



Evaluation of self-medication with antibiotics in Libyan community

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Abstract: Self-medication of antibiotics is an irrational use of drugs, contributing to microbial resistance, increasing health care cost and higher mortality and morbidity. This study was aimed to assess self-medication with antibiotics without a medical prescription in the community of Libya. This is a cross-sectional study conducted from June to December, 2022 and the total number of participants was 200. The design of the study and sample size were modified according to the proficiency of pharmacists and the medical and non-medical population of Libya. The questionnaire was developed in English and Arabic language and was distributed through social media platforms. The questions were used after a thorough literature search and assessing the validity and reliability. The significant signs regarding reasons for the treatment by self-medication drugs of antibiotics, because of its various drugs of antibiotic by pharmacist (n = 80, 40.0%) and family (n = 90, 45.0%) compare with experience and physicians by used prescription was 13 (06.50%) and significant sings regarding by nasal congestion self-medication of various antibiotics (n = 100, 50.0%). This sign must be practiced based on a previous physician's prescription. The antibiotics are often self-administered as patient feel that they will save money and time but this can lead to substantial adverse drug reaction, antibiotic resistance, treatment failure and drug-related toxicity. This study respondent's medical and non-medical public of Libya who should be relatively informed and educated about the risk of treatment by self-medication of antibiotics with the development of resistance.

Introduction

Self-medication defines by the WHO (World Health Organization) as drugs used to treat self-diagnosed disorders or symptoms or the intermittent or constant use of prescribed drug for chronic or repeated disease or symptoms [1]. Self-medication of antibiotics has been known as wrong and irrational use of antibiotics and overall is considered illogical [2]. Internationally, without prescription ingesting of antimicrobials has been growing and is a critical risk factor for antimicrobial resistance. Because of this, in most of the countries, regulation forbids patients to procurement antimicrobials over the counter [3] as it is understood

as powering the development of resistant microbes [4]. However, in some countries as Latin America and Libya, the law is often not made or ineffective and patients can get such drugs without prescriptions [5, 6]. Self-medication of antibiotics includes obtain the medicines with no prescription, using old prescriptions to buy medicines; using extra medicines from friends or relations for similar symptoms and giving medications to other family members or dependent relations, e.g., children and older family members [7]. Self-medication of antibiotics is one of the leading worldwide issue causes of antimicrobial

resistance and can lead to health risks because of the wrong diagnosis, dosage, preparation, route, risk of side effects and drug interactions [8]. Self-medication of antibiotics can also lead patients to more disease, drug requirement and mismanagement [8]. From a public health perception, a critical issue is how to inform and instruct patients to take obligation for their own health care (which may involve self-medication such as analgesia) at the same time as considerate when they should not self-medicate with medications such as antibiotics [9]. In Libya, getting antibiotics can be bought over the counter and the use without a prescription (self-medication) was reported high rate [10] such as augmentin and azithromycin to treat Influenza, bacterial and urinary tract infections, erythromycin has also been widely used to cure respiratory tract infections. All these medicines show increased antibiotic in resistance [11, 12]. Thus, the current study was aimed to further explore self-medication phenomena of antibiotics in the Libyan community.

Materials and methods

Study design: This study is a cross-sectional method and was conducted from June to December, 2022 and all data was for 200 participants. The design of the study and the sample size were modified according to the expertise of pharmacists and the medical and non-medical subjects and the population of Libya. The questionnaire was developed in English and Arabic language and distributed through the social media platforms. The questions were verified after thorough literature search and assessing the validity and reliability of the questionnaire. The responses made anonymous to maintain confidentiality and reliability. Clarification of the contents and the purpose of the study were explained at the start to the participants and followed by informed consent. The questionnaire included ten questions; five questions dedicated to the general demographical data including gender, age, level of medical education, marital status and comorbidity conditions of the participants. The next four questions were based on the treatment by self-medication of antibiotics to prevent and treat the respiratory symptoms: drug selection, the reasoning

for self-medication, symptoms they were looking to improve and if any of the drugs improved those symptoms. The Libyan participants were asked if they consulted physician before starting medications or not. All the questions if answered as no have been considered as self-medication with antibiotics. Drugs listed in the study included azithromycin, augmentin, amoxicillin, erythromycin and ciprofloxacin.

Statistical analysis: All data were analyzed by using SPSS for Windows software version 22. The socio-demographic characteristics of the participants were described using frequency and percentage, since they are categorical variables, medical and non-medical population differences tested by Chi-square test.

Results

In this study, with regard to the demographic data, **Table 1** shows that out of the total 200 participants, 05.0% medical and 95.0% non-medical students were included in the final study analysis. The majority of the respondents were between 16 years and 80 years. The male subjects were greater than female subjects (60.0% males and 40.0% females). The status of the participants was 30.0% single and 70.0% married. Comorbidities were present in 100 subjects (50.0%) and absent in the rest (n = 100, 50.0%). **Figure 1** shows a comparison between medical and non-medical participants regarding the use of self-medication with antibiotics. A significant difference in non-medical participants' use of antibiotics. In contrast, it might be expected, a higher percentage of medical students use. **Table 2** shows statistical significant sign regarding reasons for treatment by self-medication with antibiotics, because of various antibiotics by pharmacist (n = 80, 40.0%) and family (90, 45.0%) compare with experience and physicians by used prescription was 13 (06.5%) and significant sings regarding by nasal congestion (n = 100, 50.0%) self-medication of various antibiotics drugs. This sign must be practiced based on previous physician's prescription. Differences were found relating to a lack of trust in asking physicians as one of the reasons for treatment by self-medication phenomena of using various antibiotics drug.

