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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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ASSESSING THE KNOWLEDGE LEVEL AND ATTITUDE TOWARDS PROVIDING NUTRITION CARE OF MEDICAL STUDENTS IN THE AKMOLA REGION OF THE REPUBLIC OF KAZAKHSTAN

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Abstract.

The purpose of our study is to assess the level of knowledge of medical students on proper nutrition for various pathologies.

Senior medical students at the Faculty of Medicine at Ualikhanov University in Kokshetau were asked to complete an online survey of knowledge about nutrition and attitudes towards providing nutrition care. The survey included forty multiple-choice questions regarding nutrition knowledge for caring for patients with obesity, cardiovascular disease, diabetes, and hospitalized patients, using questions previously published for a similar study. Fifty-eight students were surveyed.

According to the survey results, nutrition knowledge was poor, with an average score of 42.15% on the knowledge test. However, attitudes towards providing nutrition care were positive, and students agreed strongly with the importance of providing nutrition guidance to their patients.

Considering the importance of nutrition in various pathologies, this study shows that it is necessary to further improve the methodology of teaching the discipline of dietetics in the Faculty of Medicine, and also to increase training hours.

Key words. Medical education, nutrition care, health, doctors, medical students, prevention.

Introduction.

Diet and nutrition play a role in the development and management of chronic diseases, including obesity, diabetes, heart disease, cancer, and many others. Physicians are responsible for prevention and treatment of these diseases, including educating and counseling patients on appropriate diets. Experts recommend increasing nutrition education for physicians to increase their knowledge and self-efficacy to provide nutrition care [1]. However, nutrition education remains only a small part of medical education, and medical interns report low levels of knowledge and limited self-efficacy to provide nutrition care to patients [2,3].

Many studies indicate that physicians at all levels lack the nutrition knowledge and skills to provide high-quality nutritional care [2-5]. A cross-sectional study among 220 medical students at Tabriz University of Medical Sciences, Iran sought to determine nutrition knowledge and attitudes of medical students in clinical training courses (externship and internship) [3]. The results showed that the majority of students in the two study periods have poor nutrition knowledge. The highest area of student knowledge was in general nutrition, the lowest was in fats. According to researchers from New Zealand and Australia, a study of medical students was conducted to determine issues such as: A general inductive approach was used to examine students' attitudes toward the role of nutrition in health, nutrition knowledge based on nutrition-related competence, and perceptions of the adequacy of education received in areas of nutrition [5]. Students believe that physicians are well positioned to provide a level of nutrition care, but poor translation of nutrition knowledge into the clinical context is a key limitation in nutrition education. Thus, nutrition education may not be sufficient to support the nutrition competency development of the undergraduate and graduate students participating in this study. Focusing on integrating these skills into the curriculum may be a priority [5,6]. Similar studies were conducted in Turkey, Canada and Arab countries [2,7,8]. A systemic review of the literature related to nutrition in medical education published between 2012 to 2018 included 24 studies conducted in the USA, Europe, the Middle East, Africa and Australasia and found that inclusion of nutrition as part of medical education is insufficient, regardless of country, setting or year of medical education [9].

The development of reliable measures of medical students' and residents' attitudes toward nutrition while caring for patients is necessary before the effects of educational interventions or clinical experiences can be assessed. This report describes the systematic development of a measure of nutritional attitudes in patient care. Changes in medical students' and residents' attitudes toward nutrition in patient care as a result of educational interventions or clinical experiences can now be systematically documented. Research could also test whether trainee attitudes influence the intensity of clinical preventive interventions with patients [10].

Nutrition education is underrepresented in the medical curriculum, prompting the European Society for Clinical Nutrition and Metabolism to launch the Nutrition Education in Medical Schools project in 2017. The purpose of this study was to describe the perspectives of various stakeholders in promoting nutrition education in medical schools [11,12].

