AL-KUNOOZE SCIENTIFIC JOURNAL
ISSN: 2706-6231 E ,2706-6223 P
(2025)3Vol.11 No.

Patients' Practices Regarding Antibiotic Use: A Cross-Sectional Study in Al-Najaf City Hospitals, Iraq

Anwer Kadhim Bazma, [*], Wisam Abdul-Ameer Ali Fareed [**], Jabbar Taresh Ahmed, [***]

* Southern Technical University/ Collage of Health and Medical Techniques / Department of Community Health Techniques /Iraq

E-mail: alshiblianwer@gmail.com

** Southern Technical University/ Collage of Health and Medical Techniques / Department of Community Health Techniques. Basrah/Iraq

E-mail: Wisam.farid@stu.edu.iq

*** Southern Technical University/ Collage of Health and Medical Techniques / Department of Community Health Techniques. Basrah/Iraq

E-mail: alalijabbar@stu.edu.iq

Abstract

Background: Antibiotics are important medicines that require great awareness in their use to avoid bacterial resistance, as their misuse is considered one of the most prominent global health challenges. **Objective:** this study aims to assess the level of practice of patients toward antibiotics use. **Methodology:** cross-sectional study was conducted in selected government hospitals in Al-Najaf city from 1 September 2024 until the end of January 2025 to assess the practice of patients on 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 59.8% of patients have a moderate practice score, followed by 20.2% of the participants have a good practice score, and only 20.0% of patients have a poor practice 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 practices score (P. value <0.05). **Conclusion:** The study conclude that more than half of patients have moderate level of practices about antibiotic use. The study concludes that older married patients who live in urban areas, have high education level, high occupational status, and high socio-economic status have good practice score toward antibiotics.

Keywords: Patients', Antibiotic, Practices, Hospitals.

Introduction

Antibiotics are chemical compounds with bactericidal or bacteriostatic qualities that are produced by certain types of microorganisms. Antibiotics is a more inclusive phrase that also refers to semi-synthetic medications [1]. It aids in the prevention and management of infections that arise during chemotherapy and surgery. Antibiotics also have the advantage of extending life expectancy [2]. Antibiotics not only treated infectious diseases but also enabled a number of contemporary medical operations, such as open heart surgeries, organ transplantation, and cancer therapy [3].

The use of antibiotics without a prescription has been rising around the world and is thought to be a significant risk factor for antibiotic resistance. As a result, most countries have laws that forbid people from buying antibiotics without a prescription because they believe that doing so "fuels the evolution of resistance microorganisms [4]. Globally, approximately fifty percent of all antibiotics are bought over-the-counter from pharmacies or street sellers [5]. Although the selling of without a prescription pharmaceutical is banned in several developing nations, the laws are rarely followed, and people routinely self-medicate [6]. Additionally, in European nations like Spain and Greece, where it is illegal to sell over-the-counter (OTC) antimicrobial agents, this practice is common [7].

Many factors contribute to the randomly utilization of antibiotics, which in turn leads to antibiotic resistance. These include patients' failure to comply with prescribed therapy and demand, prescribers' inappropriate use of antibiotics in medical practice, drug advertising, dispensing physicians, the utilization of antibiotics in the agricultural sector, low antibiotic quality, insufficient surveillance, and susceptibility testing [8].

In Iraq, people frequently use antibiotics to treat any respiratory infection, including viral ones like the influenza virus. Despite being regarded as prescription-only drugs; antibiotics are still widely accessible over-the-counter. Many community pharmacists allow antibiotics to be sold over-the-counter, in violation of the usual legal restrictions on their prescriptions [9].

Material and Methods

Design and Setting of the Study: a descriptive cross-sectional study was carried out on patients attending to the

hospitals in Al-Najaf city, Iraq. The research was carried out at four hospitals in the Al-Najaf Governorate: 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: The sample was calculated by using convenience sampling technique to select patients. The sample size was determined by using Daniel equation [10]. 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.

