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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 ВИНТИ 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 ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებშიდან.

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. Корректур авторам не высылаются, 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 computer-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 საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ 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. რენტგენოგრაფიების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალებების შედეგების 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 ფხიხლებში 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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AN EVALUATION OF ANTIBIOTIC PRESCRIPTION PRACTICES: PERSPECTIVES OF VETERINARY TRAINEES AND PRACTICING VETERINARIANS

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Abstract.

Background: Antibiotic resistance is a major worldwide problem that has an impact on the well-being of humans as well as animals. Antibiotic resistance is caused by the misuse and excessive use of antibiotics. The key to reducing this issue lies in educating veterinary medical learners on the proper and accountable utilization of antibiotics for the care of animals.

Objective: Using awareness-raising and instruction as the foundation, this research of Indian veterinary learners can help resolve the issue of antibiotic resistance throughout the care of animals.

Methods: The questionnaire survey was taken between June and July 2022 and it was aimed at learners registered in veterinary medical studies at academic and research institutions in India. The study included 500 pupils overall. The purpose of the survey was to gather information about students' knowledge of antibiotics, including antibiotic resistance, as well as their feelings on the consequences of antibiotic resistance on the globe at large and their acquaintance with the one health ideology.

Results: According to this study's findings, 83.3 percent of respondents thought antibiotic resistance was a serious problem. 57.92 percent of respondents understood the issue's worldwide consequences and its one health ideology.

Conclusion: The study emphasizes the significance of expanding the veterinary educational program to include thorough instruction on prudent antibiotic usage and the concepts of one health.

Key words. Antibiotic resistance, veterinary, one health, animals caring, human well-being.

Introduction.

A major worldwide health problem is antimicrobial resistance (AMR). Globally increasing rates of morbidity and mortality from drug-resistant diseases in people are predicted, coupled with a significant financial cost in terms of lost productivity and medical expenses. One of the primary causes of AMR is antibiotic overuse, while other factors are known to contribute to its establishment and spread. One of the top five goals of the World Health Organization's (WHO) global action plan on antimicrobial resistance is to compile statistics on both antibiotic use and resistance [1]. More people are realizing how important it is to teach ethics to veterinary students. Veterinarians are seen as being "entangled in a web of moral duties and obligations that can and often do conflict" in the real world. 91% of 58 working veterinarians in the UK who participated in a recent

poll said they encountered at least one ethical conundrum per week. It is uncommon to teach veterinary ethics as a stand-alone topic, and there doesn't seem to be a consensus on the definition of ethics in veterinary education [2]. A recent research that mapped instructional activities revealed significant variations in how veterinary ethics is conceptualized, taught, and positioned within the curriculum. Consequently, veterinary ethics are often taught in relation to other topics included in veterinary education, including professionalism, legislation, history, and animal welfare science. It is well known that making the move from being a veterinary student to a practicing veterinarian may be difficult [3]. Veterinarian graduates are authorized to practice all aspects of veterinary medicine without further education in the majority of the world's nations. However, it is well recognized that many veterans do not feel completely prepared to perform independent work immediately upon graduation [4]. Antibiotics are essential in medicine, not for the prevention of infection-related consequences after surgery, caesarean sections, or chemotherapy, but for the treatment of infections. Antibiotic prescriptions are issued at record levels worldwide. In the UK's health system, primary care is where more than 81% of antibiotic prescriptions are written. The most frequent causes of antibiotic use, according to a new study using data from The Health Improvement Network (THIN) database, were respiratory and urinary tract infections [5]. Antibiotic resistance is attributed to self-medication with antibiotics (SMA). Inappropriate use of antibiotics, such as using them for self-medication, can result in side effects, morbidity, growing healthcare expenditures and the emergence of bacterial resistance [6]. AMR puts effective bacterial infection prevention and treatment at risk. It is anticipated that by 2050, the ongoing rise in antibiotic resistance will result in 10 million annual fatalities and a 2%–3.5% reduction in output. Antibiotic resistance is common, according to reports from institutions across the continent of Africa, despite the lack of national or regional resistance surveillance data [7]. Employability in the veterinary field is described as "a set of personal and professional capabilities that enable a veterinarian to obtain employment, make a meaningful contribution to the profession, and develop a career pathway that achieves success and satisfaction." Employability is defined here as more than just employment, even though landing one's first job is often the top priority for veterinary graduates. Early in a young veterinarian's career, the years after graduation and the shift from student to practicing veterinarian may be difficult and are sometimes referred to as the make or break period[8].

