

# Exploring the Level of Knowledge of Patients Regarding Antibiotics Use in AL- Najaf City Hospitals, Iraq

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## Annotation:

**Background:** Antibiotics are drugs that either kill or stop the growth of bacteria in order to treat bacterial infections. Because misuse can result in bacterial resistance, which makes treating infections more challenging, they should be used carefully.

**Objective:** This study seeks to assess the level of knowledge of patients regarding antibiotics use.

**Methodology:** cross-sectional study was conducted in selected government hospitals in Al-Najaf city from 1 October 2024 until the end of January 2025 to assess the knowledge of patients regarding antibiotic use. Data were collected from 400 patients using a structured questionnaire and analyzed using SPSS-27.

**Results:** the results of this study indicate that 61.8% of patients have a fair knowledge score, followed by 23.0% of the participants have a good knowledge score, and only 15.2% of patients have a poor knowledge score. The results of this study reveal that there is a significant relationship between demographic characteristics (such as age groups, residence, gender, marital status, educational level, high professional occupation and socioeconomic status) and overall knowledge score (P. value <0.05).

**Conclusion:** The study conclude that more than half of patients have moderate level of knowledge about antibiotic use. The study found that young age, female gender, single, those live in urban areas, high professional occupation, high socio-economic status and high education patients, have good assessment scores for knowledge about antibiotic at significantly level  $<0.05$ .

**Keywords:** Knowledge, Patients, Antibiotics, Hospitals.

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## Introduction

Antibiotics are medications employed for treating various bacterial illnesses and can be life-saving if utilized correctly. They function by either inhibiting reproduction of bacteria or directly destroying cellular components through specialized processes [1]. Currently, the most important class of medications and one of the most important medical products are antibiotics. Millions of lives have been saved by antibiotics, which have unquestionably benefited human society in the fight against microorganisms [2].

Antibiotic abuse is a significant global public health issue. Excessive use and abuse of antibiotics have contributed to the rise in antimicrobial resistance (AMR), which has been recognized as a global public health concern in recent decades [3]. In order to prevent an AMR crisis, the World Health Organization (WHO) has urged for quick action for enhanced antibiotic therapy by raising awareness and providing evidence through research, teaching, and surveillance [4]. It's alarming, particularly in places with no health supervision [5].

Antibiotic resistance poses a danger to the effectiveness of antibiotics and is a global health concern. The Centers for Disease Control (CDC) estimate that over 2 million infections are caused by bacteria resistant to antibiotics [6]. About 700,000 people die each year as a result of resistant diseases [7]. If antimicrobial resistance (AMR) is not controlled, it will result in 10 million deaths yearly by 2050 and less economic growth.

A lack of understanding and awareness regarding antibiotic use and antimicrobial resistance is the frequent factor causing the general public to use antibiotics irrationally [8]. Therefore, understanding how to avoid AMR and utilize antibiotics appropriately is crucial to lowering AMR. (Min et al. 2022). The awareness, expectations, and relationships between patients and prescribers, in addition to economic, health, and environmental variables, all influence the usage of antibiotics. Higher educated people are less likely to utilize antibiotics inappropriately, but people with less education are more likely to misunderstand how to utilize antibiotics [9].

## Material and Methods

**Study Design:** A descriptive study (cross-sectional study) has been conducted on patients attending to the hospitals in AL-Najaf city, Iraq.

**Setting of the Study:** The study has been conducted in the four government hospitals in AL-Najaf city, which are First Al-Hakeem General Hospital, Second AL-Najaf AL-Ashraf Teaching Hospital, third AL-Sader Medical City and four Al-Zahraa Teaching Hospital.

**Sampling Technique and Sample Size:** A convenience sampling technique (non- probability/non random sampling technique) to select the patients attending to AL-Najaf province center hospitals. The sample size was determined by using Daniel equation (Ali et al. 2020).using

desired 95% confidence,  $Z=1.96$ , prevalence (0.5), allowable error (0.05). the minimum sample size of our study is 384. However, for more representativeness of the study with a, 400 participants were included to strength of the study.

### Inclusion and exclusion criteria

Inclusion criteria included of patients ages equal or above 18 years for both sexes, the patients who agreed to participate in the study, and who were able to listen and understand. patients who had mental problems, who were unable to respond properly due to severe illness, who did not use antibiotics, and Health care workers, medical students were excluded from the study.

