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Pharmacy students' knowledge and attitudes about antibiotics in Nablus- Palestine

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Pharmacy students' knowledge and attitudes about antibiotics in Nablus- Palestine.

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Abstract

Objectives: The aim of the presented study was to examine the knowledge and attitude about antibiotics among students in An-Najah National University; Nablus-Palestine.

Methods: 147 students of the Pharmacy and Doctors of pharmacy at an-Najah University were given a self-administered questionnaire. The questionnaire consists of three parts. The first part includes basic information about the participant. The second part assesses antibiotic-related knowledge and personal usage of antibiotics. Finally the participant is asked about intentions, as a pharmacist in the future, about antibiotics. We applied descriptive analysis in the SPSS program. **Results**: The results of this study showed a good knowledge of antibiotics use (53.1%). 92.5% of Participants had used antibiotics without prescription, most of them sore throats (66.7%).The majority of the answers about the sources of knowledge were 'College' (65.3%) and 'A pharmacist' (65.0%). Upon graduation, (51.0%) of the students will sell antibiotics without prescription. (95.9%) showed interest about the need to attend a course about the appropriate use of antibiotics. **Conclusion:** The study predicted good knowledge on the part of pharmacy and Doctors of pharmacy students regarding antibiotic use. However, despite the theoretical results, we still face a problem in antibiotic consumption. Pharmacy students will be part of the work field and their behavior will influence citizens and patient behavior, so it is important to raise awareness of this issue.

Keywords: Students, Pharmacy; Healthcare Knowledge, Practice; Antibiotics; An-Najah National University; Palestine.

Introduction

An antibiotic is a chemical substance, produced by micro-organisms, which has the capacity to inhibit the growth of and even to destroy bacteria and other micro-organisms[1]. Selection of the most appropriate antibiotic agent requires knowledge of the organism's identity, the organism's susceptibility to a particular agent, the site of the infection, patient factors, the safety of the agent, and the cost of therapy. However, some critically ill patients require empiric therapy that is, immediate administration of drug(s) prior to bacterial identification and susceptibility testing. [2]. Inappropriate use of antibiotics is of great concern given the consensus that it is associated with increasing antibiotic resistance. The main factors contributing to antibiotic self-administration in developing countries such as Palestine are over-the-counter availability, prescription on demand and high cost of the hospitals or healthcare consultation. High prevalence of self-medication with antibiotics has been repeatedly found in Southern and Eastern European countries that also report high levels of antibiotic resistance [3]. In a study in Saudi community pharmacy to determine dispensing medications without prescription; showed medications without providing a prescription: Co-amoxiclav (augmentin) almost all pharmacists (97.9%) handed out the antibiotic immediately, without even asking for a doctor’s prescription [4]. A study in Nigeria found out that the development of antibiotic resistance among pharmacy students was due to either medication non-adherence or inappropriate antibiotic usage [5]. The WHO report finds systems to combat antibiotic

resistance lacking find. Few countries (34 out of 133 participating in the survey) have a comprehensive national plan to fight resistance to antibiotics and other antibiotic medicines. So we need a global program to prevent and control antibiotics use [6]. The faculty of pharmacy at An-Najah National University in Nablus, Palestine, has a five-year degree program and then students get the right after two year of working to have their own pharmacy or drug store. Their knowledge, attitude and behavior concerning antibiotics can have a marked effect in Palestine. Therefore, the aim of this study was to examine antibiotic-related knowledge and attitude among fifth year Pharmacy and Doctors of pharmacy students in an-Najah National University.

Method

A self-administered questionnaire was given to students of the fifth year of Pharmacy and the fourth and fifth year of Doctors of pharmacy at An-Najah University, Palestine, in October 2016. Submission of the questionnaire forms was voluntary and anonymous and confidentiality was maintained. Forms were filled and submitted by 147 students. The questionnaire was a modified version of the form used for a study done in the University of Prishtina [7]. The original form having been kindly provided by Albina Fejza upon request through email. The questionnaire was translated literally to Arabic and two questions were added. The questionnaire consists of three parts. The first part includes basic information about the participant. The second part assesses antibiotic-related knowledge and personal usage of antibiotics. Finally the participant is asked about intentions, as a pharmacist in the future, about antibiotics. We applied descriptive analysis in the SPSS program.

Results

147 pharmacy students participated in this study. The results of this study showed a good knowledge of antibiotics use. The majority of participants (86.4%) were female. Fifth-year students were as highly represented. Most participants (75.5%) live with their families and only 20.4% live in dormitories. (Table 1)

Table 1, Demographic characteristics of participants

Variable	Frequency (n=147)	Percentage (%)
Gender		
Female	127	86.4
Male	20	13.6
Year of study		
4th	11	7.5
5th	127	86.4
6th	9	6.1
Place of living		
With family	111	75.5
Dormitory	30	20.4
Other	6	4.1

Table 2 showed that 92.5% of the participant had used antibiotics without Prescription. The majority (57.8%) had used antibiotics once in the last six months, the main reasons being sore throats (66.7%) and cold (12.2%).

Table 1, Frequency of antibiotics use in last 6 months and reason for last antibiotics course use:

Frequency of antibiotics use in the previous six months	Frequency (n=147)	Percentage (%)
0	11	7.5
1	85	57.8
2	30	20.4
3	10	6.8
>3	11	7.5
Reason for last use		
Cold and flu	18	12.2
Sore throat	98	66.7
Diarrhea	4	2.7
Infected wound	12	8.8
Eye/ear infection	9	6.1
Dental infection	5	3.4

On the other hand, Pharmacy students claimed mostly good (53.1%) and moderate (31.3%) knowledge about the uses and side effects of antibiotics. Only 5.4% claimed limited knowledge, while 8.2% claimed excellent knowledge (Table3). Regarding the sources of knowledge about antibiotic use, the majority of the answers were 'College' (65.3%), 'A pharmacist' (65.0%), 'The internet' (46.9%) and 'A physician' (42.2%) (Table 3).