In the Emergency Department (ED), prompt delivery of the proper antibiotics has the potential to save lives. Antibiotics are not a benign intervention and using them excessively or inappropriately can have negative effects on patients and the community, such as adverse events, unsuccessful treatments and AMR. One in five hospitalized patients who got antibiotics experienced a serious antibiotic-related adverse drug reaction, they found [9]. AMR is a hazard to world health that is escalating. Antibiotic usage is higher in nations where AMR is prevalent. Two factors that contribute to the abuse of antibiotics and could speed the creation of resistant bacteria are self-medication and incorrect prescription [10].

The study [11] was to learn how postgraduate clinical specialty veterinary students felt about their training program in relation to the professional path they intended to pursue, their academic readiness and expectations, as well as any potential influencing factors. They predicted that people who expressed a preference for a career in private practice would have lower self-efficacy in the teaching and research fields. The study [12] was to find out how German veterinarians felt about using and to be aware of telemedicine. A full explanation of the breadth of applications for various digital processes was provided in the context of German veterinary medicine. The study [13] was to evaluate how Swedish small animal veterinarians interact with dog owners on canine dental hygiene. This was accomplished by examining whether motivational interviewing (MI) approaches were used by veterinarians who had no prior training or familiarity with the practice. The calls reflected a veterinary clinical setting. The study [14] presented the findings of a qualitative investigation that aimed to produce a thorough picture of how well-prepared veterinary students were for workplace clinical training (WCT) by employing insider viewpoints of important stakeholders. The study [15] looked at what makes job changes in veterinary practice successful. Independent semi structured interviews with pairs of new graduates and their employers in the veterinary field were done with a focus on the employees' success in landing their first job, their transition to becoming practicing veterinarians and their ability to stay in the field for a long time. To better understand how area veterinarians and pharmacists view inter professional collaboration and the role that community pharmacists play in providing for veterinary patients. In Ohio, cross-sectional questionnaires were distributed to community-based veterinarians and pharmacists. Surveys gathered demographic data and covered the following topics: expectations of pharmacists, roles that are thought to fall under their purview, attitudes toward collaboration and prior experiences with collaboration [16]. The study [17] looks at what veterinary students believe, assess whether a frame reflection assignment might increase students' openness to others who hold diverse views on animal welfare and looks at the connection between communicating responses, sex and their career area of specialization. The study [18] was to comprehend how Australian veterinarians and radiography specialists felt about developing uses of AI as well as what they were using it for. Three Australian veterinary professional groups sent an anonymous online poll to their members. The study [19] was to evaluate the fundamental ideas and practical applications

of zoological medicine, both of which have been debated and changed. They look at basic social expectations, educational and training needs, as well as how veterinary professionals view this area of veterinary practice.

Objective.

The study attempts to identify the underlying factors influencing the prescribing behaviors of veterinary professionals by investigating their attitudes and beliefs regarding the usage of antibiotics. In order to establish focused educational interventions to improve veterinary trainees' and practicing veterinarians' awareness of responsible antibiotic prescribing practices, it is envisaged that the study would identify particular knowledge gaps. Following is the remainder of the paper: The experimental methodology is detailed in part 2. Covered are the results and discussion in parts 3 and 4. Part 5 discusses the conclusion.

Materials and Methods.

This section explores the perspectives of practicing veterinarians and veterinary students in an evaluation of antibiotic prescription practices.

Design of the Study and Subject Base.

The survey was carried out in May and June. Four colleges were invited to participate in the investigation. The geographic diversity of the colleges and their placement in both more and less urbanized areas were important factors in the selection of the colleges for the study. They are veterinary medicine faculties, taking up the top four spots on the list of veterinary medicine faculties [20].

Instance Size.

In Poland, there are about 5200 students majoring in veterinary medicine. There were 3800 students from the four centers that were chosen that might take part in the study. The survey involved pupils from 467 different institutions. The sample included in the research was typical of Poland veterinary students. The highest error, with a 95% confidence level and a fraction size of 0.5, was given the sample size of 3% as well as the number of veterinary students.

The Survey and Information Gathering.

