

Original article

Antibiotics Self-Medication Among Students at Faculty of Medical Technology, University of Tripoli

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ABSTRACT

Background and aim. Antibiotics self-medication is a global phenomenon that is prevalent in developing countries due to inadequate monitoring controls. The current study conducted to assess the practice of self-medication among paramedical students at Faculty of Medical Technology. **Methods.** A pre-validated questionnaire was dispersed through google forms, and students were asked to report antibiotic use with or without prescription in the year 2022. The questions enclosed demographic characteristics, course completion, frequency of antibiotic use, condition for which it was used, and type of antibiotic used were all covered. **Results.** A total of 168 forms were completed. Prevalence of antibiotic use with and without a prescription was relatively high (42.9%). Among the survey students who utilized an antibiotic without a prescription, 17.4% they stopped the use of antibiotic without finishing the treatment course. The most frequently obtained antibiotic without prescription was Augmentin®. Tonsillitis, flu, upper respiratory tract infection, and urinary tract infection were the conditions for which antibiotics were used. **Conclusion.** Irrational use of antibiotics is common among university students and need effective interventions directed to increase students understanding of the problems associated with such practice.

Keywords: Antibiotics, Self-medication, Misuse.

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الخلفية والأهداف. يعد العلاج الذاتي بالمضادات الحيوية ظاهرة عالمية منتشرة في البلدان النامية بسبب عدم كفاية ضوابط المراقبة. أجريت الدراسة الحالية لتقييم ممارسة التطبيب الذاتي بين طلاب كلية التقنية الطبية. **طرق الدراسة.** تم توزيع استبيان تم التحقق منه مسبقاً من خلال نماذج جوجل، وطلب من الطلاب الإبلاغ عن استخدام المضادات الحيوية مع أو بدون وصفة طبية في عام 2022. وتضمنت الأسئلة الخصائص الديموغرافية، وإكمال مدة العلاج، وتكرار استخدام المضادات الحيوية، والحالة التي تم استخدامها من أجلها، وتمت تغطية جميع أنواع المضادات الحيوية المستخدمة. **النتائج.** تم الانتهاء من إجمالي 168 نموذجاً. كان معدل انتشار استخدام المضادات الحيوية، سواء بوصفة طبية أو بدونها، مرتفعاً نسبياً (42.9%). من بين الطلاب الذين استخدموا المضادات الحيوية دون وصفة طبية، توقف 17.4% عن استخدام المضادات الحيوية دون إكمال دورة العلاج. وكان المضاد الحيوي الأكثر شيوعاً الذي يتم الحصول عليه بدون وصفة طبية هو Augmentin®. كان التهاب اللوزتين والأنفلونزا وعدوى الجهاز التنفسي-العلوي وعدوى المسالك البولية هي الحالات التي استخدمت فيها المضادات الحيوية. **الخاتمة.** يعد الاستخدام غير العقلاني للمضادات الحيوية أمراً شائعاً بين طلاب الجامعات ويحتاج إلى تدخلات فعالة موجهة لزيادة فهم الطلاب للمشاكل المرتبطة بهذه الممارسة.

INTRODUCTION

The overuse of antibiotics poses a serious threat to global health. Due to improper use, antibiotics are losing some of their effectiveness. Bacteria are progressively becoming resistant to antibiotics and resistant bacteria have spread globally, representing that may be at the beginning of a post-antibiotics period [1].

Inappropriate use of antibiotics, include failure to complete therapy, skipping of doses or reuse of leftover antibiotics, can potentially rendering patients to improper doses of antibiotic therapy [2]. Lacking knowledge, alertness, and patient education regarding the utilization of antibiotics by the healthcare providers are among predisposing factors for the development of such resistance [3].

Although resistance is frequently reported in Europe and North America, developing countries also face the issue of antimicrobial resistance [4]. The concern of antibiotic resistance has been labelled as a significant public health challenge in a World Health Organization report (WHO) [5]. Rendering to WHO global strategy for diminish antimicrobial resistance, regardless of the ability to stay ahead of the pathogens by development and reform of novel drug in the 1950s and 1980s, the existing situation is not promising. Hence, the rational use of the antibiotics and patient education is essential [6]. Addressing the problem of the development of resistance and inappropriate use of antibiotics has become a global effort in recent years. In 2016, the United Nation general assembly held a critical summit on antimicrobial resistance and approved a declaration of international cooperation in fighting the issue of antibiotics resistant [7].