Despite the central role of nutrition in healthy living, medical students are not supported in providing high-quality, effective nutrition care. Medical education can be improved through an institutional commitment to make nutrition education mandatory in medical training, the creation of nutrition competencies that will become the benchmark for nutrition knowledge and skills to be included in curricula, and support for funding innovative initiatives in curriculum areas. These initiatives will improve nutrition in medical training to support future doctors [9,13,14].

Globally, 71% of deaths are caused by noncommunicable diseases (NCDs), of which 77% of these deaths occur in low- and middle-income countries. Nutrition is an important factor in the occurrence, progression and treatment of NCDs. Promoting healthy eating habits among people by health professionals has been shown to reduce the incidence of NCDs [15]. We assessed the impact of nutrition education on medical students' self-reported willingness to provide nutrition care [16,17].

Materials and Methods.

Fifth- and seventh-year medical students at Ualikhanov University in Kokshetau, Kazakhstan were invited to complete an online survey of nutrition knowledge and attitudes towards providing nutrition care. These students are graduating students, and we decided to find out their level of knowledge of proper nutrition when they begin seeing patients and giving recommendations. The survey included forty multiple-choice questions related to nutrition knowledge for care of patients with obesity, cardiovascular disease, diabetes, and hospitalized patients, using questions previously published for a similar study [18]. Knowledge questions were modified slightly to reflect the standards with which the students were familiar and to include culturally appropriate foods. Forty-five additional questions surveyed the participants' attitudes towards providing nutrition care using the previously validated Nutrition in Patient care Survey (NIPS) [10]. Respondents indicated their agreement with the attitude statements on a five-point Likert scale (1=strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, 5 = strongly agree) and with the importance of providing nutrition care on a dichotomous scale (yes/no). Three additional questions gathered demographic data, including program year, sex, and country of origin. The survey was available in either Russian or English.

The medical education system differs in different countries. And there are major reforms in this area. So, in our country, medical education after the 5th year is a bachelor's level and the 7th year is an intern level. This means that a student after the 5th year does not have the right to independent practice but can work as a doctor's assistant. After the 7th year, interns have the right to independent practice. In this regard, we have chosen these students of the graduating courses.

Survey results were analyzed using SPSS v. 29.0.0 (IBM). Data was evaluated for all respondents, as well as fifth- and seventh-year respondents separately. Nutrition knowledge was scored to obtain the percent of correct responses and ranked very good (85-100%), good (65-84%), average (45-64%) or poor (<44%). Mean and standard deviations were calculated for knowledge scores and for responses to each of the attitude statements. The percent of respondents who agreed with the importance of providing nutrition care was calculated. Reponses from fifth year and seventh year students were compared using the Mann-Whitney U test for nonparametric measures and p values were calculated. A significance level of 0.05 was used for all tests.

Results.

One hundred one responses to the survey were received. Surveys with more than 10% of the questions unanswered were discarded, yielding 48 responses from fifth-year students and 10 responses from seventh-year students.

Table 1 shows the demographic characteristics of the respondents. Most respondents in both the fifth (77%) and seventh (100%) year completed the survey in Russian and were citizens of Kazakhstan (73% and 90% respectively).

The mean score of all respondents on the nutrition knowledge test was ranked poor with 16.86 ± 6.03 correct responses (42.15%). Nutrition knowledge was ranked as good for 10.34% of participants, average for 27.59% of participants, and poor for 62.07% of participants. No participants demonstrated very good

Table 1. *Demographic Characteristics.*

	Fifth Year Students (n=48)	**Seventh Year Students (n=10)**	**All Respondents (n=58)**
Response Language			
Russian	37	10	47
English	11	0	11
Sex			
Male	16	5	21
Female	25	4	29
Prefer not to say	7	1	8
Citizenship			
Kazakhstan	35	9	44
India	11	0	11
Pakistan	0	0	0
Other (Russia, Uzbekistan)	2	1	3