The original survey included inquiries regarding the use of drugs used in the farming of animals and veterinary care. The most recent information in sociology, veterinary medicine and antibiotic resistance that was accessible to the study's authors was used to modify the questionnaire. The questionnaire is divided into four sections: demographics, general data, awareness of current initiatives aimed at raising antibiotic awareness, comprehension of the spread of resistance and alternative therapies. The 41-question survey questionnaire took, on average, 30 minutes to complete. The Ministry of Health set epidemiological restrictions and as a result of the introduction of remote learning at institutions, the questionnaire was disseminated online.

Analytical Statistics.

Student understanding and chi-squared testing were used to determine the precise parameters influencing usage of antibiotics

and their prevalence of antibiotic resistance in relation to cross-tabulations. SPSS Statistics for IBM 27.0.1.0 was used to perform statistical calculations. A p-level of 0.05 was taken into consideration to be significant for analyses.

Results.

Study Subjects.

The study involved 467 veterinary medicine students from four academic institutions. Polish veterinary students' gender demographics revealed that women made the majority of respondents. The study population was varied and homogeneous in terms of provenance. Rural respondents made one in three respondents, while urban respondents made the majority. Table 1 displays the study group's chosen features.

Table 1. Study participants' sociodemographic details.

Characteristics		N (%)
Gender	Female	77.7%
	male	22.65
	other	2.5%
Year of study	I	17.7%
	II	21.2%
	III	20.3%
	IV	23.8%
	V	15.8%
Place of provenance	Non-farming village	20.4%
	A farming village	13.7%
	50,000 people live in a small town	23.5%
	large city with a population of above 200k	26.8%
	medium-sized city with between 50k to 200k inhabitants	20.5%
University location	Wrocław	26.7%
	Olsztyn	43.2%
	Warszawa	15.4%
	Lublin	18.7%
Do you have a pet?	Yes	92.2%
	No	9.2%
Professional interests in the context of future work as a veterinarian *	Livestock/farm animals	21.3%
	Companion animals	63.7%
	Pharmaceutical industry	8.2%
	Exotic animals	4.1%
	Scientific work/laboratory work	19.5%
	Do not know yet	17.5%
	Government institution	5.3%

25.3% of students had taken antibiotics between one and two years prior, yet more than one-third had done so recently. The majority of students used an antibiotic that was prescribed to them by a doctor or dentist, while 4% used medication that they borrowed from a family member or friend or that was left over from a previous round of treatment, 1% used an antibiotic for animals and 1% visited a drugstore and purchased an over-the-counter antibiotic. Table 2 shows the participants in the research who used antibiotic treatment.

Table 2. Participants in the research who used antibiotic treatment.

Questionnaire	n (%)	Outcomes
How knowledgeable are you about antibiotics?	0.5%	Very poor
	7.6%	Bad
	21.2%	Rather bad
	39.5%	Rather good
	23.5%	Good
	8.4%	Very good
	5.02%	Mean
	4.93–5.12	95% IC
	2.041	SD
Did you finish the entire antibiotic course?	94.6%	Yes
	6.5%	No
Where did you get the Antibiotics you used?	65.7%	My family doctor gave it to me on his recommendation.
	20.6%	It was given by a medical professional with another specialty.
	1%	I received it from a veterinarian.
	8.8%	My dentist gave it to me on prescription.
	1%	A nurse gave it to me on prescription.
	8%	I did not have a prescription when I bought it at the pharmacy.
	6%	I already had antibiotics at home from a prior procedure.
How recently did you last take an antibiotic?	11%	The antibiotics came from a friend or family member.
	36.1%	Within the last 12 months
	26.4%	1–2 years ago
	30.1%	More than two years ago
	9%	I do not remember

Effects of Educational Programs on Students' Perceptions of Using Antibiotics.

The overwhelming majority of respondents claimed that they became aware of the expanding issue of antibiotic resistance while they were studying. In this set of students, 73.2% thought their knowledge was rather acceptable or good and 26.1% thought it was rather inadequate or bad. Despite the majority of students in this group believed that they had sufficient knowledge, 20.6% of them felt they did not. The use of antibiotics without a prescription is seen in Figure 1. Table 3 displays the non-prescription use of antibiotics.

The majority of respondents from large cities, followed by those from medium-sized cities, small towns, villages with farms and villages without farms, stated that the university sessions had increased their understanding of the usage of antibiotics in individuals. Students in years I through III stated that the lessons did not increase their understanding of using antibiotics. The majority of respondents claimed that learning about the usage of animal antibiotics, shown in Table 4, was affected by their participation in classes. 78.4% of the students in this category gave their knowledge a positive and adequate rating, while 21.6% gave it a low rating.