Criteria of Selection

Inclusion

1. Patients ages equal or above 18 years for both sexes.
2. The patients who agreed to participate in the study

Exclusion

1. patients who had mental problems.
2. Health care workers, medical students
3. patients who did not use antibiotics

Data Collection Method

Once the questions have been translated from English to Arabic, we interview patients directly to gather data; each interview lasts between 20 to 25 minutes.

Statistical Analysis

After copying the data for every question on the questionnaire to code sheets, the data was entered into a personal computer and evaluated using the SPSS-27 statistical tool. The data was shown using basic statistics such as frequency, percent, average, standard deviation, and range. To determine the significance of percentage differences in qualitative data, a chi-square test was employed. When the P-value was equal to or less than 0.05, it was deemed statistically significant.

Result and Discussion

3.1 Sociodemographic Characteristics of the Study Population

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±11.2 (with range; 18-72) years. The Sex 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 (3.1): 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
	Mean± SD (Range)	**32.6±11.2 (18-72)**	
Residence	Rural	103	25.8
	Urban	297	74.3
Sex	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
Educational level	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
Occupational status	High professional	39	9.8
	Low professional	147	36.8
	Unskilled worker	214	53.5
Socioeconomic status	Low (1-4 score)	135	33.8
	Medium (5-8 score)	177	44.2
	High (9-12 score)	88	22.0

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 Fakhreldain and Assad,(2022) 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±11.2 (with range; 18-72) years. This result, when compared to a study conducted in Saudi Arabia by [11,12], was nearly similar (32.5 ± 10.0 years).Also, another study in Yemen by [13] which found that mean of age almost similar to our study (33±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 Sex 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 by [18] 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 proffisional (36. 9%).These results consistent with results of another study conducted by [12] 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%).

3.10 Practices of Patients about Antibiotic

In Table (3.8), the current results found that the highest percentages (57.5%, 60.3%, 44.3%, and 45.8%) of the patients were sometimes experienced questions (1st, 2nd, 3rd, and 6th) respectively. While the highest percentage (67.5%, 74.8%, 52.8%, 41.0%, and 41.5%) of patients were always experienced questions (4th, 5th, 7th, 9th and 10th) respectively. As for 8th question, 56.0% of the patients never experienced sharing antibiotics with sick family members or friends.

Table (3.8): The distribution of patient's responses according to their practices about antibiotic

Practices	Never		Sometimes		Always	
	No.	%	No.	%	No.	%
1. Have you ever used antibiotics without seeing your doctor?	71	17.8	230	**57.5**	99	24.8
2. Did you buy antibiotics from the pharmacy without a doctor's prescription?	61	15.3	241	**60.3**	98	24.5
3. Do you consult a doctor before taking antibiotics?	61	15.3	177	**44.3**	162	40.5
4. Do you take antibiotics on time as instructed?	15	3.8	115	28.7	270	**67.5**
5. Do you look at the expiry date of the antibiotics you are taking?	49	12.3	52	13.0	299	**74.8**
6. Do you keep leftover antibiotics at home for later use?	128	32.0	183	**45.8**	89	22.3
7. Do you usually complete the course of antibiotics prescribed for you?	53	13.3	136	34.0	211	**52.8**
8. Do you share antibiotics with sick family members or friends?	224	**56.0**	107	26.8	69	17.3
9. Do you test for allergies before taking antibiotics?	82	20.5	154	38.5	164	**41.0**
10. Do you generally take antibiotics if you have a cold or fever?	87	21.8	147	36.8	166	**41.5**

The study reveal that the highest percentages (60.3%) of the patients were sometimes bought antibiotics without prescriptions, and (57.5%) of patients were sometimes used antibiotics without doctor consultation. these results consistent with

results of study conducted in Saudi Arabia by [21] which revealed that highest percentage of the participants (69.7%) get antibiotics without doctor consultation and (37.5%) of them obtained Abs without prescription. Similar study in Yemen done by [13] which found that highest percentage (62.7%) of the participants get antibiotics for treatment without prescription. Among the reason mentioned by patients for not consulting a doctor is the lack of necessity of seeing a doctor for minor diseases, the high financial cost of visiting a doctor, or to avoid inconvenience. All of these factors may be due to the loss of health insurance and financial resources. This supported by [22] which indicated in their study that the reason for purchasing antibiotics without a prescription may be convenience. Since the majority of people know that antibiotics should be purchased with a prescription, they do not want to waste time consulting doctors and instead buy medicines freely from a local pharmacy. Therefore, policymakers should focus on this issue to reduce the prevalence of antibiotic abuse.

