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Unnecessary Antibiotic Use: A Questionnaire on Assessing The Compatibility of Knowledge And Practice Among Students

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Abstract:

The discovery of potent antimicrobial agents was one of the greatest contributions to medicine in the 20th century. However, like any medication, antibiotics carry certain risks. When introduced, they had an immediate and dramatic impact on the outcomes of infectious diseases, making once-lethal infections readily curable. Unfortunately, the emergence of antimicrobial-resistant pathogens now threatens these advances. It is crucial to concentrate our attention on students in the healthcare profession because antibiotic resistance has emerged as a global public health issue and is partly attributed to physicians' lack of knowledge. Resistance is a serious health threat that affects the clinical outcome of patients as well as results in higher rates of adverse events and healthcare costs. Antibiotic resistance has become a major public health concern due to the severity of its effects on human health and the dearth of new treatments. Sadly, there are already people every day who develop illnesses that cannot be cured with the antibiotics that are already on the market. Academicians, working doctors, professional bodies, and public health organizations have drawn attention to the challenge of antibiotic resistance. The current study seeks to assess students' knowledge and attitudes on the use of antibiotics and antibiotic resistance at the School of Medicine.

Keywords:

antibiotic, antibiotic resistance, questionnaire

INTRODUCTION

Antibiotic resistance is now a major clinical and financial burden on healthcare systems around the world. According to estimates from the World Health Organization (WHO), this issue results in an extra mortality rate of 25,000 patients per year in European hospitals, at a cost of almost 1.5 billion Euros [1].

Antibiotics are the most frequently prescribed drugs, but they are often misused [2,3]. This contributes to the spreading of resistant strains of bacteria [4]. Doctors' improper prescribing practices are one of the factors contributing to antibiotic abuse [5-7]. There are several things that could sway a doctor's judgment and cause them to go against the rules of ethical clinical practice. For instance, the desire to meet patients' expectations or the worry about potential future difficulties in their patients [1,8]. Another major contributor to antibiotic resistance may be patients' bad habits and ignorance [1,9-14].

Thus, it is important to support educational programs aimed at both the general public and medical professionals that explain how antimicrobial medications should be used and prescribed [15]. It would be ideal to pay special attention to the younger generations of healthcare professionals[16–17]. Since they will be the ones providing antibiotics in the future, they must be well aware of the growing issue of antibiotic resistance [1,16,17].

MATERIALS AND METHODS

In October-November 2022, a survey was conducted by the pedagogues of the "Clinical Modeling" department among the students of the treatment and medical-pedagogical faculties studying at the Tashkent Medical Academy. The pedagogues of the "Clinical Modeling" department of the Tashkent Medical Academy distributed anonymous questionnaires to students. The date of the survey varied depending on the students' class schedule and attendance at the department. There were 250 students who took part in the survey.

Participation was voluntary, anonymous and free of charge. The researchers were assured that anonymity would be maintained and ethical principles would be adhered to. Before completing the questionnaires, the rationale and objectives of the survey were explained and students were encouraged to participate without any undue pressure. Return of the completed survey was taken as consent of the participating students.

Questionnaire

A questionnaire consisting of 12 questions and 30 points was used in the study (AB questionnaire). The questionnaire was developed after a literature review of comparative studies and previously validated in a pilot study of 30 medical students.

The second part of the study assessed students' use of and attitudes toward antibiotics. This questionnaire included 7 questions about situations related to the use of antibiotics (ABA questionnaire).

Gender	Female ___ Male ___
Do you usually take antibiotics for a "cold" or a sore throat?	
Do you usually take antibiotics for fever?	
Do you stop taking antibiotics when you start feeling better?	
Do you take antibiotics only as prescribed by your doctor?	
Do you take home-grown antibiotics without a doctor's prescription when you have a cold, flu, or sore throat?	
Can you buy antibiotics without a doctor's prescription?	
Do you take antibiotics over the phone without a doctor's appointment?	

