



## **Usage Pattern and Practices of Antibiotics' Self-Medication among Healthcare Practitioners**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

**Objective:** The study aimed to evaluate the usage pattern and current practices of antibiotics' self-medication among HCPs.

**Methods:** A cross-sectional study was done using a validated research tool to obtain the required data. Data was obtained using different questions regarding self-medication and usage pattern of antibiotics among HCPs. Descriptive and inferential statistics were applied using the Statistical Package for Social Sciences (SPSS) version 24.0. A  $p$ -value  $< 0.05$  was considered statistically significant.

**Results:** Different demographic characteristics were studied from the selected cohort of the HCPs. Around 153 (52.9%) of the studied HCPs were females and 136 (47.1%) were males. The studied HCPs were of different professions, whereby 53 (18.3%) from medicine, 103 (35.6%) from pharmacy, 13 (4.45%) from dentistry, 98 (33.9%) from nursing, and 22 (7.6%) from others allied professions.

**Conclusion:** From the obtained results, it was concluded that all of the studied HCPs had diverse usage pattern and practices towards antibiotics' usage pattern but still there is a greater need to strictly adhere with and follow the recommended and concerned guidelines regarding antibiotics usage to avoid any unwanted side effects, adverse drug reactions and antibiotic resistance.

**Keywords:** Self-medication; practice; antibiotics; usage pattern; HCPs.

## 1. INTRODUCTION

In many countries awareness of the pharmacological aspects of antibiotics and prophylactic antibiotic use among healthcare practitioners (HCPs) was low [1]. A study found that more than 73% of pharmacists self-medicate using antibiotics [2]. However, awareness regarding antibiotics seems to be inconsistent among HCPs. Studies from two other countries also found that HCPs demonstrated good knowledge regarding antibiotic use, however, there was also a gap between attitude and practice [3,4]. HCPs differ from the general population because of their awareness regarding disease and drugs. In two other studies, from Ethiopia and Nigeria, 68% and 52% of HCPs reportedly practice self-medication, respectively [5,6].

Self-medication is the use of medical products by a user to self-treat well-known illnesses or symptoms, or the recurrent or sustained use of a medication normally prescribed by a physician for chronic or returning diseases without a physician prescription [7]. The major issue with self-medication is the lack of clinical assessment of the disorders by an experienced medical professional, which could result in unnoticed diagnosis and hinder suitable treatments [8,9]. Self-medication is a serious global health issue which often results in unwanted and severe healthcare issues.

In literature, limited studies are evident regarding the evaluation of knowledge, attitude, perceptions and practices of antibiotics' self-medication among HCPs. Appropriate and precise awareness about antibiotics and their appropriate usage among HCPs is crucial as they prescribe antibiotics to treat their patients. However, many times it happens where HCPs do use antibiotics for themselves to treat various infections which may not be an appropriate approach. Identifying factors that influence the self-usage practice of antibiotics among HCPs could help to overcome and control the misuse of antibiotics. This study evaluated the practices of HCPs about self-medication of antibiotics.

## 2. MATERIALS AND METHODS

A data collection form was specially designed to collect the required information. There were different demographic characteristics observed

among the study participant. A pilot study was also conducted to test the relevancy and appropriateness of the data collection form. Reliability and validity of the questionnaire was done using face & content validities and Cronbach alpha.

All statistical analyses were performed using Statistical Package for Social Sciences (SPSS) statistical software version 24. Descriptive statistics were used to describe demographic characteristics of the studied HCPs. Percentages and frequencies were used for categorical variables, while means and standard deviation were calculated for the continuous variables. Normality distribution was ascertained prior to each analysis and appropriate parametric or non-parametric tests were chosen accordingly.

## 3. RESULTS AND DISCUSSION

From the obtained results, the females were 153 (52.9%) and males were 136 (47.1%) in the studied population. All of the studied HCPs were from different age groups, i.e. 20-35 years were 165 (57.1%), 36-45 years were 88 (30.4%) and >45 years were 36 (12.5%). Professional degrees of the HCPs included, medicine 53 (18.3%), pharmacy 103 (35.6%), dentistry 13 (4.5%), nursing 98 (33.9%), and others allied HCPs 22 (7.6%). They had different levels of experiences i.e. ≤10 years 169 (58.5), 11-20 years 96 (33.2%) and >20 years 24 (8.3%). A detailed description of the demographic characteristics is provided in Fig. 1.

Table 1 shows Cronbach alpha value, which was obtained to ascertain the reliability of the research tool used among the study participants. The internal consistency was measured by Cronbach's alpha and the value was 0.933.