In many developed countries, the accessibility of antibiotics is strictly striped by insisting that no antibiotics are distributed without written prescription by physician or dispensed by pharmacists. However, in other countries, antibiotics are sold without prescription [8]. In Africa, the occurrence of antibiotic resistance differs among different countries and such incidence not only depends upon the absence of knowledge and alertness towards the development of resistant

strain of bacteria but also depend upon unsuitable drug usage policy in the countries [9]. Antibiotics self-medication is currently at an alarming level in Libya, and no regulations or polices guided such practice [10]. No matter how or where the public gain access to these essential groups of medicines, it is an issue that must be explored and mandates necessary interventions. The present study was conducted to explore the prevalence of self-medication with antibiotics among undergraduate students of faculty of medical technology, the university of Tripoli.

METHODS

Study design and subjects

A prospective cross-sectional study design based on a validated anonymous online questionnaire was conducted during January 2023. The study was approved by the research committee of the Faculty of Medical technology, the University of Tripoli, Libya.

Questionnaire development and distribution

The questionnaire was written in English and was pre-validated on a sample of 4 students and comments were taken into consideration. The questionnaire was distributed through google form to the students community of faculty of Medical technology at the University of Tripoli.

The questionnaire containing both open- and close-ended (multiple-choice) questions. A high level of confidentiality was maintained throughout the study. Students were asked to report antibiotic use with or without prescription in the year 2022.

The questionnaire contained questions covering demographic data, questions regarding antibiotic use with or without a prescription, frequency and duration of use, situation for which antibiotic was used, category of antibiotic and basis for using it, source of antibiotic and knowledge of misuse and bacterial resistance.

Statistical analysis

The data entry and analyses were done through google form statistics, and were summarized as percentages and frequencies.

RESULTS

Demographics

A total of 168 forms were electronically completed, out of them 134(75.7%) were females and 34(24.3%) were males, and most of them 86.9 %was in the age group of 18 – 25 years' old. The majority of the participants were from anaesthesia department 61%, followed by 15.3% and 6.2% from department of medical laboratory sciences and from the first-year students, respectively (Table 1).

Table 1. Demographic data distribution of respondents (N=168)

Variable	Frequency	Percentage
Gender		
Female	134	75.7%
Male	34	24.3%
Age		
18 – 25	146	86.9%
26 – 30	22	13.1%
Departments		
Anaesthesia	108	61%
Medical labs	27	15.3%
Dental	7	4%
Physiotherapy	6	3.4%
Public health	9	5.1%
Radiology	9	5.1%
First year students	11	6.2%

Knowledge on antibiotics use and misuse

In table 2, most of participant 154(87%) were aware about the use of antibiotic to kill bacteria. They were strike in completing the antibiotic course (82.6%), and around half of them they self-medicated with antibiotic without prescription (42.9%). They depend on the information available on the drug leaflet (68.4%), although they were aware about the antibiotic resistant concern (70.6%).

Table 2. Knowledge on Antibiotics use

Items	Yes	No
Does antibiotic treat diseases caused by viruses?	44(24.9%)	133(75.1%)
Does antibiotic treat diseases caused by bacteria?	154(87%)	23(13%)

Have you completed the course?	133(82.6%)	28(17.4%)
In the last year, have you used an antibiotic without a prescription?	76(42.9%)	101(57.1%)
Have you read the leaflet that comes with the antibiotic package before?	121(68.4%)	56(31.6%)
Have you heard about bacterial resistance?	125(70.6%)	52(29.4%)

About 55.9% of the participants were used antibiotic 1-3 times a year, while 24.3% had never used antibiotic this year (Figure 1).

How many times have you taken an antibiotic in the last year ?

