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Assessment of the distribution of antibiotics without a prescription at community pharmacies in Zawia, Libya

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Abstract

Antibiotic resistance (ABR) poses a risk to public health on a worldwide scale, increasing hospital stays, medical expenses, and mortality. Increased improper use of antibiotics fuels ABR. The aim of the study: to determine the extent of antibiotic dispensing without prescription in Zawia and its environs (Libya). Methods: the cross-section was conducted between September and October 2023. A total of 100 dispensers participated by using a questionnaire with 100 samples, all the participants were from Zawia and environs. The questionnaire consisted of five parts. The first part included demographic data; the second part was indications for dispensing antibiotics without a prescription; the third part was antibiotics dispensed without a prescription; the fourth part, the dispenser ask questions and offer advice to patients; and the fifth part was the route of administration of antibiotics dispensing without a prescription. Conclusion: despite the laws, we came to the conclusion that dispensing antibiotics without a prescription was nonetheless common in Zawia and environ. Although most community pharmacy professionals are aware that dispensing antibiotics without a prescription (DAWP) is prohibited and increases antibiotic resistance, they still frequently use it to treat common cold and diarrheal illnesses.

تقييم توزيع المضادات الحيوية بدون وصفة طبية في صيدليات المجتمع في الزاوية، ليبيا

ابتسام علي بشنة جلال مالود نجاة بن يوسف

خلاصة

تشكل مقاومة المضادات الحيوية (**ABR**) خطرًا على الصحة العامة على نطاق عالمي، مما يؤدي إلى زيادة الإقامة في المستشفى، والنفقات الطبية، والوفيات. زيادة الاستخدام غير السليم للمضادات الحيوية يغذي **ABR**. هدف الدراسة: تحديد مدى صرف المضادات الحيوية بدون وصفة طبية في الزاوية وضواحيها (ليبيا). الطرق: تم إجراء المقطع العرضي في الفترة ما بين سبتمبر وأكتوبر 2023. وشارك ما مجموعه 100 موزع باستخدام استبيان يضم 100 عينة، وكان جميع المشاركين من الزاوية وضواحيها. يتكون الاستبيان من خمسة أجزاء. الجزء الأول تضمن البيانات الديموغرافية. أما الجزء الثاني فكان دواعي صرف المضادات الحيوية بدون وصفة طبية؛ أما الجزء الثالث فهو المضادات الحيوية التي تُصرف دون وصفة طبية؛ أما الجزء الرابع فكان العاملون في صرف الدواء في الصيدليات التي تم وصف الدواء فيها وطرح الأسئلة وتقديم النصائح للمرضى؛ والجزء الخامس كان طريقة إعطاء المضادات الحيوية بدون وصفة طبية. الخلاصة: رغم القوانين، توصلنا إلى أن صرف المضادات الحيوية دون وصفة طبية كان شائعا في الزاوية وضواحيها. على الرغم من أن معظم المتخصصين في صيدليات المجتمع يدركون أن برنامج **DAWP** محظور ويزيد من مقاومة المضادات الحيوية، إلا أنهم ما زالوا يستخدمونه بشكل متكرر لعلاج أمراض البرد والإسهال.

Introduction

Because of its impact on morbidity, mortality, and socioeconomic determinants, antibiotic resistance (ABR) is one of the most serious topics in modern medicine. Antibiotic overuse and improper use are increased by the practice of dispensing antibiotics without a prescription (DAWP), which leads to the growth of ABR [(1)]. The non-prescription selling of antibiotics raises the rate of non-adherence to the advised course of antibiotics and encourages improper drug selection. Many neighborhood chemists dispense antibiotics without a prescription, in violation of the broad legal standards for doing so [(2)]. Optimizing antibiotic use is crucial in this scenario because community pharmacies are where the majority of antibiotics are administered and distributed. To improve the appropriate use of antibiotics and to lower the rates of antibiotic resistance, which are documented in many countries, chemists are crucially involved [(2)]. Antibiotics (ABs) have revolutionized the way diseases brought on by microbes are treated since their discovery in 1928 and have greatly decreased global mortality. However, a comparable rise in antimicrobial resistance has occurred concurrently with the use of ABs expanding globally [(3)]. In many impoverished nations, a chemist will regularly provide antibiotics without a prescription for self-limiting diseases like the common cold, the flu, and acute. Even though this supply is still prohibited, antibiotics are not necessary for gastroenteritis. Antibiotic usage without a prescription is frequently linked to incomplete or shortened treatment courses, unsuitable antibiotics, and dosage decisions [(4)]. Antibiotic non-prescription use is frequently linked to incomplete/shorter treatment regimens as well as improper medication and dose selections. Antibiotic resistance could emerge and spread as a result of such illogical antibiotic use, which could also delay hospital admissions and conceal the detection of infectious infections [(5)]. The world health organization initiative recognised the contribution of medical professionals to reducing antibiotic overuse and abuse. In this endeavour, chemists can be instrumental by offering efficient drug management for both short- and long-term treatments [(6)]. This study was the first conducted in Zawia, Libya, regarding antibiotic abuse, therefore it was conducted to determine the extent of antibiotic dispensing without prescription in Zawia and its environs.