Table 2. *Significant Nutrition Knowledge Differences.*

	Fifth Year % Correct	**Seventh Year % Correct**	**Mann-Whitney U value p value**
Metabolism of 150g carbohydrate, 20g fat, and 10g protein yields approximately how many kilocalories?	43.8%	10%	154.0 .037*
Individuals who are at increased risk for insulin resistance include which of the following?	64.6%	20%	133.0 .010*
KJ is a 52-year-old man who is admitted to the hospital with chronic renal failure secondary to diabetic nephropathy. He complains of fatigue and weakness, and his blood pressure is elevated. Laboratory values indicated a serum potassium of4.0mEq/L. Which of the following diets is most appropriate for KJ at this time?	27.6%	0%	155 .026*

** $p \leq .05$*

Table 3. *Attitudes Towards Providing Nutrition Care.*

	All Respondents (n=58) Mean ± SD	**Fifth Year (n=48) Mean**	**Seventh Year (n=10) Mean**	**Mann-Whitney U value p value**
A change towards a healthier lifestyle is important in any stage of life.	4.71±0.53	4.71	4.70	228.5 p=.756
Nutrition assessment and counselling should be included in any routine appointment, just like diagnosis and treatment.	4.33±0.68	4.38	4.10	211.5 p=.506
I have an obligation to improve the health of my patients including discussing nutrition with them.	4.41±0.75	4.46	4.20	205.0 p=.418
Patients will rarely change their behavior if they do NOT have active symptoms of a disease.	3.86±0.87	3.81	4.10	201.0 p=.387
Patients need specific instructions about how to change their eating behavior.	4.29±0.68	4.35	4.00	193.0 p=.279
All physicians, regardless of specialty, should counsel high-risk patients about dietary change.	4.33±0.84	4.33	4.30	230.0 p=.820
Most obese patients want to lose weight but feel frustrated and confused about how to do it.	4.12±0.82	4.15	4.00	211.5 P=.529
Patients need good tasting alternatives in order to change their eating patterns.	3.88±0.90	3.94	3.60	180.5 p=.179
Nutrition counselling should be part of routine care by all physicians, regardless of specialty.	4.14±0.86	4.21	3.80	198.5 p=.357
Most physicians are NOT adequately trained to discuss nutrition issues with patients.	3.40±1.02	3.38	3.50	233.5 p=.887
Specific advice about how to make dietary changes could help some patients improve their eating habits.	4.24±0.68	4.31	3.90	166.0 p=.095
After receiving nutrition counselling, patients with poor eating patterns will make major changes in their eating behavior.	3.84±0.79	3.90	3.60	185.0 p=.227
Patients need ongoing counselling following my initial instruction to maintain behavior changes consistent with a healthier diet.	4.00±0.68	4.04	3.80	191.0 p=.249
Patients will only change their eating patterns if faced with a significant health problem (i.e. A heart attack.)	3.79±1.02	3.83	3.60	198.0 p=.362
Most patients will try to change their lifestyle if I advise them to do so.	3.46±0.78	3.44	3.60	216.5 p=.601
Physicians can have an effect on a patient's dietary behavior if they take the time to discuss the problem.	4.07±0.67	4.10	3.90	200.5 p=.366
Patient motivation is essential to achieving dietary change.	4.29±0.70	4.33	4.10	195.0 p=.305
My patient education efforts will be effective in increasing patients' compliance with nutrition recommendations.	3.96±0.92	4.00	3.80	207.0 p=.466
Nutrition counselling is NOT an effective use of my time.	2.79±1.14	2.73	3.10	201.0 p=.401
Individual physicians can have LITTLE impact on a patient's ability to lose weight.	3.76±0.96	3.77	3.70	235.0 p=.914
It is NOT worth my time to counsel patients with poor dietary patterns about nutrition.	2.33±1.16	2.19	3.00	162.0 p=.084
For most patients, health education does LITTLE to promote adherence to a healthy lifestyle.	3.14±1.19	3.15	3.10	230.5 p=.840
Preventive health care is BORING.	2.17±1.14	2.06	2.70	166.0 p=.101
Patients are NOT motivated to change unless they are sick.	3.41±1.14	3.35	3.70	202.0 p=.417
After receiving nutrition counselling, patients with poor eating patterns will make moderate changes in their eating behavior.	3.76±0.84	3.77	3.70	218.5 p=.632

nutrition knowledge. Fifth year students scored significantly better on the knowledge test (fifth year 17.64 ± 5.74 correct (44.10%); seventh year 13.10 ± 6.26 correct (32.75%); U=137.0, p=.033, r=0.27). The difference between fifth- and seventh-year students on individual questions was significant for the three questions shown in Table 2.

