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PHARMACISTS' ATTITUDES AND PRACTICE TOWARDS DISPENSING ANTIBIOTICS WITHOUT A MEDICAL PRESCRIPTION (DAWMP). ARE PHARMACISTS DOING WELL?

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Abstract:

Dispensing antibiotics without a medical prescription (DAwMP) is a critical issue worldwide especially in the countries such as Saudi Arabia, Jordan, and Egypt. Pharmacists knowledge, attitude and practices play a fundamental role in preventing access to non-prescribed antibiotics. Accordingly, our study was designed to estimate the number of pharmacists who have a tendency to dispense antibiotics without a medical prescription; and to realize the factors which are associated with such behaviour which would help in the designation of certain strategies to minimise the impact of this problem.

A cross-sectional survey was organized using structured and validated questionnaire targeting community pharmacists in most parts of Al-Kharj city and parts of Riyadh city, Saudi Arabia, between September and October 2017. A four-block systemic questionnaire was used to request community pharmacists to complete 26 items in the English language. Of 175 community pharmacists contacted, 155 completed and returned the questionnaire. 87.1% of the community pharmacists were Egyptian and only (2.7%) were Saudis. The majority of the pharmacists (79.6%) did not know that DAwMP is illegal in Saudi Arabia. The most common reasons for DAwMP were lack of patient's compliance to consult a physician (67.35%) and inability to afford a consultation with a physician (58.5%). Great number of the pharmacists surveyed (89.12%) claimed that they always educate patients about the importance and completion of the antibiotic course. The elevated rates of DAwMP in Saudi Arabia may be due to lack of awareness of regulations and policies forbidding dispensing antibiotics without a prescription. This is mainly due to a high number of foreign community pharmacists in Saudi Arabia. Comprehensive plans and strategies consisting of educational interventions targeting general public as well as the community pharmacists, and strict application policies regarding DAwMP could lead to a reduction of the self-use of antibiotics.

Keywords: *Antibiotics, Description, Dispensing, DAwMP, Resistance.*

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INTRODUCTION:

Antibiotic resistance is a global public health problem, and it has reached an alarming level, particularly in developing countries (1-4). Antibiotic misuse has unfortunately led to the emergence of resistant human pathogens, due to the empirical selection of antibiotics and doses, and shorter courses of treatment which has had a significant effect on patient morbidity and mortality, as well as on increasing the cost of treatment (5-8).

Most antibiotics are obtained without medical prescriptions (self-medication) either directly from pharmacies or with leftovers from previous courses of treatment. It is documented that over 50% of antibiotics around the world are purchased without a medical prescription in spite of the fact dispensing antibiotics is prohibited in many countries (9-12).

Dispensing Antibiotics without Medical Prescription (DAwMP) is prevalent worldwide even in the developed countries. Several studies from different countries in South America and Europe, such as Spain, Portugal, Mexico, and Brazil, have concluded this bad behavior (13-17).

Dispensing antibiotics without a medical prescription is a critical problem worldwide especially in the countries of Saudi Arabia, Syria, Egypt, and Jordan.(18-23) .

Pharmacists knowledge, attitude and practices play a fundamental role in preventing access to non-prescribed antibiotics. Accordingly, this study was designed to estimate the percentage of pharmacists who are willing to dispense antibiotics without a medical prescription; and to determine the factors that affect such behaviour. Estimation of factors that affect the tendency to sale non-prescribed antibiotics could lead to the designation of certain strategies and policies to minimise the impact of this problem.

METHODS:

A cross-sectional survey was conducted using validated questionnaire without identity among community pharmacists in most parts of Al-Kharj city and different parts of Riyadh city, Saudi Arabia, between September and October 2017. Filling the questionnaire was optional.

Questionnaire design

Pertinent studies were reviewed to establish a questionnaire for the present study (13,15,21,22). The survey was built in the English language, and the definitive form was translated into the Arabic language. The questionnaire content validity was performed by academics in the college of pharmacy with experience in survey research and in consultation with community pharmacists. The final version consists of four blocks. The first part was about the personal and professional characteristics of the community pharmacists, such as age, sex, experience, job position, and general sales of antibiotics per day. The second block gathered data about community pharmacists knowledge. The community pharmacists were asked about the statutory of DAwMP and its impact on the elevation of antibiotic resistance and public health. Every item in this section, options of 'Yes', 'No', and 'Don't know' were given. The third part consisted of questions that were designed to understand the attitudes of pharmacists towards DAwMP. Suggested reasons for DAwMP were given, and pharmacists were allowed to choose all relevant options. In this section, more questions were added related to medical conditions for which antibiotics are dispensed without a medical prescription; the most common antibiotic classes which dispensed without a prescription, and conventional dosage forms. The last section evaluated the practices of community pharmacists in the conditions of DAwMP. This block consisted of questions such as (if pharmacists asking about drug allergies, side effects, and if the patient is taking any other medication for the same complaint). Options of 'Always', 'Never', 'Sometimes' were given for each question in this section.

Sampling and data collection

To collect data, 175 community pharmacies were visited by the research team in the selected areas. In pharmacy, one person describes the objective of the study and then the community pharmacists were requested to fill the questionnaire. If more than one pharmacist were administrating the pharmacy, both were requested to fill the questionnaire. Majority of the community pharmacists completed the questionnaire immediately and few asked the interviewer to get it later in the near future. A total of 155 community pharmacists accepted to fill the questionnaire.

Statistical analysis

Data were analyzed using SPSS version 20.0 software.