**Data collection and method** The questionnaire has been developed to evaluate the patient's knowledge, attitude, practice about antibiotic use. We have translated the questionnaire from its original English language to Arabic. After the validity and reliability of the study instrument is ensured, the questionnaire was distributed to the patients and information was collected. The data collection process has taken four months, starting from 1 October 2024 until the end of January 2025 to completed data.

### Scoring Criteria

#### ➤ Knowledge:

**The questions regarding assessment of knowledge** The rating and scoring of items are three points Likert scale applied for rating knowledge. The three-point type Likert scales scored as (3) for correct answer, (2) for uncertain answer and (1) for incorrect answer.

**The questions in knowledge** "With 11 questions on knowledge, the minimum score was 11, the maximum score was 33, and the median score was 22. A score between 50 and 74% was deemed fair/moderate (22-28), less than 50% was deemed poor (<22), while a score of more than 75% was regarded good ( $\geq 28$ ) [10].

### Statistical analysis

The information for each item on the questionnaire was copied to code sheets, the data was input into a personal computer, and the statistical package from SPSS-27 was used to evaluate the data. Simple statistics like frequency, percent, average, standard deviation, and range displayed the data. A Chi-square test ( $X^2$ -test) was utilized to identify the significance of qualitative data percentage differences. The P-value was considered statistically significant when it was equal to or less than 0.05 [11].

### Results

**Table (3.1): The distribution of patients according to sociodemographic characteristics of the study population**

Sociodemographic characteristics		No.	%
Age groups	18-28 years	194	48.5
	29-39 years	112	28.0
	40-50 years	57	14.2
	51-61 years	25	6.3
	62-72 years	12	3.0
	<b>Mean± SD (Range)</b>		<b>32.6±11.2 (18-72)</b>
Residence	Rural	103	25.8
	Urban	297	74.3
Gender	Male	243	60.8
	Female	157	39.2
Marital status	Single	113	28.2
	Married	255	63.7
	Divorced	16	4.0

	Widowed	16	4.0
<b>Educational level</b>	Illiterate	46	11.5
	Read and write	37	9.3
	Primary	58	14.5
	Intermediate	56	14.0
	Secondary	62	15.5
	University and above	141	35.3
<b>Occupational status</b>	High professional	39	9.8
	Low professional	147	36.8
	Unskilled worker	214	53.5
<b>Socioeconomic status</b>	Low (1-4 score)	135	33.8
	Medium (5-8 score)	177	44.2
	High (9-12 score)	88	22.0

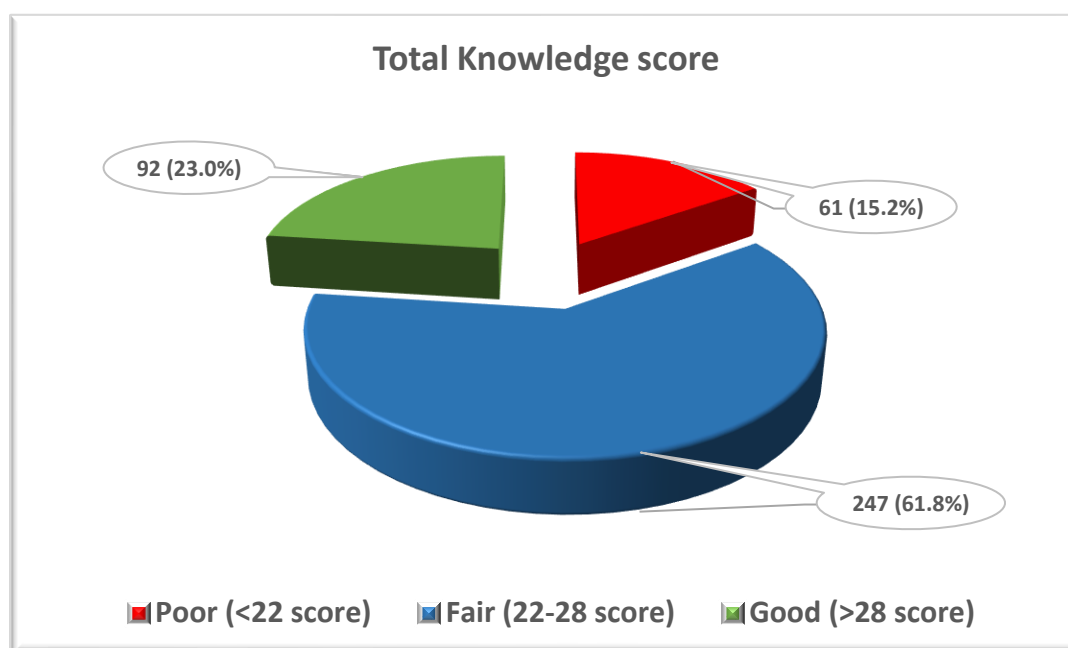
In Table 3.1, the results of this study indicate that most patients belonging to ages 18-28 years (48.5%), followed by those aged 29-39 years (28.0%), 40-50 years (14.2%), 51-61 years (6.3%), while lowest percentage (3.0%) of patients are aged 62-72 years. The mean of age  $32.6 \pm 11.2$  (with range; 18-72) years. The gender ratio is 60.8% male to 39.2% female. Most patients live in urban areas (74.3%) compared to rural (25.8%). While 63.7% of patients were married, while 28.2% of them were single, low percentages of patients were divorced (4.0%) and widowed (4.0%). The highest proportion has University and above certificate (35.3%), followed by Secondary (15.5%), Primary (14.5%), Intermediate (14.0%), Illiterate (11.5%), and read and write (9.3%). Finally, 44.2% of patients have medium socioeconomic status, followed by 33.8% low socioeconomic status, and 22.0% high socioeconomic status.