Attitude towards providing care was generally positive (see Table 3). Overall, respondents agreed with positive statements (mean ratings > 3) and disagreed with negative statements (mean ratings <3). Respondents agreed most strongly with "A change towards a healthier lifestyle is important in any stage of life" (4.71 ± 0.53), and "I have an obligation to improve the health of my patients including discussing nutrition with them." (4.41 ± 0.75). Respondents disagreed most strongly with "Preventive health care is BORING." (2.17 ± 1.14) and "It is NOT worth my time to counsel patients with poor dietary patterns about

Table 4. *Importance of Providing Nutrition Care.*

It is important that I: (indicate yes or no)	**All Respondents % "yes"**	**Fifth Year % "yes"**	**Seventh Year % "yes"**	**Mann-Whitney U value p value**
Assess each patient's weight status in accordance with the national guidelines (NIH) on the identification, evaluation and treatment of overweight and obesity in adults.	89.7%	95.8%	60.0%	154.0 p<.001*
Refer patients with diet-related problems to registered dietitians or other qualified nutrition staff.	86.2%	91.7%	60.0%	164.0 p=.009*
Evaluate patients' alcohol intake as part of their overall nutrition status.	84.5%	85.4%	80%	227.0 p=.670
Assess each patient's stage of change prior to initiating dietary intervention.	86.2%	89.6%	70.0%	193.0 p=.105
Assess dietary sodium, potassium, and calcium intake especially among patients for high risk of hypertension, osteoporosis, and stroke.	93.1%	95.8%	80.0%	202.0 p=.075
Refer diabetic patients for detailed dietary counselling.	87.9%	91.7%	70.0%	188.0 p=.058
Advocate diet and activity balance to promote weight control.	84.5%	89.6%	60.0%	169.0 p=.020*
Assess my patient's ability to read a food label.	77.6%	83.3%	50.0%	160.00 p=.023*
Advocate a diet for weight control.	79.3%	83.3%	60.0%	184.00 p=.100
Assist pediatric patients to establish healthy eating habits early to prevent risk for chronic diseases.	91.4%	95.8%	70.0%	178.00 p=.009*
Address the importance of diet whenever I care for a patient.	94.8%	95.8%	90.0%	226.00 p=.453
Assess each patient's intake of vitamin, mineral, and dietary supplements.	91.4%	95.8%	70.0%	178.00 p=.009*
Counsel patients regarding their use of supplements and emphasize when they are contraindicated.	91.4%	93.8%	80.0%	207.00 p=.162
Whenever possible recommend dietary changes prior to initiating drug therapy.	91.4%	93.8%	80.0%	207.00 p=.162
Assess each patient's fat, fiber, and fruit and vegetable intake as a preventive strategy.	91.4%	95.8%	70.0%	178.00 p=.009*
Encourage patients to ask diet-related questions and refer them for additional assistance when warranted.	87.9%	91.7%	70.0%	188.00 p=.058
Identify risk factors in patients by assessing diet and energy balance.	93.1%	95.8%	80.0%	202.00 p=.075
Request that patients bring a food record or perform another diet assessment measure when they come in for routine visits.	84.5%	83.3%	90.0%	224.00 p=.600
Perform at least some level of nutrition assessment with every patient.	91.4%	93.8%	80.0%	207.00 p=.162
Follow the National Cholesterol Education Program guidelines for prevention and treatment of high blood cholesterol, including advocating the Step I or Step II diet.	89.7%	91.7%	80.0%	212.00 p=.275

** $p \leq .05$*

nutrition." (2.33 ±1.16). Fifth year students appeared to have a more positive attitude towards providing nutrition care than seventh year students, however this trend was not significant.