**Table 1. Validation (internal consistency) of the research tool**

Item	Value
Cronbach alpha	0.933

Table 2 shows the practice questions and their obtained results, which were asked from the HCPs to know their current practices of antibiotics' self-medication.

A statistically significant association ( $p=0.034$ ) was observed in the response of the question

regarding the self-use of antibiotics when suspecting any kind of infections. Around 89 (30.8%) of the studied HCPs agreed that they use antibiotics when even they just suspect themselves to be infected with infections. Whereas around 200 (69.2%) of the HCPs reported that they don't use antibiotics when just suspecting infections. In another question, regarding the precise practice of self-use of

antibiotics, around 55 (19%) of the studied HCPs agreed that they always discuss their friends before self-use of antibiotics. In contrast, around 234 (81%) of the studied HCPs agreed that they don't discuss their friends before self-use of antibiotics. Among both of the groups, the association or the difference was statistically significant ( $p=0.004$ ).

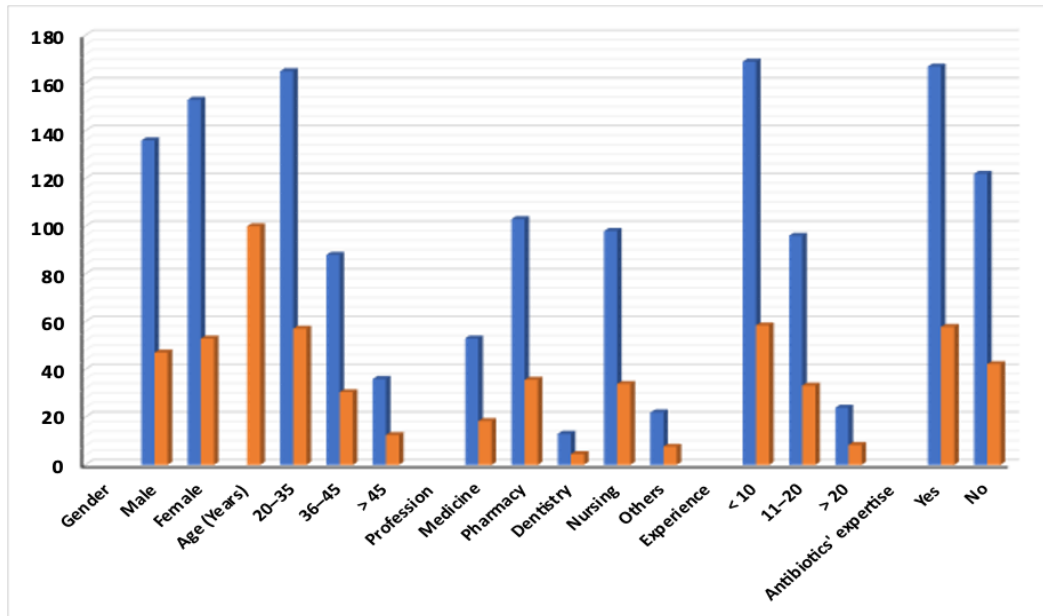
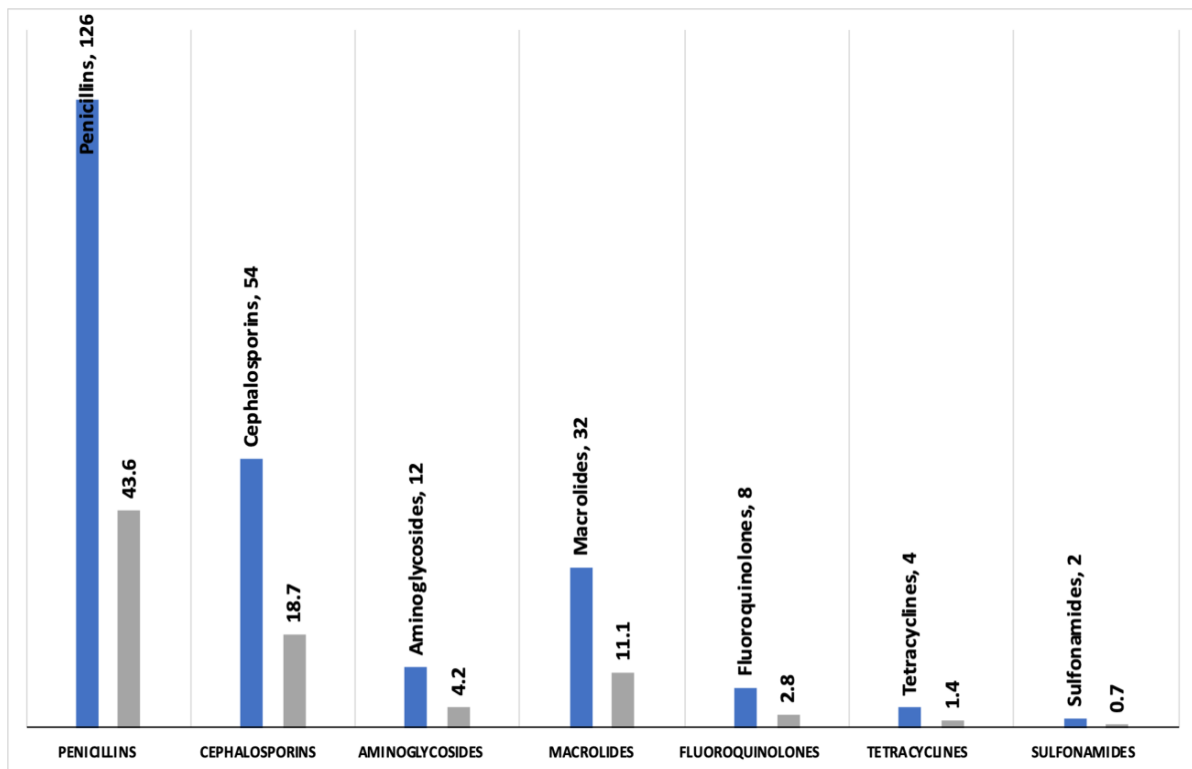


