufficient knowledge of the principles of healthy eating [2, 8, 13]. Scholars note that being poorly informed about the role of macro- and micronutrients such as proteins, fats, carbohydrates, vitamins, and minerals students make suboptimal food choices [1, 4, 15].

Despite having basic knowledge about nutrition, most students do not realize the importance of proper distribution of macronutrients and their impact on their health and academic activities. Similar results were reported in the studies that have also shown irregular meals and inclination to snack possibly leading to the development of alimentary-dependent diseases such as obesity, diabetes mellitus, and disorders of the gastrointestinal tract [5, 7].

A number of studies emphasize the importance of educational and preventive programs aimed at raising awareness of healthy eating among students [12, 18, 19]. Our results further confirm it and demonstrate the need to implement such programs in order to train stable healthy habits among students of medical universities.

Thus, the results of our study are consistent with the conclusions of other researchers, and point to the necessity of working out an integrated approach to the students' nutrition and health issues, including information campaigns and efforts to improve the nutrition culture and promote a healthy lifestyle.

CONCLUSIONS

The results of our study show that the VSMU's students possess the basic knowledge about proper nutrition but have gaps in understanding specific aspects thereof. It should be noted that interfaculty, students have different eating habits, which may be due to differences in academic workload, daily routine, and lifestyle. These differences emphasize the need to take into

account the specific needs and living conditions of students when developing nutrition recommendations and organizing the educational process. It is important to factor in the specifics of each faculty in the context of analysis of the resulting data,

and pay special attention to the most problematic aspects. Raising awareness about proper nutrition will help students lead healthier lifestyles, increase their productivity and improve their quality of life in the long run.

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