Materials and methods

The cross-section was conducted between September and October 2023. A random sample of dispensers was included; participants completed the equations of the questionnaire and volunteered to participate in a face-to-face interview, but some of them were excluded because they uncompleted the equation. The questionnaire contained a list of questions used to gather data from respondents about antibiotics dispensing without a prescription; all participants were from Zawia and environs.

Data analysis

A total of 100 participants were randomly recorded and completed the questionnaires. There were questionnaires in Arabic and English for all participants to get a faster response. This study used a validated questionnaire consisting of five parts. The first part included demographic data; the second part was indications for dispensing antibiotics without a prescription; the third part was antibiotics dispensed without a prescription; the fourth part was dispenser workers at the pharmacies where the medication was prescribed asking questions and offering advice to patients; and the fifth part was the route of administration of antibiotics dispensing without a prescription.

Result

Totally of 100 participates or dispensers were 47% of pharmacist, 30% of health care, and 23% of others (physician and technians). The majority of dispensers were female of 70% and followed by 30% male. The years of experience were 72% < 5, 5–10 years were 27%, and only 1% were > 10 years. The mean age of them was 25–40 years old, table 1.

Table (1): Demographic data of the dispenser:

Variable	(%)
Dispenser Pharmacist Health care Others	 47 30 23
Gender Female Male	 70 30
Years of experience < 5 5 – 10 >10	 72 27 1
Mean age (years)	25 - 40

Table 2 showed the dispensing of antibiotics without prescription for the common cold or flu was 67%, diarrhoea was 59%, toothache was 73%, ENT was 68%, eye infections were 56%, and UTI was 80%.

Table (2): Indications for dispensing antibiotics without a prescription:

Indications	(%)
Common cold or flu	67
Diarrhea	59
Toothache	73
ENT (ear, nose, and throat)	68
Eye infection	56
UTI (urinary tract infection)	80

Table 3 showed the types of antibiotics already dispensed without prescription for respiratory tract infection (RTIs) and urinary tract infection (UTIs). For RTIs, Azithromycin was 73%, Erythromycin was 12%, Clarithromycin was 17%, Doxycycline was 2%, Co-amoxiclav was 61%, and Levofloxacin was 2%. For UTIs, Azithromycin was 3%, Ciprofloxacine was 51%, Cefixime was 15%, Moxfloxacine was 3%, Co-amoxiclav was 9%, and Levofloxacin was 2%.

Table (3): Antibiotic dosage forms that were dispensed without a prescription:

Antibiotics dispensed in RTIs		Antibiotics dispensed in UTIs	
Name of Antibiotics	(%)	Name of Antibiotics	(%)
Azithromycin	73	Azithromycin	3
Erythromycin	12	Ciprofloxacine	51
Clarithromycin	17	Cefixime	15
Doxycycline	2	Moxfloxacine	3
Co-amoxiclav	61	Co-amoxiclav	9
Levofloxacin	2	Levofloxacin	2

For the dispenser workers where the medication was prescribed they asked questions and offered advice to patients, a few pertinent questions, which 91% said yes and only 9% said no; used additional medicines, 96% said yes, and only 4% said no; inquired further about symptoms, 90% said yes and 10% said no; inquired about previous drug allergies, 90% said yes and 10% said no; and counseling or medication recommendations, 92% said yes and 8% said no, table 4.

Table 5 showed, the percentage of dispensers at the pharmacies to dispense antibiotics according to dosage form of antibiotics. 86% orally, 9% parenterally, 40% as an eye or ear drop, and 83% topically.