In this study, (67.5%) of patients were always take antibiotics on time. This finding align with result of study conducted in Ethiopia by [23] which revealed that (67.3%) of the participants take antibiotics on time according to the instruction. Another similar study in India done by [24] which showed that majority of participants take antibiotics correctly according to the instructions.

The study results found that majority (74.8%) of the patients check the expiry date of the antibiotics when taking it. This result consistent with result of a study carried out in South India by [25] which found that highest percentage (59%) of participants were always checked the expiry date of drugs. Also, similar study in Nepal done by [26] which revealed most participants check the expiry date of antibiotics.

The result of the current study reveal that more than half (52.8%) of the patients said that they were always completed the course of antibiotics. Our finding agreed with finding of other study in Malaysia done by [27] which showed that majority of the participants completed the course of antibiotics prescribed. Also, other study done by [28] which found that most participants were always completed the course of antibiotic.

Our findings found that (56.0%) of the patients were never experienced sharing antibiotics with sick family members or friends. Our results consistent with results of a study conducted in Saudi Arabia by [29] which found that majority of participants don’t sharing antibiotics with family if they were sick. Also, similar study conducted in Malaysia by [27] which revealed that most of the participants don’t

share their antibiotics with sick family member or friend.

3.11 The total practices score of the participants

In Figure 3.3, the results of this study indicate that 59.8% of patients have a moderate practice score, followed by 20.2% of the participants have a good practice score, and only 20.0% of patients have a poor practice score.