Statistical Analysis

The results were analyzed using Microsoft Excel. Results are presented as percentages, scores, and mean with standard deviation (SD) for continuous variables.

Knowledge-related outcomes were first described as absolute numbers and percentages, then dichotomized as true and false, grouped on a 4-point Likert scale as follows: strongly agree and strongly disagree. "Shilaman" (right), "completely". "disagree" and "disagree" (incorrect). The appropriate answer is "Strongly agree/agree" or "Strongly disagree/disagree" depending on the meaning of the question. Percentages of appropriate responses were calculated for each outcome.

RESULTS

A total of 250 students were asked to participate and the response rate was 100%. 3-4 year students participated in this study. Women made up 29.6%. The mean age was 21.68 (SD ± 1.78).

Knowledge about antibiotics

In general, the study participants demonstrated good knowledge about antibiotics. The percentage of completely correct answers ("strongly agree" or "strongly disagree" depending on the statement) was above 90% in two-thirds of the proposed concepts. The lowest percentage was observed in the concept "Antibiotics can cause secondary infections after killing the beneficial bacteria present in our body" and only 62% of the students strongly agreed. But the students did not make a blunder in choosing the drug groups, and almost 92 percent of the students did not make a mistake in the drug groups.

Regarding the knowledge about the use of antibiotics, almost all participants knew that antibiotics are useful in the treatment of bacterial infections (95.2%) and that these drugs are not recommended for any pain and inflammation (96.6%). In addition, most of the students (93.2%) knew that antimicrobial drugs are not suitable for viral infections.

Regarding the question of knowing the side effects of antibiotics, more than 90% of the participants said "Antibiotics can kill the 'good bacteria' in our body" and "Antibiotics can cause allergic reactions" (98.2% and 96.4%) agreed.

The three last sentences all had something to do with understanding antibiotic resistance. A bacterium losing its sensitivity to an antibiotic is known as antibiotic resistance, and the vast majority of participants (92.2%) and (97%) of those who took the survey were aware of this fact. Additionally, 88.7% of the students who were interviewed were aware that it is necessary to complete the entire course of antibiotics, even if the symptoms are getting better.

Attitudes and behaviors about antibiotics

Nearly all of the students who were interviewed about their beliefs and practices regarding antibiotic usage said they almost never take antibiotics for a cold, or a sore throat. Fascinatingly, many of them take antibiotics for fever 40.4%, 16% of them said they typically take leftover antibiotics without contacting a doctor and 12.3% said they would quit using these medications when their symptoms subsided. Additionally, 35.2% of the sample claimed to purchase antibiotics without a prescription, and 26% began taking antibiotics following a brief phone chat with a doctor rather than undergoing a full physical examination (Table 2).

Gender	Female ___ Male ___	
Do you usually take antibiotics for a "cold" or a sore throat?	Yes No	3 (1.2%) 247 (98.8%)
Do you usually take antibiotics for fever?	Yes No	101 (40.4%) 149 (59.6%)
Do you stop taking antibiotics when you start feeling better?	Yes No	30 (12%) 220 (98.8%)
Do you take antibiotics only as prescribed by your doctor?	Yes No	82 (32.8%) 168 (67.2%)
Can you buy antibiotics without a doctor's prescription?	Yes No	88 (35.2%) 162 (64.8%)
Do you take antibiotics over the phone without a doctor's appointment?	Yes No	65 (26%) 185 (74%)
Do you have leftover antibiotics at home?	Yes No	40 (16%) 210 (84%)

CONCLUSION

The current article highlighted how medical and healthcare students do not put their knowledge into practice. Students studying for careers in healthcare generally have a high level of knowledge about antibiotics, but there are still some attitudes and practices that are

incorrect, particularly those that depend on having a relative who works in the medical field and on the length of time spent in medical school. It is crucial to raise more awareness of this issue during the degree courses because students in the healthcare industry will serve as behavioral role models for citizens and patients once they become doctors and are able to prescribe these drugs. It would be advisable to add specific courses and instruction on antibiotics to the schools' basic curriculum.

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