**Table (3.2): The distribution of patient's responses according to their knowledge about antibiotic**

Knowledge questions	Yes		No		Uncertain	
	No.	%	No.	%	No.	%
1. Are antibiotics the same medications used to treat pain and fever such as aspirin?	134	33.5	201	50.2	65	16.3
2. Antibiotics help people recover faster from colds than without taking them.	278	69.5	86	21.5	36	9.0
3. Antibiotics are effective against bacteria	279	69.8	59	14.8	62	15.5
4. Antibiotics are effective against viruses.	164	41.0	150	37.5	86	21.5
5. Are antibiotics useful against all types of infections?	107	26.8	211	52.8	82	20.5
6. Should you follow your doctor's prescription when taking antibiotics?	329	82.3	45	11.3	26	6.5
7. Does unnecessary use or incomplete courses of antibiotics reduce their effectiveness in the future?	229	57.3	84	21.0	87	21.8
8. Does overuse of antibiotics increase the risk of antibiotic resistance?	277	69.3	49	12.3	74	18.5
9. Bacteria that are resistant to	220	55.0	73	18.3	107	26.8

antibiotics can transmit between humans.						
10.Are there any side effects to antibiotics?	254	63.5	69	17.3	77	19.3
11.Is it possible that antibiotics cause allergic reactions that lead to death?	224	56.0	77	19.3	99	24.8

**In Table (3.2)**, the current results found that the highest percentages (69.5%, and 41.0%) of the patients were unaware regarding questions “Antibiotics help people recover faster from colds than without taking them, and Antibiotics are effective against viruses” respectively. While the highest percentage (50.2%, 69.8%, 52.8%, 82.3%, 57.3%, 69.3%, 55.0%, 63.5% and 56.0%) of patients were aware about questions (Q1, Q3, Q5, Q6, Q7, Q8, Q9, Q10, and Q11) respectively.



**Figure (3.1): Pie chart illustrates the total knowledge score of the participants**

**In Figure 3.1** the results of this study indicate that 61.8% of patients have a fair knowledge score, followed by 23.0% of the participants have a good knowledge score, and only 15.2% of patients have a poor knowledge score.

## Discussion

### Sociodemographic characteristics of the study population

The results of this study indicate that most patients belonging to ages group 18-28 years (48.5%), followed by those aged 29-39 years (28.0%). These findings agreed with a cross-sectional study findings carried out in the Al-Najaf Governorate, Iraq by [12], which revealed that the largest proportion of participants (46%) were in the 18–30 age range. The mean of age in the current study  $32.6 \pm 11.2$  (with range; 18-72) years. This result, when compared to a study conducted in Saudi Arabia by [13]. was nearly similar ( $32.5 \pm 10.0$  years). Also, another study in Yemen by [13], which found that mean of age almost similar to our study ( $33 \pm 11.1$ ). The possible explanation of this results could be because young people tend to be more socially engaged and engage in activities that can raise their exposure to infectious diseases.