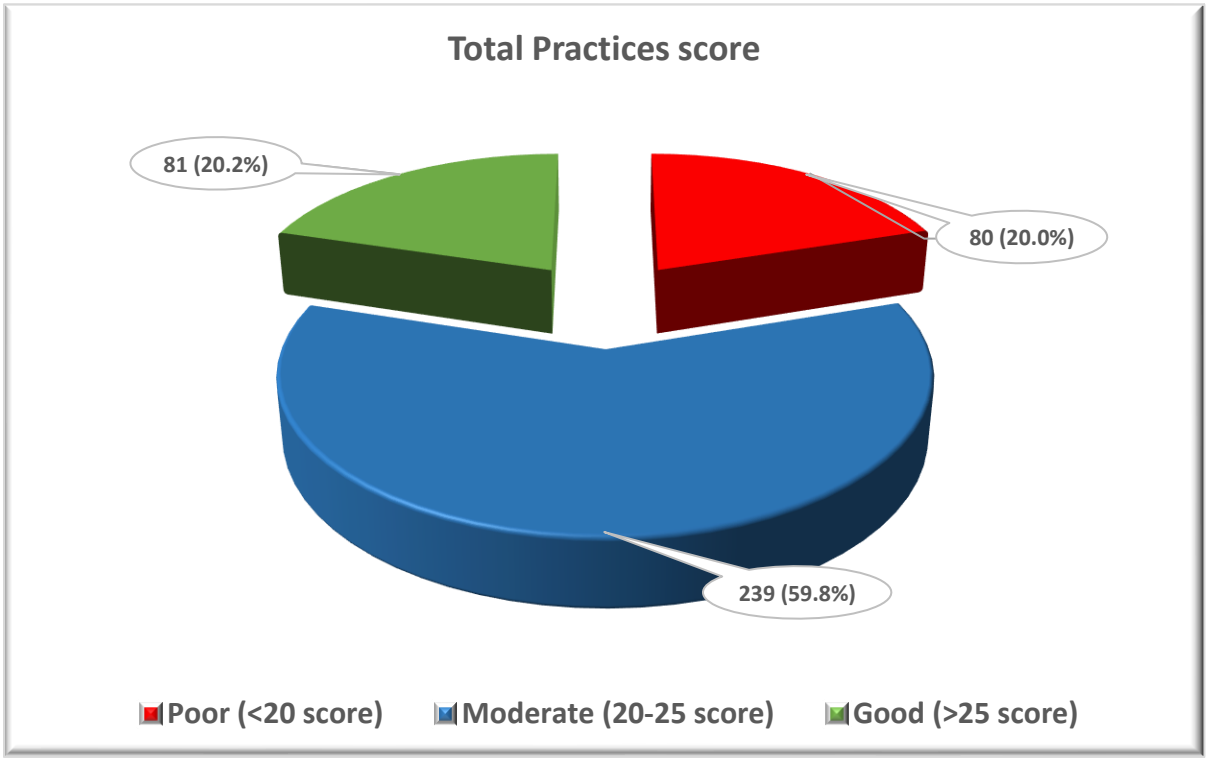

Figure (3.3): Pie chart illustrates the total practices score of the participants

In this study, the results indicate that highest percentage (59.8%) of patients have a moderate practice score toward antibiotics using. Our results consistent with results of a study conducted in Bangladesh by [30] which revealed that most of the participants had fair practice score toward antibiotics using. The possible explanation for this finding may be because the level of practice was a reflection of the level of knowledge and the level of attitude, and this indicates that the knowledge and attitude reflect the level of practice, as shown in Table 3.10, which shows the correlation between knowledge, attitude and practice.

Acknowledgments: We express our gratitude to all the study participants and staff members in the hospitals of AL-Najaf

Center who demonstrated complete cooperation throughout the study.

Funding: None.

Conflict of interest statement: No conflict of interest is declared.

Reference

1. Lima LM, da Silva BNM, Barbosa G, Barreiro EJ. β-lactam antibiotics: An overview from a medicinal chemistry perspective. Eur J Med Chem. 2020;208:112829.
2. Ventola CL. The antibiotic resistance crisis: part 1: causes and threats. Pharm Ther. 2015;40(4):277.
3. Katz L, Baltz RH. Natural product discovery: past, present, and future. J Ind Microbiol Biotechnol. 2016;43(2–3):155–76.
4. Alhomoud F, Aljamea Z, Almahasnah R, Alkhalifah K, Basalelah L, Alhomoud FK. Self-medication and self-prescription with antibiotics in the Middle East—do they really happen? A systematic review of the prevalence, possible reasons, and outcomes. Int J Infect Dis. 2017;57:3–12.
5. Elong Ekambi GA, Okalla Ebongue C, Penda IC, Nnanga Nga E, Mpondo Mpondo E, Eboumbou Moukoko CE. Knowledge, practices and attitudes on antibiotics use in Cameroon: Self-medication and prescription survey among children, adolescents and adults in private pharmacies. PLoS One. 2019;14(2):e0212875.
6. Santa-Ana-Tellez Y, Mantel-Teeuwisse AK, Dreser A, Leufkens HGM, Wirtz VJ. Impact of over-the-counter restrictions on antibiotic consumption in Brazil and Mexico. PLoS One. 2013;8(10):e75550.
7. Lescure D, Paget J, Schellevis F, Van Dijk L. Determinants of self-medication with antibiotics in European and Anglo-Saxon countries: a systematic review of the literature. Front public Heal. 2018;6:370.
8. Acharya KP, Wilson RT. Antimicrobial resistance in Nepal. Front Med. 2019;6:105.
9. Alkadhimi A, Dawood OT, Hassali MA. Dispensing of antibiotics in community pharmacy in Iraq: a qualitative study. Pharm Pract. 2020;18(4).
10. Ali B, Almousawi A, Hatef Z, Haithem R. Patient's Satisfaction

with Primary Health centers in Kerbala City/ Iraq in 2018. J Crit Rev. 2020 Jul;7:1072–85.