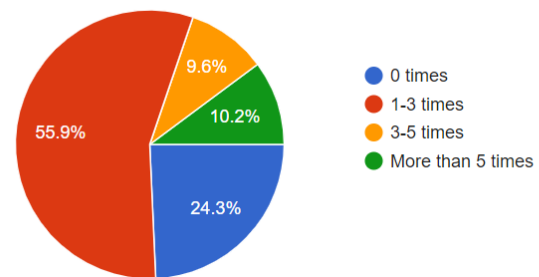


Figure 1. Frequency of using antibiotic in the year

About 60.7% of the participants were stop using the antibiotic as per physician suggestion and recommendation, while 26% they stop it when they felt better (Figure 2).

When do you think you should stop using the antibiotic you started to treat yourself?

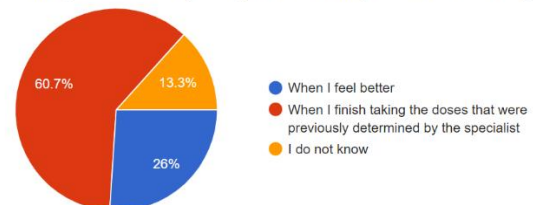


Figure 2. The cause of stop antibiotic use

Types of antibiotics and basis for their use are shown in Figure 3 & 4. The most common antibiotics used without a prescription were Augmentin (61with41.5%), followed by amoxicillin

(54 with 36.7%), Azithromycin (44 with 29.9%), and Metronidazole (22 with 15%).

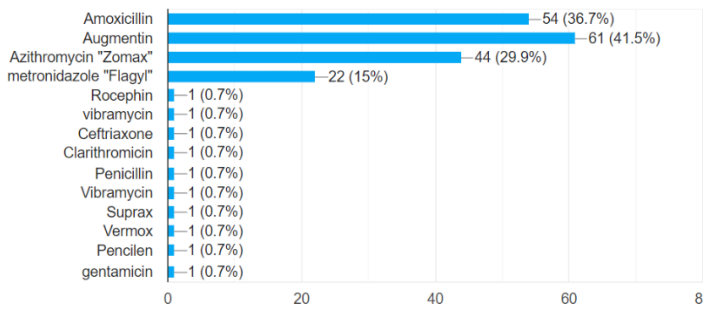


Figure 3. Names of drugs purchased without prescription

Antibiotics were used with or without a prescription for mainly tonsillitis (49 with 33.1%), followed by corona virus (41 with 27.7%), flu (38 with 25.7%), upper respiratory tract infections (34 with 23%), tooth infection (26 with 17.6%), urinary tract infection (24 with 16.2%), and other infections (Figure 1).

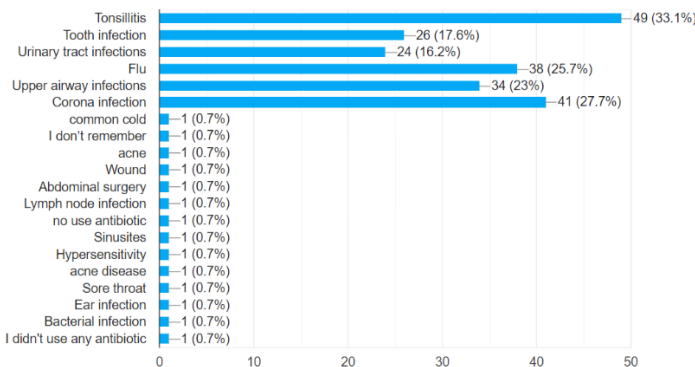


Figure 4. Percentage use of antibiotics with and without prescription for various conditions

Pharmacist's recommendation 64.9% was the main reason for obtaining antibiotics by the participants, followed by 22.2% previous experience, 19.9% leftover prescription source, and other reasons (Figure 5).