Table 2, Students' self-reported knowledge about antibiotic prescriptions, associated side effects, and sources of knowledge:

Student's self-reported knowledge about antibiotic prescriptions and associated side effects	Frequency n(147)	Percentage (%)
Very limited	3	2.0
Limited	8	5.4
Moderate	46	31.3
Good	78	53.1
Excellent	12	8.2
Source of knowledge antibiotics use (Yes, No)		
Physician	62	42.2
Pharmacist	96	65.0
Newspaper	2	1.4
Radio	1	0.7
TV	3	2.0
Internet	69	46.9
Family	16	10.9
Friends	9	6.1
College	96	65.3
Other	2	1.4

Pharmacy students were asked if they intended to dispense antibiotics without prescription after graduation. About half of the participants (51.0%) gave a 'No' answer while 25.9% answered 'Yes.' (Table 4)

Table 3, Students' intention to sell antibiotics without prescription after graduation

Intention to dispense antibiotics without prescription after graduation	Frequency n(147)	Percentage (%)
Yes	75	51.0
No	38	25.9
Don't know	34	23.1

When the Pharmacy students asked about the need to attend a course about the appropriate use of antibiotics. The majority of them (95.9%) showed interest. (Table 5)

Table 4, Student's opinion about the need to attend a course about appropriate antibiotics use:

Student's opinion about the need to attend a course about appropriate antibiotics use	Frequency n(147)	Percentage (%)
Yes	141	95.9
No	5	3.4
Don't know	1	0.7

Discussion

This study analyzed knowledge and attitudes toward antibiotics among Pharmacy students in An-Najah national University in Nablus, Palestine. This is the first study that has ever examined antibiotic usage among pharmacy students in our university. Our study was based on 147 pharmacy students. The respondents were mostly female (86.4 %). Academic levels were different but most respondents were fifth-year (86.4 %); 7.5% were fourth-year and 6.1 % were

sixth-year. Living accommodations also differed: 75.5% lived with their families while 20.4% lived in dormitories. Although 61.3% of the respondents claimed to have good and excellent knowledge, a high number declared they had used antibiotics without prescription. In our view, this is a lack of a good medical education in the current and previous levels of education along with misuse of antibiotics in our country in general. Those results are in line with other published studies which also reported good understanding of the antibiotics among healthcare students. A study in Malaysian pharmacy students at public universities was done with 346 students to evaluate the understanding of antibiotic resistance among Malaysian pharmacy students at public universities. Only 59.5% had a strong understanding of antibiotic use. On the other hand 84.4% had a good level understanding of antibiotic resistance. However 34.1% of students had a positive attitude toward this issue [8]. In a prospective study in Catalonia, Spain 197 pharmacies were visited. Antibiotics were obtained from 55 (79.7%) of 69 pharmacies when a urinary tract infection was simulated, 24 (34.8%) of 69 pharmacies when a sore throat was simulated, and 10 (16.9%) of 59 pharmacies when acute bronchitis was simulated ($p<.001$) [9]. In Jordan a study showed the efficacy and risk and knowledge of antibiotic resistance is inadequate by 47.3% less than 50% of gave the correct response [10]. In Liang, Miaoyin a study showed that 67.6% of the questionnaire has correct knowledge of the proper use of antibiotics [11]. Undergraduate students had inadequate knowledge, moderately accurate beliefs and inappropriate practices concerning antibiotics, along with a high rate of self-medication [12].Our research found out that sources of knowledge about antibiotics use have high percentage of 65% from pharmacists, 65.3% from university, 46.9% from the internet, 42.2% from a doctor and 10.9% from family In Trinidad and Tobago a study showed that self-decision was the major reason of antibiotic use (40.7%) and main source of

information was pharmacist (42.6%)—in our study the latter percentage was higher (65.0%). Common cold and flu were the main motivations for which antibiotics were utilized by pharmacy students (35.2%) [13]. A study in Australia done with 252 participants showed that more than a third of them believed when suffering from a cold or flu they would recover faster by taking antibiotics, and nearly a fifth felt that antibiotics would cure viral infections [14]. Intention to sell antibiotics without prescription after graduation is an important issue. In our study half of the participants said they would sell antibiotics without prescriptions and a quarter said they wouldn't. A cross-sectional involving a sample of 224 pharmacies was conducted in Damascus, Syria, to investigate the sale of antibiotics without prescription. Of 200 pharmacies visited, 87% agreed without insistence from the investigator to sell antibiotics without prescription [15]. Our study predicts a lesser percentage in Palestine. In Trinidad and Tobago, one in five of the respondents in a survey obtained their antibiotics as over-the-counter medications at private pharmacies without a doctor's prescription [13]. These finding from our study urge the immediate need for education starting to be further which may enable the pharmacy students to reflect on the antibiotics knowledge [7]

Conclusion:

The study predicted good knowledge on the part of pharmacy and Doctors of pharmacy students regarding antibiotic use. However, despite the theoretical results, we still face a problem in antibiotic consumption. Pharmacy students will be part of the work field and their behavior will influence citizens and patient behavior, so it is important to raise awareness of this issue during the degree courses, e.g. the pharmacy department could include in the course plan a specific module and training for the proper use of antibiotics.

CONFLICT OF INTEREST

Null.

Acknowledgment

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