

Assessment of knowledge, behavior and attitudes toward using antibiotics among non-medical students at the University of Fallujah, Iraq

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Abstract:

Background: Antibiotics are medicines used to treat bacterial infections. Antibiotics resistance occurs when bacteria change in response to the inappropriate use of these medicines. Therefore, the world urgently needs to change the way that it prescribes and uses antibiotics.

Objective: To assess the knowledge, attitude and behavior towards antibiotics usage among non-medical students at the University of Fallujah, Iraq

Methods: A cross sectional study was conducted during the period from January to March 2019. Self-administered questionnaire comprised 25 questions divided into four parts, was used. The first part included demographic questions; the second, third and fourth parts were designed to assess the knowledge, attitudes and behavior of respondents toward antibiotics usage respectively.

Results: Females represented 54.8% of the subjects included in the study, and the age of subjects ranged between 19 and 24 years. About two thirds (64.1%) of participants believed that antibiotics work on most coughs and colds. In addition, 61.3% of the participants stated that "I will take antibiotic without prescription by a doctor", while 55.6% of respondents preferred taking antibiotics with tea and only 39.1% said that they took antibiotics with water.

Conclusion: Poor knowledge was detected among the non-medical students towards antibiotics usage. Health education programs might be needed among university students to improve their general knowledge and attitudes towards antibiotic

Keywords: Antibiotic, students, knowledge, behavior, attitudes, University of Fallujah

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Introduction:

Antibiotics are medicines that are used for treatment of infections caused by bacteria. On the other hand, antibiotics resistance occurs when bacterial susceptibility changes in response to the inappropriate use of these drugs. Therefore, the world urgently needs to control and change the methods of prescription for and accessibility to antibiotics. Even with the introduction new generations of antibiotics, resistance to antibiotics remains the main challenge, if not associated with behavioral change (1). Nowadays, it is difficult to find a pathogen without resistance to antibiotics (2).

Serious infections caused by bacteria that are resistant to commonly used antibiotics have become serious universal health problem in Iraq. The bacterial resistance to antibiotics became more

expensive regarding the management of diseases (3,4). Moreover, about two million people are infected with antibiotic-resistant bacteria each year in the USA that resulted in the death of 35,000 people (5). The increasing problem of antimicrobial resistance has frequently been reported as one of the greatest impending public health disasters in human history (5). The resistance to antibiotics is associated with a high economic burden on health systems with increased morbidity and mortality (7,8). The usage of antibiotics as over-the-counter medicines exposes the patients to the risks of side effects that may be associated with serious complications (9,10). Many people especially in developing countries think that antibiotics are effective for common cold and consider antibiotics as the best choice, mostly used on the basis of self-medications (11). Evidence showed that antibiotics prescription is influenced by psychosocial factors including lack of accountability, perceived patients' expectations, clinician workload, and habit (12). The objective of the current study is to assess knowledge, attitudes and behavior toward

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antibiotics use among non-medical students at the University of Fallujah, Iraq.

Subjects and Methods

A cross-sectional study was conducted during the period from January to March 2019 where 50 subjects (non-medical students) were selected from each of five colleges at the University of Fallujah (Veterinary College, Administration and Economics College, Law College, Applied Sciences College and Islamic Sciences College). The total number of participants was 248. A self-administered questionnaire was developed through reviewing relevant literature and utilized questions from similar studies (13,15). The questions were modified to and adapted to the local population. The questionnaire was comprised of 25 questions divided into four parts:

Part 1: Included demographic questions.

Part 2: Consisted of 10 questions, designed to assess knowledge of respondents, which mainly covered general information about antibiotics and their uses

Part 3: Included seven questions that assess respondents' attitudes (attitude was defined as the relatively stable organization of beliefs, feelings and behavioral tendencies directed towards antibiotics).

Part 4: Consisted of 14 questions to assess participants' behavior towards using antibiotics (behavior could be defined as observable actions or responses).

Ethical approval to conduct the research was obtained from the Scientific Committee at College of Medicine/ University of Fallujah, Iraq. The students were informed about the purpose of the study and how to fill the questionnaire, and then verbal consent was obtained from the subjects in order to participate in the study.

