

Research Paper

Prevalence and patterns of self-medication with antibiotics among visitors of central polyclinic of Kabul, Afghanistan

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Abstract

Objectives Self-medication with antibiotics is a common public health problem worldwide. It is the main driving factor for the development of microbial resistance. The world is facing the challenge of losing effective antibiotics. The study aim is to determine the prevalence and related factors of self-medication with antibiotics among visitors of a clinic in Kabul, Afghanistan.**Methods** A cross-sectional questionnaire-based survey on a sample of 384 consecutively selected visitors of the Central Polyclinic of Kabul, Afghanistan, was conducted.**Key findings** Approximately 34.9% of the sample self-medicated with antibiotics in the past 12 months. Amoxicillin was the most common antibiotic used for self-medication. The sore throat was a common health problem, and previous experience was the source of recommendation for self-medication. The most common reasons for self-medication with antibiotics were cost-saving, previous experience and lack of time.**Conclusions** Self-medication with antibiotics was prevalent among visitors to the clinic. Patterns of self-medication with antibiotics indicate the inappropriate practice of medicines. Pharmacists, friends and family approve the self-medication with antibiotics.**Keywords:** self-medication; antibiotics; Afghanistan

Introduction

Production of antibiotics is one of the most notable successes of modern medicine that saved millions of lives worldwide. Currently, it is the most commonly used drugs globally and also essential and useful for the treatment of infectious diseases if used rationally.^[1] Unfortunately, it is now underway of losing its effectiveness due to the emergence of microbial resistance.^[2] Many factors are

contributing to microbial resistance; among them, one of the critical factors is self-medication with antibiotics (SMA).^[3]

Scientists define SMA as taking antibiotics for treatment of self-diagnosed diseases, symptoms, or the continuing usage of prescribed medicines for chronic illness and symptoms without prescription of physicians and medical supervision. It is associated with unsuitable practices of taking drugs such as; incomplete

course of the treatment, insufficient dose of medicine, wrong indication, subscription of a drug to others, and stoppage of taking medication upon the improvement of symptoms.^[4] SMA can lead to drug interaction, masking symptoms of a given disease, and, more importantly, the development of microbial resistance. As well as, it gives rise to the cost of the treatment, longing hospitalization, and social burden.^[5]

SMA is a frequent public health problem, especially in developing countries that more than 50% of antibiotics are purchased over the counter.^[6] The result of a systematic review revealed that the overall prevalence of SMA in developing countries is 39%.^[7] Moreover, it is not just limited to developing countries; another study found that is accounted for at least 19% of antibiotics consumption in the globe.^[8]

However, there is a wealth of literature on the rate of SMA in different regions, but we could not find the study to show the scale of this phenomenon in Afghanistan. Nevertheless, WHO reported that infectious diseases account for 46% of the burden of diseases in Afghanistan,^[3] and antibiotics are the only option to fight against SMA. To fight against microbial resistance, evidence on the rate and patterns of SMA is crucial in the country. Therefore, our study aims to determine the prevalence and related factors with SMA among visitors of the Central Polyclinic of Kabul, Afghanistan.

Methods

The study was a descriptive cross-sectional questionnaire-based. The survey included a consecutive sample of 384 visitors (>10 years old) to the Central Polyclinic of Kabul, Afghanistan. Data were collected over a period of three weeks of April 2019.

The study was approved by the research and ethics committee of Tehran University of Medical Science (IR.TUMS.VCR.REC.1397.956) and the respective authorities in the Ministry of Public Health of Afghanistan. Participants were assured of the confidentiality and anonymity of the study.

Relevant studies were reviewed, and the research team developed a 22-item questionnaire. It investigated the participant's socio-demographic information and practice of SMA. The questionnaire was designed in the English language and then translated into Persian. The face and content validity of the tool was done by an expert panel of six professors of Kabul University of Medical Sciences and Tehran University of Medical Sciences. Visitors in the waiting area of the clinic were asked to participate in the survey. Following verbal informed consent, the tool was handed over for the participants who could read and write. For the illiterate, structured interviews were done.

Data were coded and analyzed using Statistical Software for Social Scientist (SPSS) Version 16. Descriptive statistics were used (that is, frequency tables).