Fig. 1. Demographic characteristics of the study participants

Table 2. Usage pattern of antibiotics' self-medication

Qs	N	%	p-Value
<b>I often use antibiotics when suspect infections</b>			
Yes	89	30.8	0.034*
No	200	69.2	
<b>I discuss my friends before self-use of antibiotics</b>			
Yes	55	19.0	0.004*
No	234	81.0	
<b>I advise females not to take antibiotics during breastfeeding</b>			
Yes	34	11.8	0.001*
No	255	88.2	
<b>I advise females not to take antibiotics during pregnancy</b>			
Yes	39	13.5	0.001*
No	250	86.5	
<b>I prescribe antibiotics for a common cold in children</b>			
Yes	68	23.5	0.465
No	221	76.5	
<b>I always prefer taking antibiotics with</b>			
Juice	4	1.4	0.037*
Water	279	96.5	
Milk	2	0.7	
Other liquids	4	1.4	



**Fig. 2. Antibiotics' classes/groups with ADRs**

Fig. 2 presents attitude of the HCPs towards adverse drug reactions of the various classes/groups of the antibiotics. According to the obtained results, around 126 (53%) of HCPs believed that penicillins have higher ADRs as compared to the cephalosporins, which 54 (23%) of the HCPs believed having ADRs. In addition, around 12 (5%) of the studied HCPs also believed that aminoglycosides have ADRs.

Around 34 (11.8%) of the HCPs reported that they advise their female patients not to take antibiotics during breastfeeding while 255 (88.2%) of the HCPs agreed that they do not advise their female patients not to take antibiotics during breastfeeding. However, the association or the difference between both of the groups was statistically significant ( $p=0.001$ ). In another statement, around 39 (13.5%) of the HCPs reported that they advise females not to take antibiotics during pregnancy while 250 (86.5%) of the HCPs agreed that they don't advise their female patients not to take antibiotics during pregnancy and the difference between both of the groups was statistically significant ( $p=0.001$ ). The current study findings also reported that statistically significant difference ( $p=0.034$ ) was observed in the practice of HCPs regarding taking antibiotics with water, juice, milk or other

liquids drinks. Around 279 (96.5%) of the HCPs agreed that they consume antibiotics with water while 4 (1.4%) of the HCPs agreed that they take antibiotics with juices.

It is of greatest significance to know the exact level of practices of HCPs about self-medication of antibiotics to treat their various ailments. However, the obtained results showed that there is also a need to improve the current approach of HCPs to better understand and precise practice of prescribing antibiotics or self-use of antibiotics. Antibiotics' improper usage pattern or their use without prescriptions from a registered HCP could lead to various side effects and a greater level of resistance among the population. Precise and appropriate practice of self-medication of antibiotics and awareness about their side effects and drug interactions could further improve their efficacy and efficiency. In total, precise usage pattern of antibiotics is crucial in order to combat numerous infectious diseases. This could further help in improving individuals' overall health-related quality of life [10-14].

#### 4. CONCLUSION

This study concluded that all of the studied HCPs had varied (low to appropriate) practices towards

antibiotics' usage pattern but still there is a greater need to strictly adhere with and follow the recommended and concerned WHO guidelines regarding antibiotics usage to avoid any unwanted side effects, adverse drug reactions and antibiotics resistance.

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

It's not applicable.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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