Statistical analysis

Data entry and data analysis were done by Excel program and Statistical Package for the Social Sciences (SPSS, version 21).

Results

The total number of participants was 248 from the University of Fallujah. Females represented 55.2 % of the sample. The age of subjects ranged from 19 to 24 years (mean \pm SD was 21.3 \pm 1.5 years; as shown in Table (1).

Table 1: Gender, year of study and age of participants

Variable	No.	%
Gender	Male	44.8
	Female	55.2
	Total	100.0
Year of study	1	46.4
	2	20.2
	3	7.3
	4	26.2
	Total	100.1
Age (years)	Range	18-24
	mean \pm SD	21.3 \pm 1.5

Knowledge about using antibiotics: About two thirds of the respondents (64.1%) believed that antibiotics

can work on most coughs and colds and 65.1% reported that antibiotics can kill viruses. In addition, 55.8% reported that it is possible to stop taking an antibiotic if symptoms are improving. Nevertheless, 87.1% answered that viruses can cause most of colds and coughs (Table 2). Attitudes towards using antibiotics: 38.7% of respondents mentioned that they will take antibiotics when getting flu without prescription and 63.3% reported that they prefer using antibiotics if they had tonsillitis. Moreover, 70.6% would not be satisfied if the physician does not explain the reason for using antibiotics, (Table 3). Behavior towards using antibiotics: 55.6% of respondents preferred taking antibiotics with tea; whereas only 39.1% said that they took antibiotics with water. More than two thirds (69.9%) will stop taking antibiotics when they start feeling better; however, only 30% will complete the course of antibiotics even when they feel better. Only 8% of respondents reported that they took drugs without a doctor's consultation, while 84.7% followed the doctor's instructions about taking drugs and 90% reported that they stopped taking antibiotics after they had experienced adverse effects, (Table 4)

Table 2: Assessment of knowledge towards antibiotics

Questions	Yes	
	No.	%
Viruses cause most coughs and colds?	216	87.1
Antibiotics work on most coughs and colds?	159	64.1
Antibiotics can kill bacteria?	163	65.7
Antibiotics can kill viruses?	162	65.3
Antibiotics resistance can spread between bacteria?	154	62.1
Do you think frequent use of antibiotics will decrease efficacy of treatment when using the antibiotic again?	184	74.2
Should patients follow physician's directions when taking antibiotics?	223	89.9
Is it okay (informal word) to stop taking an antibiotic regimen if your symptoms are improving?	136	54.8
Do some antibiotics cause adverse effects?	211	85.1

Table 3: Assessment of attitudes towards antibiotics

Questions	Yes	
	No.	%
If I get flu, I will take antibiotic without a doctor's prescription	96	38.7
Would you follow physician's directions about antibiotic use?	225	90.7
If your doctor prescribed antibiotics but did not explain the reason, would you be satisfied?	73	29.4
Would you visit for follow-up after taking antibiotics?	157	63.3
If you had tonsillitis, would you prefer using antibiotics?	162	65.3
Total	248	100.0

Table 4: Assessment of behavior towards antibiotics

Questions	Option	No.	%
About taking antibiotics:	Follow the physician's instruction	210	84.7
	Stop without consultation	19	7.7
	Decrease the dosage without consultation	9	3.6
	Take the medicine irregularly	10	4.0
If ill with flu-like symptoms and the doctor does not prescribe antibiotic, what would you do?*	Visit another doctor for antibiotics	83	33.5
	Buy antibiotics elsewhere	33	13.3
	Not be concerned	58	23.4
How would you take antibiotics?*	Ask the doctor to prescribe antibiotics	73	29.4
	With water	97	39.1
	With tea	138	55.6
I normally stop taking antibiotics when I start feeling better*	Directly	12	4.8
	Yes	171	69.0
	No	76	30.6
Total		248	100.0

*There was one missing case for these questions

Discussion:

The current study sought to assess the general knowledge, attitude and behavior related to use of antibiotics among non-medical college students. The results of the current study showed that about two thirds of respondents reported that antibiotics can treat coughs and colds, whereas 65.3% answered that antibiotics can kill viruses, which reflected poor knowledge for usage the antibiotics. These findings were consistent with those reported by a study in South Korea (13) in which 69.9% of participants agreed about the statement of “antibiotics can work on most cough and colds”, and 69.4% reported that antibiotics can kill viruses. However, a study from Jordan revealed that only 28.1% of participants stated that antibiotics were used for the treatment of viral infection (16). More than half of the respondents stated that it is possible to stop antibiotics if the symptoms have improved, which is a little higher than the results of a study from Syria (50%) (17), but lower than those from South Korea (69.4%) (13). A study conducted in Karachi revealed that 83% of the respondents reported that they should complete the full course of antibiotics (11). A cross sectional study in Italy showed that 83% of the participants knew that the antibiotics will lose their effectiveness if the treatment is interrupted and if the prescription is not followed (18). More than a third of the respondents agreed with the statement of “If I got flu, I will take antibiotic without prescription by doctor”, in consistence with reports from other studies, such as a study from Jordan where 41.5% of respondents reported that flu/cold is the main reason for using antibiotics (16) and a survey from Malaysia where 67.2% of participants reported that antibiotics can be used in the treatment of viral infection (15). The results also revealed that about half of subjects

reported that they took antibiotics with tea, whereas a study from Taiwan reported that only 0.3% answered that they took antibiotics with tea (14). The literature shows that some components of tea may interfere with the absorption and hence action of antibiotics (19). The differences in the knowledge, attitudes and behaviors towards antibiotics across the countries may be due to several factors such as socioeconomic characteristics including the educational level of participants, the health care programs and their role in educating and improving the health status of community.

Conclusion

Knowledge among subjects towards antibiotic usage is poor. Health education programs might be needed among university students to improve the general knowledge and attitudes towards antibiotics.

Authors' contributions:

All authors equally contributed to the design, data collection, data analysis and writing of the final article.

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تقييم المعرفة والموقف والسلوك من استخدام المضادات الحيوية بين طلاب الكليات غير الطبية من جامعة الفلوجة – العراق

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المقدمة: المضادات الحيوية هي الأدوية المستخدمة لعلاج الالتهابات البكتيرية، تحدث مقاومة المضادات الحيوية عندما تغير البكتيريا استجابتها لاستخدام هذه الأدوية. يحتاج العالم بشكل عاجل إلى تغيير الطريقة التي يتم بها وصف واستخدام المضادات الحيوية.

الهدف: تقييم المعرفة والموقف والسلوك تجاه المضادات الحيوية بين طلاب الكليات غير الطبية في جامعة الفلوجة.

الطريقة: أجريت دراسة مقطعية خلال الفترة من يناير إلى مارس 2019. تم استخدام استبيان ذاتي الملء يتكون من 25 سؤال مقسمة إلى أربعة أجزاء. الجزء الأول عبارة عن الأسئلة الديموغرافية. الجزء الثاني يهدف إلى تقييم معرفة المشاركين. الجزء الثالث لتقييم موقف المشاركين. بينما الرابع لتقييم السلوك تجاه استخدام المضادات الحيوية. كانت العينة هي طلاب الكليات غير الطبية في جامعة الفلوجة.

النتائج: تمثل الإناث 54.8% من العينة، تتراوح أعمار الأشخاص بين 19 عامًا و 24 عامًا. حوالي ثلثي 64.1% يعتقدون أن المضادات الحيوية تعمل على معظم السعال ونزلات البرد. صرح 61.3% من المشاركين "سوف أتناول المضادات الحيوية بدون وصفة طبية من قبل الطبيب". بينما فضل 55.6% من المشاركين تناول المضادات الحيوية مع الشاي، قال 39.1% فقط أنهم تناولوا المضادات الحيوية بالماء.

الخلاصة: ضعف المعرفة لدى الطلاب تجاه استخدام المضادات الحيوية. قد تكون هناك حاجة لبرامج التنقيف الصحي بين طلاب الجامعة لتحسين المعرفة العامة والمواقف العامة تجاه المضادات الحيوية.

كلمات مفتاحية: مضادات حيوية، طلاب، معرفة، سلوك، جامعة الفلوجة.