Results

Characteristics of the sample

The response rate to the questionnaire was 100% (384). Most of the respondents were female (59.6%), married (65.4%), and illiterate (51.3%). Nearly half of them were in the age group of 19–30 years (44.3%), and one-third (36.2%) of them were unemployed, followed by employed (27.6%) and housework (25%). One-third of the participants (38%) stated that their income was insufficient for their expenditure (Table 1).

Table 1 Demographic and socio-economic characteristics of participants to self-medication with antibiotics in Central Polyclinic of Kabul, Afghanistan, 2019

Characteristics		No (%)
Gender	Male	155 (40.4)
	Female	229 (59.6)
Age group	10–18	51 (13.3)
	19–30	170 (44.3)
	31–45	95 (24.7)
	46–60	52 (13.5)
	61–80	13 (3.4)
	80>	1 (0.3)
Marital status	Single	131 (34.1)
	Married	251 (65.4)
	Widow	2 (0.5)
Education	Illiterate	197 (51.3)
	School	97 (25.3)
	Diploma	24 (6.3)
Employment	University	64 (16.7)
	Employed	106 (27.6)
	Unemployed	139 (36.2)
	Health-related Job	39 (10.2)
	House work	96 (25)
Income	Retired	4 (1)
	Sufficient for expenditures	121 (31.5)
	Insufficient for expenditure	146 (38)
	Non-response	117 (30.5)

Prevalence and patterns of self-medication with antibiotics

Antibiotics usage was reported by 56% of the participants in the past twelve months (62% self-medicated and 38% prescribed usage). In the total sample, the 1-year period prevalence of SMA was found to be 34.9% ($n = 134$). The most common reasons for SMA were cost-saving (35.2%) followed by previous experience (25.8%) and lack of time (14.8%). Sore throat (30.2%) followed by cough (14.3%) and toothache (9.3%) were the most responded answer for the health condition, which self-medicated with antibiotics. Sources of recommendation/advice for SMA were including previous experience (42.0%) and pharmacists (40.6%) (Table 2). Antibiotics were obtained for self-medication from the pharmacy (76.5%), followed by home (18.1%) and friends/relatives (5.4%). The most common antibiotics for self-medication were amoxicillin (47.6%) followed by penicillin (12.7%) and ampicillin (12.7%) (Table 2). Some of the participants ($n = 42$) self-medicated with antibiotics 4–10 times in the past twelve months.

The inappropriate practice of SMA was found to be changing the dosage during treatment ($n = 73$), switching from one antibiotic to another ($n = 64$), taking multiple types of antibiotics during a single illness ($n = 58$), and abrupt stoppage of taking antibiotics when the symptoms disappeared ($n = 75$). It was found that improving the condition, worsening the condition, reducing the adverse reaction, and perceived insufficient dosage were the reasons behind changing the dosage. Participants switched one antibiotic with another because of the perceived failure of former antibiotics, ran out of the drug, lower price of the latter one, reducing adverse reaction. The main sources of determining the dosage were pharmacist ($n = 47$), doctor ($n = 33$) and previous experience ($n = 31$). Some of the respondents ($n = 39$) checked the instructions inserted in the package of antibiotics, and just 25 of them stated that they fully understood the inserted instructions. The majority of the participants ($n = 75$) had concerns regarding taking counterfeit antibiotics during self-medication.

Table 2 Reasons, health conditions, source of recommendation and antibiotics used for self-medication with antibiotics