11. Fakhreldain ZN, Assad HCH. FACTORS IMPACTING KNOWELDGE, PRACTICE AND ATTITUDE ABOUT ANTIBACTERIAL AND ITS RESISTANCE BY CROSS SECTIONAL STUDY IN IRAQ. J Pharm Negat Results. 2022;562–71.

12. Alkhalifah HM, Alkhalifah KM, Alharthi AF, Elzahrany YR, Aljuhani MA. Knowledge, attitude and practices towards antibiotic use among patients attending Al Wazarat health center. J Fam Med Prim Care. 2022;11(4):1299–307.

13. Alshakka M, Hatem NAH, Al-Abd N, Badullah W, Alawi S, Mohamed Ibrahim MI. Knowledge, attitude, and practice toward antibiotic use among the general public in a resource-poor setting: A case of Aden-Yemen. 2023;

14. Al-Taie A, Hussein AN, Albasry Z. A cross-sectional study of patients' practices, knowledge and attitudes of antibiotics among Iraqi population. J Infect Dev Ctries. 2021;15(12):1845–53.

15. Ayşenur A, Esra ANAK. Evaluation of Knowledge and Attitudes of Rational Antibiotic Usage of Patients Applying to the University Hospital. Int J Basic Med Sci Pharm. 2023;10(1).

16. Geta K, Kibret M. Knowledge, attitudes and practices of patients on antibiotic resistance and use in public hospitals of Amhara Regional State, Northwestern Ethiopia: A cross-sectional study. Infect Drug Resist. 2022;193–209.

17. Korkmaz P, Mıstanoğlu-Özatağ D, Paşalı-Kilit T, Toka O, Onbaşı K. Knowledge and attitudes of patients about the rational use of antibiotics. Infect Dis Clin Microbiol. 2024;6(1):11.

18. AR NK, Nandakumar UP, Ahmed S, Chand S, Kolar R. Assessment of knowledge, attitude and practice towards the usage of antibiotics amongst outpatients of the department of general medicine. Clin Epidemiol Glob Heal. 2023;23:101389.

19. Raihan MA, Islam MS, Islam S, Islam AFMM, Ahmed KT, Ahmed T, et al. Knowledge, attitudes, and practices regarding antibiotic use in Bangladesh: Findings from a cross-sectional study. PLoS One.

2024;19(2):e0297653.

20. Higuita-Gutiérrez LF, Roncancio Villamil GE, Jiménez Quiceno JN. Knowledge, attitude, and practice regarding antibiotic use and resistance among medical students in Colombia: a cross-sectional descriptive study. BMC Public Health. 2020;20:1–12.

21. Al-Shibani N, Hamed A, Labban N, Al-Kattan R, Al-Otaibi H, Alfadda S. Knowledge, attitude and practice of antibiotic use and misuse among adults in Riyadh, Saudi Arabia. Saudi Med J. 2017;38(10):1038.

22. Di KN, Tay ST, Ponnampalavanar SSLS, Pham DT, Wong LP. Socio-demographic factors associated with antibiotics and antibiotic resistance knowledge and practices in vietnam: a cross-sectional survey. Antibiotics. 2022;11(4):471.

23. Sitotaw B, Philipos W. Knowledge, Attitude, and Practices (KAP) on Antibiotic Use and Disposal Ways in Sidama Region, Ethiopia: A Community-Based Cross-Sectional Survey. Sci World J. 2023;2023(1):8774634.

24. Butul M, Masood J, Misbah NS, Nishat S, Siddiqua SA. Knowledge, attitude, and practicing behavior regarding personal use of antibiotics and awareness of antimicrobial resistance in urban and semi-urban population living around tertiary care hospital. Natl J Physiol Pharm Pharmacol. 2023;13(8):1671.

25. Rajalakshmi M, Datchanamourtty P, Vasigar P, Rajalakshmi III M, Vasigar III P. Insights Into Medicine Expiry Awareness Among the Population of Rural South India: A Mixed-Methods Approach. Cureus. 2024;16(9).

26. Sharma G, Paudel S, Chalise A, Sapkota B, Marasine NR. Knowledge, Attitude, and Practice on Antibiotic Use and Resistance Among Undergraduates, Pokhara Metropolitan, Nepal. Biomed Res Int. 2025;2025(1):9928264.