Table 3. Antibacterial drug usage without a prescription.

Parameters	Agree	Rather Agree	Strongly Agree	Disagree	Strongly Disagree	Rather Disagree
Antibacterial drug usage without a prescription	17.3%	11.3%	30%	12.2%	16.7%	13.7%

Table 4. The occurrence of resistance to antibiotics.

Questionnaire	Knowledge of Antibiotics as Self-Reported by Respondents		
	1-Extremely Worst, 2-Worst, 3-Rather Worst n (%)	4- Slightly Good, 5- Good, 6- Exact Good n (%)	Total n (%)
Have you learned more about the usage of antibiotics in animals as a result of your veterinary college courses?			
Yes	22.6%	79.5%	81.3%
No	59.7%	42.5%	20.7%
Did your veterinary college coursework help you learn more about the application of antibiotics to humans?			
Yes	21.7%	80.5%	70.6%
No	48.7%	53.2%	31.3%
Have you ever had the opportunity to learn about the expanding issue of antibiotic resistance when you were studying?			
Yes	27.3%	75.3%	90.3%
No	54.2%	47.6%	11.5%

Table 5. Veterinarians using antibiotics for personal use.

Questionnaire	Knowledge of Antibiotics as Self-Reported by Respondents		
	1-Extremely Worst, 2-Worst, 3-Rather Worst n (%)	4- Slightly Good, 5- Good, 6- Exact Good n (%)	Total n (%)
Would you give yourself an antibiotic for personal use as a veterinarian?			
Yes	25.8%	76.3%	52.9%
No	34.3%	67.6%	49.3%
Have you ever come across a scenario when a veterinarian writes a prescription for antibiotics for their own use?			
Yes	22.4%	79.7%	23.3%
No	113	253	365

Table 6. Doctors' excessive use of antibiotics.

Parameters	Agree	Rather Agree	Strongly Disagree	Disagree	Strongly Agree	Rather Disagree
Overuse of antibiotics by doctors	26%	14.7%	2.4%	4.5%	39.1%	14.7%

Table 7. Practical experience with antibiotics.

How Much of the Following Are You Agreeing or Disagreeing With?	25th–75th Percentiles*	Median*
Antibiotic resistance is communicated by bacteria to one another.	5-7	7
Doctors often prescribe an antibiotic unnecessarily	4-6	5
Antibiotics work well for treating the common cold.	2-3	3
Antibiotic usage frequently results in negative side effects	4-6	5
People who use antibiotics become resistant to them.	2-4	3
The improper use of antibiotics might result in the development of resistant bacteria.	7-7	7
The use of antibiotics to combat microorganisms	6-7	7
Antibiotics are effective against viruses	2-2	2

As opposed to years IV–VI, students in year’s I–III experienced this frequently. According to Table 4, the vast majority of respondents claimed that their college education had no impact on changing the treatment plan prescribed by a veterinarian for the illness of their own pet or the pet of a friend. With regard to their understanding of antibiotics, 69.8% of the students in this group were confident. The majority of respondents claimed that

they had never received advice to use one of the personal use drugs listed in Table 5 from a veterinarian. Students in years IV–VI were similar to those in year’s I–III to encounter this circumstance.

Understanding of antibiotics in practice.

Nearly respondents were aware that antibiotics work against bacteria and they are useless against viral infections. They

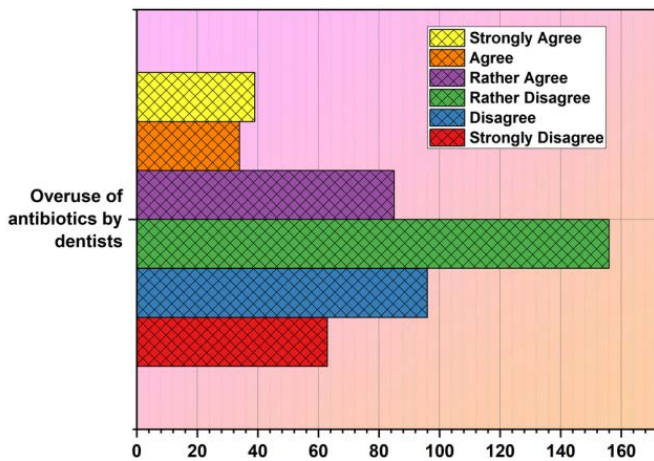


Figure 1. Prescription-free use of antibiotics.