Agreement with the importance of providing nutrition care ranged from 77.6% for "assess my patient's ability to read a food label" to 94.8% for "address the importance of diet whenever I care for a patient" (see Table 4). Fifth-year students were significantly more likely to agree with seven of the statements including: assessing weight for identification of overweight or obesity (U=154.0, p<.001); referring patients with problems to dietitians or nutrition staff (U=164.0, p=.009); advocating diet and activity balance (U=169.0, p=.020); assessing ability to read a food label (U=160.0, p=.023); assisting pediatric patients to establish healthy habits (U=178.0, p=.009); assessing intake of vitamins, minerals or supplements (U=178.0, p=.009); and assessing fat, fiber, fruit and vegetable intake (U=178.0, p=.009).

Discussion.

Like other published research, medical students in our study had a positive attitude towards providing nutrition care for their

patients and viewed it as important to their patient's health. However, their nutrition knowledge was lacking with only 10 percent displaying good knowledge, 28 percent displaying average knowledge and the rest displaying poor knowledge. Students who were in their fifth year of the program had higher knowledge scores, more positive attitudes and saw nutrition care as more important than students in their seventh year which may reflect increasing frustration due to inadequate education.

Nutrition education interventions for medical students have been shown to have a positive impact [15,18]. A scoping review of the literature found 23 published studies evaluating outcomes including nutrition knowledge, participants' dietary and lifestyle habits, attitudes towards providing nutrition care and self-efficacy [19]. Improvement in nutrition knowledge was seen in 18 of 21, improvement in attitudes about nutrition was seen in four of 11, increased self-efficacy was seen in 11 of 13 studies, and seven interventions resulted in improved nutrition and lifestyle habits of the participants. The need for a stronger nutrition curriculum within medical education has been recognized for decades [13,20], however recognition alone has not resulted in substantial improvements. A recent call for increased nutrition education for medical students emphasized its importance to address rising rates of nutrition- and lifestyle-related disease and [21].

Kazakhstan, a country of approximately 19,600,000 people in central Asia which is currently experiencing a nutrition transition from a traditional to a Westernized diet. Empty-calorie snack foods, including soda, chips, and candy, are readily available in markets alongside healthier options. This diet transition has been accompanied by a parallel rise in obesity and obesity related diseases. According to the Global Nutrition Report, the prevalence of overweight (defined as BMI $\geq$ 25 and <30) in Kazakhstan rose approximately 10% between 2000 and 2020, from 45% of the population to 55% of the population, while obesity (defined as BMI $\geq$ 30) rose approximately 9% (16% to 25% in females; 12% to 21% in males) [22]. The current obesity rates in Kazakhstan are higher than the regional averages of 10.3% for women and 7.5% for men. These rates contribute to higher disease prevalence, including diabetes, which is estimated to be 13% of women and 14.5% of men.

Ualikhanov University medical students currently receive approximately _30_ hours of nutrition training in the first five years of their training. Increasing their nutrition education is critical to improving their nutrition knowledge and self-efficacy to provide nutrition care to their patients.

Based on the results of such studies, we consider making proposals to increase the hours in the dietetics education programs to strengthen nutrition knowledge for the 5th year and introduce additional hours for the 7th year internship.

Conclusion.

Providing appropriate nutrition education to the public, and dietary counselling to individual patients is critical to manage this rising prevalence of overweight and obesity and slow the rise in obesity-related chronic diseases. This study evaluated the nutrition knowledge and attitudes of fifth- and seventh-year medical interns at a medical university in Kokshetau, Kazakhstan. Although students had positive attitudes towards providing nutrition care, and strongly agreed with its importance, nutrition knowledge was poor. Nutrition needs to be further integrated into medical education to better prepare students with the knowledge they need to provide nutrition care.

The most important thing to consider is that proper nutrition is the key to health. In this regard, we are thinking of explaining to students the importance of nutrition and diet for various nosologies, disease prevention considering diet, especially when they receive patients and prescribe treatment and recommendations.