27. Jainlabdin MH, Zainuddin NDM, Ghazali SAM. Knowledge, attitude, and practice of antibiotic use and antibiotic resistance during the COVID-19 pandemic among nursing school students–a cross-sectional study. Int J Care Sch. 2021;4(2):30–9.

28. Akkawi ME, Al-Shami N, Al-Worafi YM, Ahmed AAA, Al-Shami AM. Knowledge, Attitude, and Practice Towards Antibiotic Use

Among the Public in the City of Kuantan, Pahang State, Malaysia. J Pharm. 2022;2(2):149–58.

29. Alnasser AHA, Al-Tawfiq JA, Ahmed HAA, Alqithami SMH, Alhaddad ZMA, Rabiah ASM, et al. Public knowledge, attitude and practice towards antibiotics use and antimicrobial resistance in Saudi Arabia: A web-based cross-sectional survey. J Public health Res. 2021;10(4):jphr-2021.

30. Bepari AK, Rabbi G, Shaon HR, Khan SI, Zahid ZI, Dalal K, et al. Factors driving antimicrobial resistance in rural Bangladesh: A cross-sectional study on antibiotic use-related knowledge, attitude, and practice among unqualified village medical practitioners and pharmacy shopkeepers. Adv Ther. 2023;40(8):3478–94.

ممارسات المرضى فيما يتعلق باستخدام المضادات الحيويه : دراسه مقطعيه في مستشفيات مدينة النجف، العراق

انور كاظم بزمة [1] , وسام عبد الامير علي فريد [2] , جبار طارش أحمد [3]

البريد الالكتروني: alshiblianwer@gmail.com

الجامعة التقنية الجنوبية / كلية التكنولوجيا الصحية والطبية البصرة / العراق [1,2,3]

الخلاصة

الخلفية العلمية: تُعدّ المضادات الحيوية أدويةً مهمةً تتطلب وعيًا كبيرًا في استخدامها لتجنب مقاومة البكتيريا لها، حيث يُعدّ سوء استخدامها أحد أبرز التحديات الصحية العالمية .**هدف الدراسة:** تهدف هذه الدراسة إلى تقييم مستوى ممارسة المرضى لاستخدام المضادات الحيوية .**المنهجية:** أُجريت دراسة مقطعية في مستشفيات حكومية مختارة في مدينة النجف الأشرف، خلال الفترة من 1 سبتمبر/أيلول 2024 وحتى نهاية يناير/كانون الثاني 2025، لتقييم ممارسة المرضى لاستخدام المضادات الحيوية. جُمعت البيانات من 400 مريض باستخدام استبيان مُنظّم، وحُللت باستخدام برنامج SPSS-27.

النتائج: تُشير نتائج هذه الدراسة إلى أن 59.8% من المرضى حصلوا على تقييم ممارسة متوسط، يليه 20.2% من المشاركين الذين حصلوا على تقييم ممارسة جيد، بينما حصل 20% فقط من المرضى على تقييم ممارسة ضعيف. ايضا كشفت نتائج هذه الدراسة عن وجود علاقة دالة إحصائيًا بين الخصائص الديموغرافية (مثل الفئات العمرية، ومكان الإقامة، والجنس، والحالة الاجتماعية، والمستوى التعليمي، والمهنة العالية، والوضع الاجتماعي والاقتصادي) والدرجة الكلية للممارسات (قيمة الاحتمالية <0.05).

الأستنتاج: استنتجت الدراسة في أن أكثر من نصف المرضى لديهم مستوى متوسط من الممارسات تجاه استخدام المضادات الحيوية. كما استنتجت الدراسة أن المرضى المتزوجين الأكبر سنًا، والذين يعيشون في المناطق الحضرية، والذين يتمتعون بمستوى تعليمي عالٍ، ومكانة مهنية عالية، ومكانة اجتماعية واقتصادية عالية، لديهم درجة جيدة من الممارسات تجاه المضادات الحيوية .