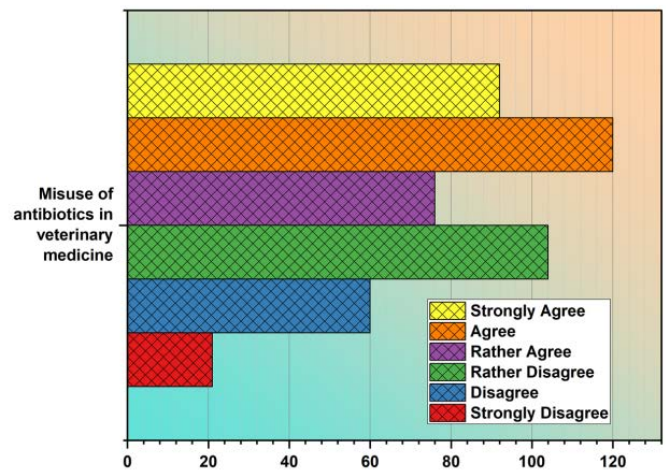


Figure 4. Veterinary medicine's misuse of antibiotics.

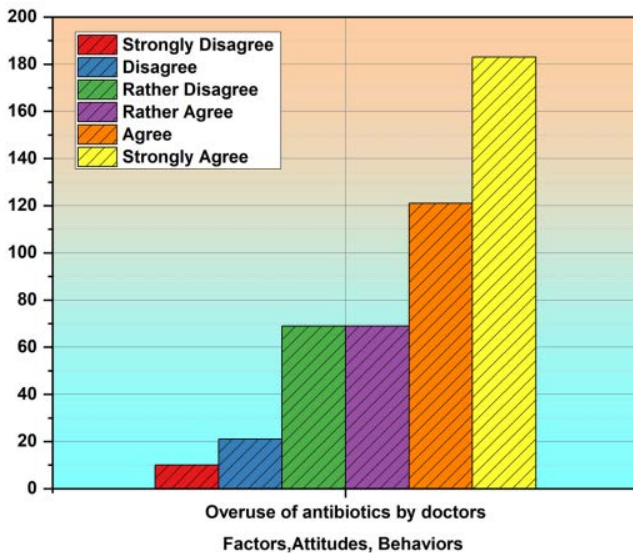


Figure 2. Physician overuse of antibiotics.

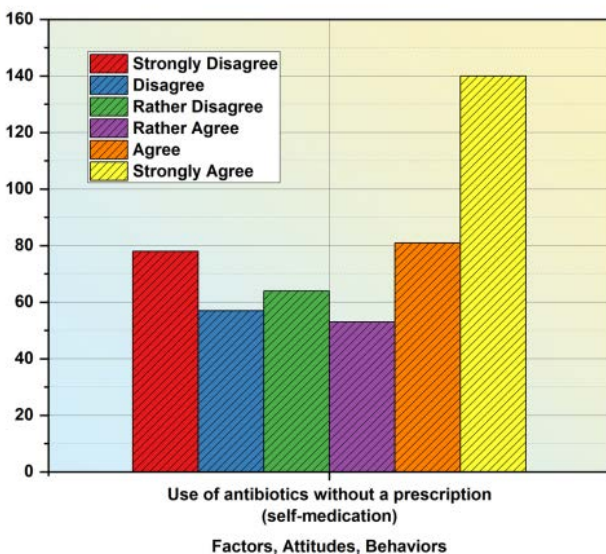


Figure 3. Dentists' excessive use of antibiotics.

are aware that using antibiotics incorrectly can result in the development of resistant microbes. The majority of students disagree and 22% of respondents agreed that using antibiotics will result in the development of antibiotic resistance. 57% of the participants were in grades I through III and 43% were in grades IV through VI. According to more than half of the responders, using antibiotics has unfavorable side effects. 45% of students disagreed with this assertion at the same time. Students in years I through III stated this view than those in years IV through VI. Table 6 displays how doctors overuse antibiotics. Figure 2 depicts the way that doctors overuse antibiotics.

