Antibiotics' Self-medication and Its Knowledge among Healthcare Practitioners

Salah-ud-Din Khan [a] and Muhammad Shahid Iqbal [b*]

[a] Department of Biochemistry, College of Medicine, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, 11432, Saudi Arabia.
[b] Department of Clinical Pharmacy, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-kharj, 11942, Saudi Arabia.

Authors' contributions

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

Original Research Article

ABSTRACT

Objective: The study aimed to evaluate the knowledge and usage pattern of antibiotics 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 the knowledge and usage pattern of antibiotics among HCPs practicing antibiotics' self-medication. 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 the 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 varied level of antibiotics' knowledge 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 antibiotics resistance.

*Corresponding author: E-mail: m.javed@psau.edu.sa;

1. INTRODUCTION

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 [1,2]. Self-medication is a serious global health issue. The term self-medication is defined as 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 [3].

In the US and Australia, healthcare practitioners (HCPs) reported that their knowledge regarding antibiotic use was not appropriate [4,5]. In another study, knowledge of the pharmacological aspects of antibiotics and prophylactic antibiotic use among dentists was low [6]. Another study from Russia found that more than 73% of pharmacists self-medicate using antibiotics [7]. However, knowledge regarding antibiotics seems to be inconsistent among HCPs. Studies from other countries also found that HCPs demonstrated good knowledge regarding antibiotic use, however, there was also a gap between knowledge and practice [8,9]. HCPs differ from the general population because of their knowledge regarding disease and drugs. In countries such as Ethiopia and Nigeria, 68% and 52% of HCPs reportedly practice self-medication, respectively [10,11].

Limited studies are evident regarding the evaluation of the knowledge, attitude, perceptions and practices of antibiotics' self-medication among HCPs. Appropriate knowledge about antibiotics and awareness about 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 knowledge and usage pattern of antibiotics among HCPs.

2. MATERIALS AND METHODS

The study was conducted among HCPs, and data was collected from those who met the inclusion criteria. 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.

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. $\leq$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 0.895.

Table 2 shows the knowledge questions and their obtained results, which were asked from the HCPs to know their viewpoint about antibiotics' self-medication. Data shows their responses about questions regarding awareness and knowledge of antibiotics' self-medication in different diseases.

A statistically significant association (*p*=0.032) was observed in the responses of the question regarding antibiotics self-medication practice in fever. Around 148 (51.2%) of the studied HCPs admitted of practicing self-medication of antibiotics in treatment of fever. For treatment of diarrhea, approx. 69 (23.9%) of the HCPs agreed

at self-medication of antibiotics while around 220 (76.1%) of the HCPs opposed the idea of antibiotics self-medication practice while treating diarrhea but the association was not statistically significant.

Around 163 (56.4%) of the HCPs reported practice of self-medication of antibiotics while treating urinary tract infections and around 126 (43.6%) of them reported not practicing of self-medication of antibiotics to treat urinary tract infections. There was a statistically significant difference (*p*=0.005) observed in the practice of antibiotics self-medication among HCPs to treat urinary tract infections.
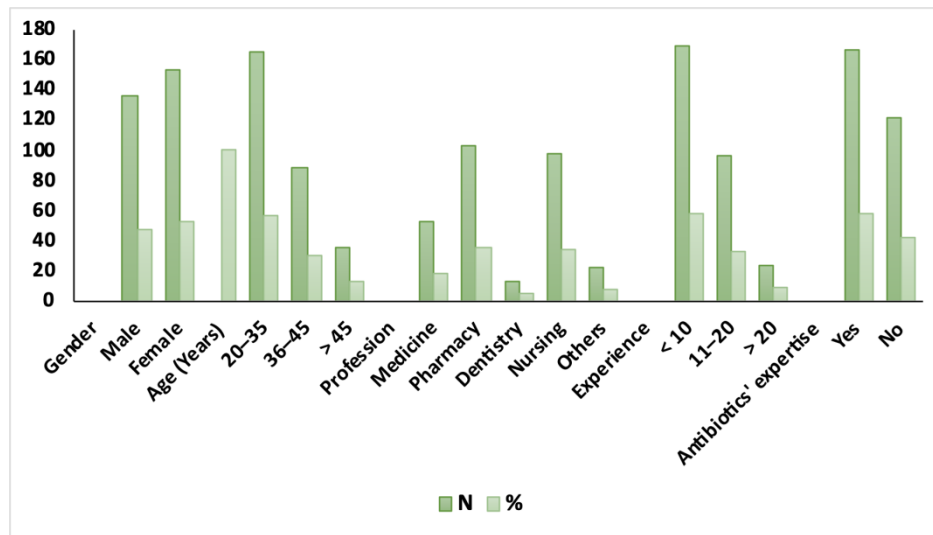

Fig. 1. Demographic characteristics of the participants

Table 1. Reliability and validity of the research tool

Item	Value
Cronbach alpha	0.895

Table 2. Knowledge of antibiotics' self-medication

Qs	N	%	*p*-Value
Antibiotics' self-medication can be done in treating			
Fever			
Yes	148	51.2	0.032*
No	141	48.8	
Diarrhea			
Yes	69	23.9	0.231
No	220	76.1	
Common cold and flu, cough, nasal congestion			
Yes	92	31.8	0.619
No	197	68.2	
Sore throat			
Yes	120	41.5	0.587
No	169	58.5	
Urinary tract infection			
Yes	163	56.4	0.005*
No	126	43.6	
Bronchospasm and pneumonia			
Yes	91	31.5	0.844
No	198	68.5	