Reasons	Cost saving	45 (35.2)	N = 128 (100%)
	Previous experience	33 (25.8)	
	Lack of time	19 (14.8)	
	Convenience	13 (10.2)	
	Mildness of disease or symptoms	11 (8.6)	
	Lack of trust in prescribing doctor	7 (5.4)	
Health conditions	Sore throat	55 (30.2)	N = 182 (100%)
	Cough	26 (14.3)	
	Toothache	17 (9.3)	
	Runny nose	13 (7.1)	
	Aches and pain	11 (6)	
	Nasal congestion	10 (5.5)	
	Skin wounds	10 (5.5)	
	Fever	9 (4.9)	
	Flu	8 (4.5)	
	PID	5 (2.7)	
	Stomach problem	5 (2.7)	
	Diarrhea	5 (2.7)	
	Ear infection	4 (2.3)	
	Vomiting	4 (2.3)	
Sources of recommendation	Previous experience	58 (42)	N = 138 (100%)
	Recommendation by pharmacist	56 (40.6)	
	Recommendation by family members	13 (9.4)	
	Recommendation by friends	7 (5.1)	
	The advertisement	4 (2.9)	
Antibiotics used for self-medication	Amoxicillin	60 (47.6)	N = 126 (100%)
	Penicillin	16 (12.7)	
	Ampicillin	16 (12.7)	
	Azithromycin	12 (9.5)	
	Ceftriaxone	10 (7.9)	
	Metronidazole	6 (4.8)	
	Ciproflaxacin	3 (2.4)	
	Ciffixiam	3 (2.4)	

Discussion

To the best of our knowledge, our study is the first on the prevalence and patterns of SMA in Afghanistan. Using a consecutive sampling method was the strength of our research, which resulted in a 100% response rate, while not using a probability sampling method could be the weakness of the study.

However, the Prevalence of SMA appears to be high in Afghanistan that can be comparable with that of a cross-sectional study in a primary care setting in Saudi Arabia reported 40.8%.^[8] It is low in comparison with studies in health care centres from Saudi Arabia, and Yemen revealed a prevalence of SMA 78.7%^[9] and 82%,^[10] respectively. In comparison with a study from Turkey among visitors of primary care, which reported low as 19.1%.^[11] The higher prevalence is not surprising because antibiotics are being dispensed without any regulation and purchased without prescription across the country. However, The generalization of the findings should be made with caution due to the chosen sample was from the clinic of capital. Kabul is the largest city of Afghanistan, with aggregated public and private health facilities; this is not the case for other cities and especially for the rural populations.

Patterns of SMA in our study are similar to others.^[11-14] Sore throat in most of the time caused by viruses but, our study revealed, it is the most common condition which self-medicated with antibiotics. This finding indicates the irrational practice of antibiotics that can lead to a waste of money and the development of microbial resistance. Saving money was the most common reason behind SMA and was supported by other studies.^[15] According to the World Bank, Afghanistan is among the low-income countries which

the growth of its economy lagging behind the growth of its population.^[16] Unlimited demands with limited resources cause people to self-medicate their health problems. Nevertheless, 47.4% of total health expenditure is paid by out of pocket payment; this may also cause people to think of self-medication in the time of illness.^[17,18]

When people decide to self-medicate their illness, previous experience and pharmacists act as sources of recommendation for SMA.^[12,19-21] As a result, the inappropriate practice of taking antibiotics occurs.^[12,22,23] Besides, the irrational use of antibiotics in the SMA indicates that people are not given information on medicines.^[23-25] In developing countries, a study has found that business people manage pharmacies rather than professionals, and in consequence, the information is not given to people, and the requests of antibiotics without prescriptions are neither rejected nor questioned.^[25] To the best of our knowledge, there is no rule in Afghanistan to guide the pharmacist regarding the dispense of antibiotics, which in turn causes SMA. Moreover, the instructions which are inserted in the package of medicines are mostly in English that makes the situation harder for people that they cannot even read their native language.

Therefore, interventions to deal with SMA should target different levels from the health system to the community level. The Health system should be financed in a way to decrease out of pocket payment. The policy should be changed to restrict antibiotics as prescription-only medicine. At the community level, the information should be provided on antibiotics' advantages and disadvantages; and its appropriate practice for all. Evidence from this research can inform programs that focus on changing the behaviour. There is a

need for more research to be done in regards to SMA by using probability sampling among different communities in Afghanistan.

Conclusion

The prevalence of SMA is high among visitors of Central Polyclinic of Kabul, and patterns of SMA indicate the inappropriate practice of antibiotics. Pharmacists, friends, and family approve the SMA.

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Author Contributions

S.J.S. contributed to proposal development, data collection and manuscript writing, R.N. and S.P. contributed to supervision of the project and data analysis. All authors reviewed the results and approved the final version of the manuscript.

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Conflict of Interest

The authors do not have any conflict of interests.

Data Availability Statement

Not applicable for this study.

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