Almost 80% of the respondents said they wanted to learn more about how animals are treated with antibiotics. Before beginning their doctors prescribed medication, six out of ten respondents stated they would look up information and suggestions about antibiotics in another source. One in three patients would begin the treatment having complete faith in the physician. Before beginning an antibiotic therapy for their pet that a veterinarian had prescribed, half of the respondents said they would confirm the information from a different source. 50% of those who responded as above represented year's I-III and 50% years IV-VI. While starting the treatment, 45% of respondents said they would have complete faith in the physician. In comparison to pupils in years IV-VI, more students in year's I-III voiced this attitude. The students claimed that while caring for their own pet or the pet of a close friend or relative, they would seek assistance on how to administer the antibiotic from a veterinarian, the drug's medicine leaflet, the internet and printed sources. The medians of the antibiotic knowledge of students are shown in Table 7.

Understanding the issue of antibiotic resistance.

The students assert that the abuse of antibiotics by doctors and the general lack of knowledge about the risks of antibiotic resistance have the most effects on the spread of antibiotic resistance. The majority of veterinary medicine students believe that there are established recommendations for the administration of antibiotics in specific therapeutic scenarios for different species of animals. Table 8 displays how dentists abuse

Table 8. Dentists' excessive use of antibiotics.

Parameters	Strongly Agree	Agree	Rather Agree	Strongly Disagree	Disagree	Rather Disagree
Overuse of antibiotics by dentists	8.4%	7.2%	18.2%	13.5%	20.6%	33.4%

Table 9. Antibiotic misuse in veterinary medicine.

Parameters	Strongly Disagree	Disagree	Rather Disagree	Rather Agree	Agree	Strongly Agree
Antibiotic misuse in veterinary medicine	4.5%	12.8%	22.2%	16.3%	25.6%	19.7%

antibiotics. Figure 3 illustrates the way that dentists overuse antibiotics.

The vast majority of students consider antibiotic resistance to be a serious problem. One in eight students locally, one in nine students nationally and one in nine students internationally believe that the EU must address the issue of antibiotic resistance. Table 9 displays the overuse of antibiotics in veterinary practice. The overuse of antibiotics in veterinary care is depicted in Figure 4.

Discussion.

The research shows that veterinary schools do a good job of educating students about a wider range of antibiotics. Veterinary students are aware of the rising antimicrobial resistance. They are aware of the fundamental workings of antibiotics as well as their range of activity. 97% of respondents disagreed with the idea that antibiotics work against viruses and that microbes can share knowledge about the mutual awareness of antibiotic resistance to provide evidence for this [21]. Certain bacteria and defense systems that humans may not have as much of may exist in the bodies of animals. Since antibiotics are often used in agriculture, livestock, for instance, may harbor germs resistant to antibiotics. It is crucial to comprehend these distinctive qualities in order to create focused approaches that reduce medication resistance. Drug-resistant bacteria may find a home in the surroundings. The environmental presence of antimicrobial compounds further promotes resistance. These substances are a result of inappropriate disposal of leftover drugs, agricultural runoff, and wastewater from pharmaceutical production. The students believe that low animal husbandry sanitary standards and limited access to microbiological diagnostics are crucial in this regard. Scientific proof shows a link between the extensive use of antimicrobial drugs for illness treatment and prevention as well as the startling increase in bacteria that are resistant to antibiotics. According to the survey, respondents who were veterinary students, doctors, or dentists prescribed the bulk of the antibiotics. The remaining respondents stated that they had used antibiotics that were left over from a prior course of treatment, that were provided to them by a family member or friend, that were acquired from a pharmacy without a prescription, or that were given to them by a third party. Since then, there has been an increase in the observation of antibiotic resistance to tetracyclines, sulfonamides, lactams and penicillin's [22]. Given that 99% of respondents said they wanted to learn more about antibiotics, it would be acceptable to reevaluate the curriculum's emphasis and add more lessons on the subject.

Conclusion.

Antibiotic resistance was regarded as a critical issue by the majority of responding veterinary students. Meanwhile, a sizable portion continues to deny that it is a problem that affects the entire world. The students contended that reasons contributing to the growth in antibiotic resistance include public ignorance of the issue, experts' deficient grasp of animal breeding, production, as well as antibiotic misuse and overuse in human health care, veterinary medicine, and the animal sector. The study came to the conclusion that it is crucial to improve the knowledge of antibiotics among veterinary students, particularly in relation to how they will be used in their future careers as veterinarians and to raise awareness of antibiotic resistance in general education.

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