Table (4): The dispenser workers at the pharmacies where the medication was prescribed asked questions and offered advice to patients:

Pharmacy Personnel	Yes (%)	No (%)
A few pertinent questions	91	9
Used additional medicines	96	4
Inquired further about symptoms	90	10
Inquired about previous drug allergies	90	10
Counseling or medication recommendations	92	8

Table (5): Route of administration of antibiotics dispensing without a prescription:

Antibiotics dosage form	(%)
Oral	86
Parenteral	9
Eye or ear drop	40
Topical	83

Discussion

A significant component in the irrational use of antibiotics, which in turn speeds up the rate at which resistant microorganisms emerge, is the administration of antibiotics without a prescription [(7)]. This study is the observational study to assess the extent of antibiotic dispensing without prescription in Zawia and its environs (Libya). Antibiotic overuse and inappropriate usage, particularly in the community, are a few of the factors that contribute to the emergence of antibiotic resistance. Numerous studies demonstrate how sales of over-the-counter (OTC) antibiotics and self-medication have a significant impact on the spread of antibiotic resistance [(8)]. In this study, it was found that most of the dispensers were pharmacists about 47%, followed by 30% health care, and 23% were others. Also, they had 72% with less than 5 years of experience and 27% with 5–10 years of experience, with the mean age being 25–40 years old. Similar to other studies, the respondents in the Pakistani study had an average age of 31.76 ± 7.88 years and had between two and five years of experience working in community pharmacies. Twenty-four percent of survey participants (24.1%) worked for chain community pharmacies [(9)].The common cold or flu, diarrhoea, toothache, ENT, eye infection, and UTI were the common causes for the usage of antibiotics for numerous disorders in this study. Because it is less expensive, it is simple to obtain medication without visiting a physician or prescriber. According to the previous study, Sudanese doctors are prescribing antibiotics without a prescription because of the country's low socioeconomic level, restricted access to healthcare, and dearth of insurance [(10)]. In RTIs and UTIs, different types of antibiotics were used in this study. Azithromycin was the most commonly prescribed antibiotic for RTIs, followed by Co-amoxiclav and clarithromycin. However, ciprofloxacine is the most common drug dispensed for UTI, followed by cefixime. Another study

found that out of all the antibiotics given out, pharmacy staff gave out the most azithromycin, ciprofloxacin, and moxifloxacin. Azithromycin is the only oral option for treating extensively drug-resistant (XDR) Salmonella Typhi isolates in Pakistan, according to study that was published there [(9)]. Another Pakistani study indicates that UTI is the most common clinical diagnosis there. It was discovered that E. coli exhibited notable resistance. The two antibiotics that were given out and sold the most were azithromycin and ciprofloxacin [(9)]. Since viruses cause the majority of upper respiratory tract infections, antibiotics are not recommended for therapy. Diarrhoea is the second typical clinical condition, and in most situations, it may be treated without an antibiotic [(11)]. Upper respiratory illness and diarrheal disease were the most often mentioned DAWP reasons by research participants, according to a recent systematic review [(12)]. However, the majority of upper respiratory tract infections, such as the common cold and diarrhoea that isn't dysentery, are brought on by viruses, frequently go away on their own, and only require symptomatic and/or fluid balancing treatment [(12)]. For the dispensing of antibiotics, where the medication was prescribed, asked questions and offered advice to patients. The questions in this study had most of all an answer of yes with high percentages. According to another study, due to poor antibiotic distribution in Pakistan, pharmacists must play a crucial role in ensuring the prudent use of antibiotics in order to lower antimicrobial resistance (AMR) rates in the future, in accordance with the national action plan [(9)]. In accordance with the efforts of the WHO and FIP (International Pharmaceutical Federation), pharmacists are required to give all pertinent medication administration guidelines and to be watchful of medication dispensing and AMR in society. Given that they are the healthcare professionals who people in low- and middle-income countries (LMICs) may reach the most easily, pharmacists should be aware of their duties in treating patients' current ailments [(9)]. Our study participants found that antibiotics were dispensed orally administration 86%, followed by topically 83%, then 40% were dispensed for eye or ear drops, and only 9% were dispensed parenteral. Participants in another study reported that the oral route was the most prevalent way to administer antibiotics, followed by the topical method. A common cold was the leading cause of DAWP, followed by diarrheal illness, [(12)]. If a patient becomes ill, they should be urged to visit their doctor. The implementation of measures to prevent countries from self-procuring antibiotics has been observed, although the overall impact has been uneven. Multimodal strategies, such sanctions and other channels, seem to be the most effective way to stop people from buying drugs for themselves, [(9)].

