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## Senior Nursing Students Knowledge about the Use of Antibiotics

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### Abstract

**Background:** An international hazard to public health and safety is antibiotic resistance. Clinical antibiotic malpractice may be a result of insufficient clinical antibiotic stewardship education provided in universities, which could have detrimental effects on patient health.

**Objective:** The current study aim to determine the nursing student's knowledge of using antibiotics.

**Methodology:** A cross-sectional design was used. A total of 250 students from the University of Mosul/ Faculty of Nursing, both genders were asked to complete the Arabic version of the questionnaire "Knowledge of the use, resistance and administration of antibiotics" between September and December 2023. Researchers employed a questionnaire to collect data on the sociodemographic traits of the participants and their knowledge of antibiotic usage; this section contained 21 questions about antibiotic divided in three part (knowledge about antibiotic materials, knowledge about use and knowledge about resistance). Three categories were used to determine level of knowledge about antibiotics based on total scores of knowledge: Students had not acceptance level of knowledge about antibiotics (0–7), Acceptance (8–14), and Excellent (15–21). SPSS version 25 was used for the data analysis.

**Result:** Following data analysis, the knowledge levels of nursing students were determined to be as follows: not acceptance (25.6%), acceptance (69.2%), and excellent (5.2%). Additionally, with a P value of <0.05, The sociodemographic characteristics of nursing students do not statistically significantly correlate with their level of knowledge.

**Conclusion:** Our survey concluded that nursing students had inappropriate knowledge of antibiotic use. Misconceptions are prominent in certain areas, To increase knowledge levels, new educational activities are therefore required within the existing nursing curriculum. These students need more training and lectures to increase their understanding of antibiotics.

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### Introduction

Antibiotics have contributed significantly to reducing deaths, in addition to reducing disease complications <sup>[1]</sup>. The emergence of bacterial strains that are resistant to antibiotics is what has caused the global antibiotics crisis <sup>[2]</sup>. Human consumption of pharmaceuticals has dramatically increased in recent years <sup>[3]</sup>. Pharmaceutical medical items are a vital component of the global food chain for humans <sup>[4]</sup>.

Antibiotics have been a part of completely medication treatment plans since they are crucial to the treatment and quick recovery from any ailment. However, Both the general public and medical professionals have certain misconceptions regarding the usage of antibiotics [5]. World Health Organization (WHO) designated "Combat Antimicrobial Resistance: No Action Today, No Cure Tomorrow" as the topic of World Health Day in 2011 due to the threat that antibiotic resistance poses to the entire globe [6]. The problem of "super bugs" with high levels of antibiotic resistance affects every nation. The post-antibiotic era is rapidly approaching [7].

Antibiotics are a group of medications that are used to treat bacterial illnesses by either eradicating germs (bactericidal) or stopping their growth (bacteriostatic). Even while there may be some negative effects, like with any treatments, they are generally outweighed by the benefits, making antibiotics essential in modern medicine. However, we now know that using antibiotics improperly or excessively can lead to microorganisms developing resistance to the drugs' effects [8]. Strong drugs that combat bacterial illnesses are antibiotics. Antibiotics can save lives if used appropriately. Bacteria are either eliminated or prevented from growing. Antibiotic use may be detrimental if a virus is causing your illness. Every time you take them, your body can develop an illness that those antibiotics can't treat [9].

Understanding of antibiotics Chemical composition, activation mechanisms, type of creature it is most active against, range of activities. The history of antibiotics is crucial for improving patient treatment, according to health care professionals [3, 8].

In their routine work, nurses provide a range of medicinal drugs and are crucial in patient education [10]. Therefore, it is important to support teaching programs on efficient and ethical antibiotic stewardship among these medical professionals [11]. Since it will be challenging for students to change their knowledge, attitudes, and practices once they have completed their studies, undergraduate education is a great moment to emphasize the significance of responsible antibiotic use among students [12]. However, insufficient undergraduate instruction in antibiotic stewardship may be a factor in the clinical misuse of antibiotics, which has substantial health effects on patients [13].

**Objectives of the Study**

1. To assess the senior' nursing knowledge levels regarding antibiotics.
1. To ascertain the connections between socio-demographic factors and knowledge level.

**Methodology**

**Design and Setting**

A cross-sectional study with a quantitative research design was chosen for the time period spanning from the September and December 2023at the University of Mosul's College of Nursing.

**Study Participants and Sampling**

A purposive sample was used to choose 250 senior nursing students for the study.