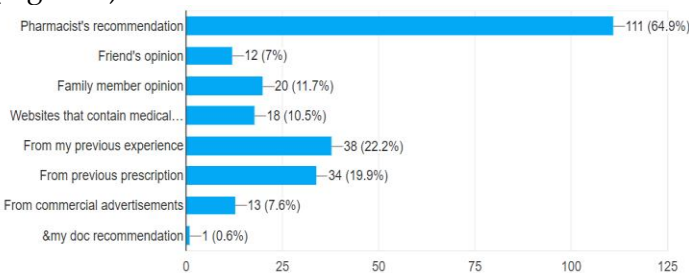


Figure 5. Basis of using antibiotics with and without prescription

DISCUSSION

Prevalence of self-medication among university student has remained common in both developing and developed countries, especially among young adults [11]. Beside the benefits of such practice e.g. economic and save time, its harmful consequences including drug misuse, side effects, drug interaction and abuse. Moreover, the emergence of bacterial resistance with antibiotics self-medication is a crucial problem globally [12]. This study explored the knowledge and prevalence of antibiotics self-medication among medical technology students in university of Tripoli, and reported antibiotics self-medication rate of 42.9%. The reported self-medication rate in our study was in line with previous local studies [13-14]. Social and economic factors including lifestyle, immediate available drugs, consultation cost, time consuming in clinics, and lack of nearby healthcare clinic could be the leading causes for such practice [10]. Indeed, this finding is very alarming and argue the need for prompt educational strategies to get better knowledge on antibiotics-caused resistance.

A study conducted in Egypt showed the prevalence of self-medication among university students was 62.9%. Younger age, female, medical, and those having home pharmacy students were more practice self-medication than their peers with significant difference between them. They concluded that suitable counselling and public health education would be successful interventions [15]. A recent study conducted in Jordan, showed that 54.9% of the questionnaire respondents self-medicated with antibiotics, with main source for such practice was pharmacist's advice. The authors concluded poor understanding of key proper antibiotic usage among the surveyed students, which certainly effects self-medication practice [16]. The surveyed students, in the current study, showed moderate knowledge regarding the antibiotic's usage, but 64.9% of them use antibiotics by pharmacist suggestion and stated that they will not serve the antibiotics without medical prescription. In line with our finding, Althagafi et

al., reported high percentage of Saudi students who used antibiotics relied on pharmacists' advice [17]. Therefore, pharmacists have to be involved in rigorous training programs and work continually on maintaining their knowledge about antibiotics. Our results also reported that the most frequently self-medicated drugs by the students were Augmentin (61 with 41.5%), followed by amoxicillin (54 with 36.7%) and Azithromycin (44 with 29.9%), which is also consistent with other published studies [8,14,18]. This may be because it is the most used and prescribed antibiotics by doctors globally. Moreover, 17.4% of students who used antibiotics by self-decision admitted not completing the course of treatment. It is also noted in the present study, whether antibiotics prescribed or self-medicated, were basically taken to treat tonsillitis, flu, and respiratory tract infection which are known to be insensitive to antibiotics as they are mostly caused by viral infection.

The practice of antibiotic prescription by only physician does not exclude a possibility that they can be used for self-medication. Antibiotics can be dispensed from pharmacies without prescription, or can be supplied by relatives or friends. Some patients urged physicians to write a prescription of antibiotics for them. For instance, previous study reported pressure from parents on paediatrician to prescribe antibiotics for their children in believing of the efficacy of antibiotics treatment [19].

Being that our study showed high rate of self-medication of antibiotics among our university students. Respondents could also have poor knowledge about what an antibiotic is, although this may be a minor issue, especially among our students, as they are all university students. For these reasons, it is indecisive whether our results are generalizable to other universities in Libya. It is also important to focus the efforts of health authorities and the academic staff on interventions to raise public knowledge of such essential health issues.

CONCLUSION

This study revealed important findings, a high incidence of self-medication practice among

undergraduate medical students in the faculty of medical technology, university of Tripoli which constitutes a health problem related to inadequate public knowledge of antibiotics. Education programs should be developed, targeting specific public groups identified in this study, with lower antibiotic knowledge and higher self-medication risk. Finally, the attention of health care policy makers should be focused on physicians and pharmacists, as the main information providers of rational antibiotic use, as well as on community pharmacies, identified as the main source of non-prescription antibiotics.

Conflict of interest

There is no conflict of interest in this study

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