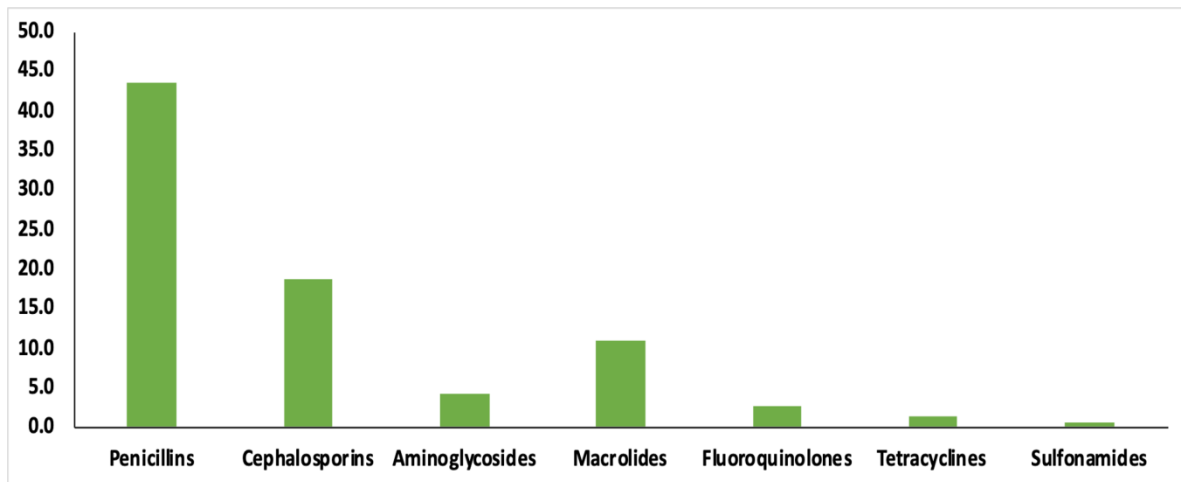| Qs	N	%	*p*-Value
Eye infection			
Yes	99	34.3	0.165
No	190	65.7	
Rhinitis			
Yes	35	12.1	0.823
No	254	87.9	
Runny nose			
Yes	21	7.3	0.462
No	268	92.7	

Fig. 2. Antibiotics' classes/groups with adverse drug reactions (%)

Table 3. Preferences of antibiotics' self-medication

Qs	N	%	*p*-Value
Penicillins			
Yes	253	87.5	0.987
No	36	12.5	
Aminoglycosides			
Yes	22	7.6	0.672
No	267	92.4	
Cephalosporins			
Yes	117	40.5	0.026*
No	172	59.5	
Macrolides			
Yes	101	34.9	0.026*
No	188	65.1	
Fluoroquinolones			
Yes	54	18.7	0.652
No	235	81.3	
Tetracyclines			
Yes	21	7.3	0.462
No	268	92.7	
Sulfonamides			
Yes	6	2.1	0.470
No	283	97.9	

Fig. 2 presents viewpoints of the HCPs towards adverse drug reactions of the various classes/groups of the antibiotics. According to the obtained results, around 126 (43.6%) of HCPs believed that penicillins have higher ADRs as compared to the cephalosporins, which 54 (18.7%) of the HCPs believed having ADRs. In addition, around 12 (4.2%) of the studied HCPs also believed that aminoglycosides have ADRs.

According to the current study findings, statistically non-significant ($p{\geq}0.05$) differences were observed between the responses to the questions regarding the self-medication of antibiotics to treat eye infections, rhinitis and runny nose among the studied cohort of the HCPs.

Table 3 shows the preferences or choices of antibiotics' self-medication among the studied HCPs. The current study findings also reported that statistically significant differences were observed in the usage or selection of cephalosporins and macrolides as self-medication antibiotics over the rest of the antibiotics among the HCPs ($p=0.026$ & $p=0.026$; respectively). It is of greatest significance to know the exact level of knowledge and practice of HCPs about usage of antibiotics as self-medication to treat their ailments. However, the obtained results showed that there is also a need to update the current knowledge 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 [12,13]. Advanced level of knowledge about antibiotics usage and awareness about their side effects and drug interactions could further improve their efficacy and efficiency. In total, appropriate knowledge and precise usage pattern of antibiotics are essential in order to combat numerous infectious diseases. This could further help in improving individuals' overall health-related quality of life [13-15].

Antibiotics are the most common and widespread class of drugs which are used to treat and prevent bacterial infections. They can be used in both outpatients and inpatients especially in intensive care & surgical units (ICSU). In achieving optimum health status, best care, unsurpassed infection, decreasing length of hospital stays and best therapy outcomes it is always recommended to use antibiotics in an appropriate way [14-17].

4. CONCLUSION

This study concluded that all of the studied HCPs had varied (low to good) level of antibiotics' knowledge 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 antibiotics resistance.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

ACKNOWLEDGEMENT

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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