**Instruments Tools and Data Collection**

After studying relevant articles and publications that are focused on the study's subject, the researchers created a structured questionnaire that has two parts: first part: questions regarding age, gender, and characteristics of senior nursing students; second part: questions about senior citizens' knowledge of antibiotic use; total of 21 questions divided in three part (knowledge about antibiotic materials, knowledge about use and knowledge about resistance). There were four multiple-choice (choose the correct answer) questions for each. Cut off points for total knowledge: not acceptance = (0-7), acceptance = (8-14), excellent = (15- 21) score. The data collection after direct interview with the students.

**Data Analysis**

The statistical analysis was performed using SPSS statistics program,version 25.

**Ethical Considerations**

The College of Nursing at the University of Mosul provided formal administrative approval for the study before any data were collected. Prior to the study's execution, subjects' consent to participate is also requested from each student. The fact that participation is voluntary and that data will only be used to further the objectives of the study is also disclosed to participants.

**Results**

**Table 1:** Demographic Characteristic of the Study Sample (No=250).

Variables	F.	%
<b>Age</b>		
22-24 Years	146	58.4
25- 27 Years	76	30.4
28 ≥	28	11.2
<b>Sex</b>		
Male	128	51.2
Female	122	48.8
<b>Have you taken antibiotics without prescription</b>		
Yes	123	49.2
No	127	50.8
<b>Students with relatives or close acquaintances who are employed in the health fields</b>		
Yes	7	2.8
No	243	97.2

**Table 2:** Overall Nursing students' knowledge concerning antibiotics use (No=250).

Items	Knowledge		Mean	Std. Deviation
	F.	%		
Not acceptance	64	25.6	1.80	0.517
Acceptance	173	69.2		
Excellent	13	5.2		
Total	250	%100		

The total scores of knowledge level: not acceptance (0–7), Acceptance (8-14), and excellent (15- 21).

**Table 3:** Associations among Socio-demographic variables of the Students and their knowledge Level (n=250).

Items	Knowledge						P-value
	Not Acceptance		Acceptance		Excellent		
	F	%	F	%	F	%	
<b>Age</b>							
22-25 Years	39	60.9%	100	57.8%	7	53.8%	0.354
26- 29 Years	18	28.1%	52	30.1%	6	46.2%	
30 ≥ Years	7	10.9%	21	12.1%	0	0.0%	
<b>Gender</b>							
Male	32	50.0%	91	52.6%	5	38.5%	0.679
Female	32	50.0%	82	47.4%	8	61.5%	
<b>Have you taken antibiotics without prescription</b>							
Yes	33	51.6%	82	47.4%	8	61.5%	0.803
No	31	48.4%	91	52.6%	5	38.5%	
<b>Students with relatives or close acquaintances who are employed in the health fields</b>							
Yes	3	4.7%	4	2.3%	0	0.0%	0.058
No	61	95.3%	169	97.7%	13	100.0%	

F: Frequency, %: percentage, Significant at  $p < 0.05$ . highly significant at  $p < 0.01$ .

### Discussion

The study's findings revealed that a large proportion of the population fell into the 22–24 year age range (58.4% of the sample), while the lowest percentage fell into the 28–year age range (11.2%). The majority of the population was male (51.2%) of the sample, while the lowest percentage was female (48.8%). According to the taken antibiotics without prescription of Study the highest sample was of (50.8% didn't take) and the lowest was of (49.2 % take). Furthermore, showed that (2.8 %) of the study sample) answered that they have relatives or close acquaintances who are employed in the health fields, while (97.2 % of the study sample) answered that they don't have.

In concerning about knowledge level showed that (25.6%) of nursing students have not acceptance knowledge and (69.2 %) of them have acceptance knowledge and (5.2 %) have excellent knowledge. That explains there being no statistically significant association between socio-demographical characteristics of the nursing student's and knowledge at P. value  $\leq 0.05$ .

Numerous related studies have revealed that while students' awareness of antibiotic use was subpar, their overall knowledge of antibiotics and antibiotic resistance was above average [14]. Similar findings were discovered in earlier research with university students in Ethiopia and the United Arab Emirates [15, 16].

Numerous investigations also revealed that the majority of them practice and have inadequate understanding [17, 18, 19], Having family members or close acquaintances who work in the medical industry is another finding in agreement with sex. Additionally, other investigations revealed that no discernible alterations were seen ( $p > 0.05$ ) [20].

**Conclusion and Recommendations:** Senior nurses lack complete knowledge of the use of antibiotics and this is what was concluded from the results of this research. In order to boost students' knowledge of the safe uses of antibiotics, the study recommends raising the emphasis on drug lectures together with increasing the number of lessons offered.

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**Conflict of Interest:** None to declare.

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