Table 1: Socio-demographic data of the participants

Variables	Frequency (%)
Gender	
Male	120 (60.0)
Female	80 (40.0)
Age (years)	200 (16 - 80)
Medical students	10 (5.00)
Non-medical students	190 (95.0)
Status	
Single	60 (30.0)
Married	140 (70.0)
Comorbidities	
Present	100 (50.0)
Absent	100 (50.0)

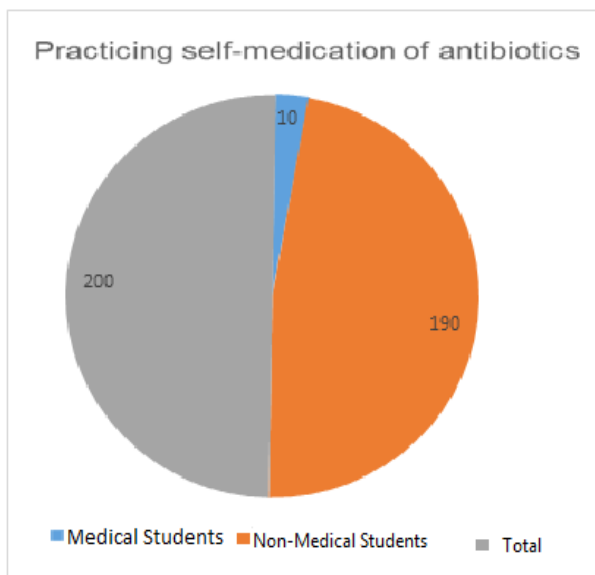


Figure 1: Practicing self-medication of antibiotics

Table 2: Treatment of antibiotics as self-medication

Variables	Frequency, %
Symptoms	
Running Nose	30 (15.0)
Nasal congestion	100 (50.0)
Cough	20 (10.0)
Sore throat	30 (15.0)
Fever	14 (07.0)
Vomiting	06 (03.0)
Self-medication	
Pharmacist	80 (40.0)
Family	90 (45.0)
Friend	15 (07.5)
Experience	02 (01.0)
Medical students	13 (06.5)

Discussion

Medicines by prescription contain antibiotics that are often self-administered as patients feel that they will save money and time. This can lead to substantial adverse drug reactions. Self-medication of antibiotics are often careful an ambiguous phenomenon and the practice is common in developed and developing countries [1, 10], however, it has not extensively been qualitatively or quantitatively studied [1, 13]. The incidence of self-medication with antibiotics in this study revealed about 80.0%, a finding is comparable to self-medication of antibiotics occurrence rates in studies conducted overseas. Thus, among the nursing undergraduates in Saudi Arabia, self-medication practice with antibiotics was found to be as high as 87.0% [14] while in Kenya, the healthcare self-medication of antibiotics prevalence has also been high (60.4%) among healthcare workers indicating an increase from pre-pandemic results [15]. In another study, prevalence of assessing self-medication with antibiotics in the Nigerian population during the pandemic found to be 41.0% [16]. In Togo, 34.1% of the participants that belonged to the healthcare, air transport, police, road transport and informal sectors reported to self-medicate and the healthcare division had the highest of 51.9% [17]. Multiple studies report that the high rate of self-medication of antibiotics can be explained by the poor or lacking drug control measures, regulatory policy and planning whereas antimicrobials are generally prescription-only drugs, patients can buy them over the counter because of the poor practice of regulatory agencies and individuals acquiring antibiotics to sell on the black market [10 - 12, 17]. In addition, the public might have poor knowledge about antimicrobials acquired from advertisements on television, radio and print media. In addition to advice from friends and family [15], cost and convenience are other factors. Patients in an expensive health care system cannot afford to pay the consultation fees of the physicians, or going to a physician's clinic (or to the hospital) is too much of a hassle [15]. In light of financial and workforce constraints, governments are gradually encouraging people to treat minor health ailments themselves and if people do not understand the consequences of self-

medication with antibiotics, they will see taking antibiotics as the same as taking analgesics [9]. Thus, respondents of the public of Libya who should relatively be informed and educated about the risk of treatment by self-medication with antibiotics and the development of drug-resistance microbial strains, treatment options are increasingly and this leads to more visits to physicians, prolonged hospital stay, more expensive proprietary drugs, higher health care cost, poorer quality of life for individuals, increased mortality and loss of potential work hours. Thus, this study highlights the phenomena of self-medication with antibiotics and resistance in Libya. Educational

policies and strategies as well as a strict regulation of purchasing antibiotics in Libya is highly and urgently desirable [18].

Conclusion: This study reveals that antibiotics are often self-administered as patients feel that they will save money and time which is a major health problem in Libya. This can lead to a substantial adverse drug reaction, antibiotic resistance, treatment failure and drug-related toxicity, consequently, a serious action is needed to minimize the frequency of self-medication phenomena with antibiotics.

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Data availability statement: The raw data that support the findings of this article are available from the corresponding author upon reasonable request.

Conflict of interest: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical issues: Including plagiarism, informed consent, data fabrication or falsification and double publication or submission have completely been observed by authors.

Author declarations: The author confirms that all relevant ethical guidelines have been followed and any necessary IRB and/or ethics committee approvals have been obtained.

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