It is necessary to consider the importance of prevention of non-communicable diseases with proper nutrition and students, as future doctors, should know the basics of dietetics upon graduation. When entering work, they would be able to recommend proper nutrition to their patients depending on the diagnosis. Our research showed that students need to increase their training hours in dietetics. Therefore, studying the experience of other countries and analysing the situation in our country, we came to the conclusion about the need to increase the hours of dietetics both in the bachelor's degree and in internship.

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Резюме

Оценка уровня знаний и отношения к оказанию помощи в области правильного питания студентов-медиков Акмолинской области Республики Казахстан

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Целью нашего исследования является оценка уровня знаний студентов-медиков о правильном питании при различных патологиях.

Студентам старших курсов медицинского факультета Университета Уалиханова в Кокшетау было предложено пройти онлайн-опрос на предмет знаний о питании и отношения к предоставлению диетологической помощи. Опрос включал сорок вопросов с несколькими вариантами ответов относительно знаний о питании для ухода за пациентами с ожирением, сердечно-сосудистыми заболеваниями, диабетом и госпитализированными пациентами, используя вопросы, ранее опубликованные для аналогичного исследования. Было опрошено 58 студентов.

Согласно результатам опроса, знания о питании были плохими, средний балл по тесту на знания составил 42,15%. Тем не менее, отношение к предоставлению диетологической помощи было положительным, и студенты полностью согласились с важностью предоставления рекомендаций по питанию своим пациентам.

Учитывая важность питания при различных патологиях, это исследование показывает, что необходимо дальнейшее совершенствование методологии преподавания дисциплины диетологии на медицинском факультете, а также увеличение учебных часов.

Ключевые слова: медицинское образование, лечебное питание, здоровье, врачи, студенты-медики, профилактика.

რეზიუმე

ცოდნის დონის და დამოკიდებულების შეფასება ყაზახეთის რესპუბლიკის აკმოლას რეგიონში სამედიცინო სტუდენტების სათანადო კვების სფეროში დახმარების გაწევის მიმართ.

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ჩვენი კვლევის მიზანია შევაფასოთ სამედიცინო სტუდენტების ცოდნის დონე სხვადასხვა პათოლოგიის სათანადო კვების შესახებ.

კოკშეტაუში, უალიხანოვის უნივერსიტეტის სამედიცინო კურსდამთავრებულებს სთხოვეს დაემთავრებინათ ონლაინ გამოკითხვა კვების ცოდნისა და კვების შესახებ დამოკიდებულების შესახებ. გამოკითხვა მოიცავდა ორმოც მრავალჯერადი არჩევან კითხვას კვების ცოდნის შესახებ სიმსუქნის, გულ-სისხლძარღვთა დაავადებების, დიაბეტის და ჰოსპიტალიზებული პაციენტების მოვლის შესახებ, მსგავსი კვლევისთვის ადრე გამოქვეყნებული კითხვების გამოყენებით. გამოიკითხა 58 სტუდენტი.

კვლევის შედეგების მიხედვით, კვების შესახებ ცოდნა ცუდი იყო, ცოდნის ტესტის საშუალო ქულა 42,15% იყო. თუმცა, კვების მოვლის მიმართ დამოკიდებულება დადებითი იყო და სტუდენტები მტკიცედ შეთანხმდნენ თავიანთი პაციენტებისთვის კვების რჩევების მიწოდების მნიშვნელობაზე.

სხვადასხვა პათოლოგიაში კვების მნიშვნელობის გათვალისწინებით, ეს კვლევა აჩვენებს, რომ აუცილებელიამედიცინისფაკულტეტზედიეტოლოგიის დისციპლინის სწავლების მეთოდოლოგიის შემდგომი დახვეწა და სასწავლო საათების გაზრდა.

საკვანძო სიტყვები: სამედიცინო განათლება, თერაპიული კვება, ჯანმრთელობა, ექიმები, სამედიცინო სტუდენტები, პრევენცია.