Limitation of study

This paper provides a thorough overview of the phenomenon of antibiotic dispensing practises without a prescription in Zawia, Libya. Since the results of this study are not typical of all pharmacies and pharmacists in the city, the sample size of pharmacies and pharmacists is a restriction. A broader knowledge base for the creation of interventions for a nationwide rollout would be provided by additional research involving larger samples and qualitative, ethnographic, observational, and quantitative studies about dispensing practices, the obstacles to improved compliance, and the difficulties faced by pharmacists.

Conclusion

Despite the laws, we came to the conclusion that dispensing antibiotics without a prescription was nonetheless common in Zawia and environ. Although

most community pharmacy professionals are aware that DAWP is prohibited and increases antibiotic resistance, they still frequently use it to treat common cold and diarrheal illnesses.

This study suggests that existing antibiotic supply restrictions be strictly enforced and that community pharmacy practitioners get regular training on the responsible use of antibiotics and the significance of antimicrobial stewardship.

References:

1. Aida Bianco, Francesca Licata, Alessandro Trovato, Francesco Napolitano, and Maria Paviaa. Antibiotic-Dispensing Practice in Community Pharmacies: Results of a Cross-Sectional Study in Italy. *Antimicrobial Agents and Chemotherapy;* 2021. 65: 1-9

2. Akram ALKADHIMI , Omar T. DAWOOD, and Mohamed A. HASSALI. Dispensing of antibiotics in community pharmacy in Iraq: a qualitative study. *Pharmacy Practice*; 2020.18: 1-9

3. Pendo M. Ndaki, Martha F. Mushi, and Joseph R. Mwanga, *et al.* Dispensing Antibiotics without Prescription at Community Pharmacies and Accredited Drug Dispensing Outlets in Tanzania: A Cross-Sectional Study. *antibiotics;* 2021.10: 1-15.

4. Aisha Tanveer, Akshitha Kenchey, Zahera Mohammed, and P. K. Lakshmi. Assessment of Community Pharmacists' Knowledge, Attitude and Practice on Antibiotics and Antibiotic Resistance. Saudi J Med Pharm Sci; 2022. 8: 92-98

5. Asa Auta, Muhammad A. Hadi, Enoche Oga, and Emmanuel O. Adewuyi. Global access to antibiotics without prescription in community pharmacies: A systematic review and meta-analysis. Institution respiratory; 2019.10: 1-31

6. Rasha Kakati, Sanaa Nakad Borrego, and, Rana Zareef, et al. Dispensing and Purchasing Antibiotics Without Prescription: A Cross-sectional Study Among Pharmacists and Patients in Beirut, Lebanon. The Journal of Health Care Organization; 2023. 60: 1-11

7. Mohamed Abdelrahman Hussain , Ahmed Osman Mohamed , Alsara Sandel Abkar, Fatima Siddig Mohamed, and Hana Khider Elzubair. Knowledge, Attitude and Practice of Community Pharmacists in Relation to Dispensing Antibiotics Without Prescription in Sudan: A Cross-sectional Study. Integrated Pharmacy Research and Practice; 2022. 11: 107–116

8. Aida Biancoa, Francesca Licataa, Alessandro Trovatoa, Francesco Napolitanob, and Maria Pavia. Antibiotic-Dispensing Practice in Community Pharmacies: Results of a Cross-Sectional Study in Italy. EPIDEMIOLOGY AND SURVEILLANCE; 2021. 65: 1-9

9. Tawseef Ahmad, Faiz Ullah KhanID, Sayyad Ali, Asad Ur Rahman, Shujaat Ali, and Khan. Assessment of without prescription antibiotic dispensing at community pharmacies in Hazara Division, Pakistan: A simulated client's study. PLOS ONE; 2022. 17: 1-13

10. Merhawi Bahta, Sirak Tesfamariam, Dawit G. WeldemariamID, Hermella Yemane, and Eyasu H. Tesfamariam, etal. Dispensing of antibiotics without prescription and associated factors in drug retail outlets of Eritrea: A simulated client method. PLOS ONE; 2020. 24: 1-10

11. K. Sarath Kumar, S. Saranya, Nagasubramanian, and Vanitha Rani. Community Pharmacists' Knowledge, Attitude, and Nonprescription Dispensing Practices of Antibiotics: An Explorative Study in a Selected City of South India. Journal of Research in Pharmacy Practice; 2022. 11: 51-58

12. Kaleab Taye Haile and Abdella Birhan Yabeyu. Knowledge, Attitude and Practice of Pharmacy Professionals Against Dispensing Antibiotics Without Prescription in Ethiopia. Integrated Pharmacy Research and Practice; 2022. 11: 167–176