Regarding the gender variable, the results of our study indicate that more than half of patients were male (60.8%). This result consistent with the result of study in Iraq conducted by [14]. revealed that more than half of the participants were male (54.7%). The possible explanation of

this may be due to the fact that Iraqi society is an eastern society and these societies are often more conservative than other cities.

In this study, most of patients live in urban areas (74.3%). These results agreed with the results of study done by [15], which found that most of their participants live in the urban. The increase in the number of patients from urban areas can be attributed to the ease access to these hospitals as they are close to them.

In the current study, a majority of patients were married (63.7%), while (28.2%) of them were single. These results are consistent with results of study conducted in North-western Ethiopia by [16] which found that the highest percentage of participants were married (59.5%). Also, another study shown that highest percentage of the participants were married (70.8%) [17].

Regarding the educational level, the results of our study found that the highest proportion of participants have University degree or above (35.3%), followed by Secondary (15.5%). Our findings agreed with findings of another study conducted which found that highest proportion of participant have University and above certificate (46%).

In the current study, more than half of the participants were unskilled worker(53.5%), follow by those low professional (36.9%).These results consistent with results of another study conducted by [18]. which found that highest percentage of participants were unemployed (57.9%).

Finally, our study indicate that highest percentage of patients have medium socioeconomic status(44.2%) , followed by those with low socioeconomic status (33.8%).These results agreed with the study findings conducted in Bangladesh by [19] which showed that most participants had medium socioeconomic status. In another study conducted in Colombia by[20], found that highest percentage of the participants had medium socioeconomic status (64.7%).

### **Knowledge of patients about antibiotic**

The current results of study found that the highest percentages (69.5%) of the patients were unaware regarding question the Antibiotics help people recover faster from colds than without taking them. These results consistent with findings of a study carried out in Saudi Arabia by [18], which found that (55%) of patients answered wrongly that antibiotics speed up the recovery from colds.

The current study found (41.0%) of patients answered wrongly that Antibiotics are effective against viruses. These results consistent with findings of a study conducted in Saudi Arabia by [21] which found that highest percentage (65.1%) of respondents believed that antibiotics are used for treatment of viral infection. Also, in study of Indonesia by [22]. revealed (73.12%) of participants answered that antibiotics could be used to treat viral infection. Similarly, research on public awareness of antibiotic use conducted both internationally and in Europe revealed a general lack of information about the inefficiency of antibiotic treatment for viral illnesses [23]. This may be due to the frequent dispensing of antibiotics to treat self-limiting viral infections, which has affected the public's perception of the use of antibiotics to treat various diseases.

In the current study, (69.8%) of patients considered the antibiotics are effective against bacteria. our results consistent with results of study in Romania done by [24], which showed that (62.65%) of participants correctly answered regarding the question the antibiotics are effective against bacterial infections.

In this study, (82.3%) of patients believe in following doctor prescription when they taking antibiotics, and (69.3%) of them correctly answer that the overuse of antibiotics increase the risk of antibiotic resistance. These findings align with the findings of a study carried out in Saudi Arabia by [18], which revealed that the majority of patients understood that antibiotics should not be purchased or taken without a doctor's prescription (74.8%), and (60.5%) of the participants knew that excessive use of antibiotics can lead to antibiotic resistance.

### The total knowledge score of the participants

The current study revealed that highest percentage (61.8%) of patients have a fair knowledge score. This result consistent with finding of study in Malaysia done by [25], which found that most of the participants showed moderate knowledge score about antibiotics. Another study in Ethiopia conducted by [26], reported that majority of participants have fair knowledge score about antibiotics. Also, other study in Lebanon carried out by [28] found that highest percentage of participants have moderate knowledge score regarding antibiotics. A possible explanation for this finding may be a lack of awareness of some aspects of antibiotics, and cultural beliefs about antibiotics as a panacea for infections. In addition, the easy access to antibiotics without prescription in some areas contributes to misuse and this makes practice directly related to knowledge. However, this level of knowledge is a positive sign.

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