RESULTS:

Of 175 community pharmacists contacted, 155 filled and gave the questionnaire back (88.6%) in which 8 of them (5.2%) completed the personal information only (not included in table 1) claiming that they are not dispensing antibiotics without medical prescriptions. All of the surveyed pharmacists (100%) were males. Half of the interviewed pharmacists (52.4%) age ranged between 25-30 years old. The majority of the community pharmacists were Egyptian (87.1%) and only (2.7%) were Saudis. Most of the respondents (64%) had more than 5 years of experience as a pharmacist. About 23% of the pharmacists reported that they dispense more than 11 antibiotics per day. The personal and professional characteristics of the pharmacists are shown in Table I.

Table I: The personal and professional characteristics of the pharmacists.

Variables	N (%)
Age	
25 - 30	77 (52.40 %)
31 - 35	38 (25.90 %)
> 36	32 (21.80 %)
Gender	
Male	147 (100.0%)
Female	0 (0.00 %)
Nationality	
Saudi	4 (2.70%)
Egyptian	128 (87.10%)
Yemeni	6 (4.10%)
Indian	2 (1.40%)
Others	7 (4.80)
Job Status	
Owner	0 (0.00%)
Manager	47(32.00%)
Staff Pharmacist	100 (86.0%)
Experience as pharmacist/years	
< 5	54 (36.70%)
6 - 10	54(36.70%)
> 11	39(26.50%)
Antibiotics sales/day	
≤ 5	40(28.6%)
6-10	69(46.9%)
> 11	36(24.5%)

The majority of the pharmacists (79.6%) surveyed have not known that DAwMP is illegal in Saudi Arabia. 58.5% of the pharmacists believed that DAwMP is a common behaviour in Saudi Arabia. A great part of the pharmacists was conscious of DAwMP is contributing to the inappropriate use of antibiotics (88.44%), the growing of antimicrobial resistance (86.4%), and that antibiotic resistance is a public health problem (84.35%). About three-fourths of the respondents (76.2%) thought that pharmacists should be penalized for dispensing antibiotics without a prescription (Table II).

Table II: Knowledge of Pharmacists about DAwMP

Variables	Yes N (%)	No N (%)	Do not Know N (%)
Dispensing antibiotics without a prescription is a legal practice in Saudi Arabia.	17	117(79.6)	13()
Dispensing antibiotics without a prescription is a common behaviour among pharmacists in Saudi Arabia.	86 (58.5)	43(29.25)	18(12.24)
Dispensing antibiotics without a prescription lead to the appearance of resistant pathogens .	127(86.4)	14(9.5)	6(4.08)
Antibiotic resistance has become a public health problem.	124 (84.35)	13(8.84)	10(6.8)
Dispensing antibiotics without a prescription is contributing to the inappropriate use of antibiotics by patients.	130(88.44)	14(9.5)	3(2.04)
Pharmacists can be penalized for dispensing antibiotics without a prescription.	112(76.2)	15(10.2)	20(13.6)
I feel that if I do not dispense antibiotics without prescription, patients will obtain it from another pharmacy.	93(63.27)	30(20.4)	24(16.33)
Refusing dispensing antibiotics without prescription will negatively affect sales and profits.	55(37.41)	77(52.38)	15(10.2)

The surveyed pharmacists claimed that the most common reasons for DAwMP were lack of patients compliance to consulting a physician in case mild infections (67.35%), good knowledge of pharmacists about antibiotic use (59.2%) and inability to afford a consultation with a physician (58.5%). More than half of the pharmacists (51.7%) claimed that they dispense about three antibiotics per day without prescription. Penicillins (76.87%), cephalosporins (30.6%) and macrolides (24.49%), were the three most common classes of antibiotics dispensed without a medical prescription. Pharyngitis and Tonsillitis (90.48%), toothache (48.3%), and Colds and flu (40.8%) were the most common infections for which antibiotics were dispensed without a medical prescription. (Table III and Figure I).

Table III: Community pharmacists' attitudes towards DAwMP

Items	N(%)
Reasons for dispensing antibiotics without prescription	
• Pharmacists are well known about the use of antibiotics.	87(59.2)
• I am sure that new antibiotics will be generated to resolve antibiotic resistance issue.	11(7.5)
• The antibiotic resistance is mainly a hospital problem.	10(6.8)
• Patients do not want to consult a physician in case of mild infections.	99(67.35)
• There is a pressure from the owner of the pharmacy to increase the sales and earning.	24(16.33)
• Patients cannot afford consultation with a physician.	86(58.5)
• Fear of losing a patient.	42(28.57)
• Deficiency of knowledge about rules and regulations against dispensing antibiotics without a prescription.	26(17.69)
The frequency of dispensing antibiotics without prescription per day	
• Once a day.	43(29.25)
• 2-3.	76(51.7)
• 5.	13(8.84)
• >5.	15(10.2)
Commonly dispensed antibiotic classes	
• Penicillins.	113(76.87)
• Cephalosporins.	45(30.6)
• Macrolides.	36(24.49)
• Quinolones.	23(15.65)
• Tetracycline.	8(5.44)
• Others.	7(4.76)
Dosage forms of antibiotics that dispensed without prescription	
• Oral.	119(80.95)
• Eye drops.	42(28.57)
• Ear drops.	16(10.88)
• Topical.	117(79.6)
Infections for which antibiotics are dispensed without prescription	
• Colds and flu.	60(40.8)
• Pharyngitis and Tonsillitis.	133(90.48)
• Gastroenteritis.	25(17)
• Dental pain.	71(48.3)
• Earache.	25(17)
• Others (Eye infection, wound infection, UTI).	51(34.7)

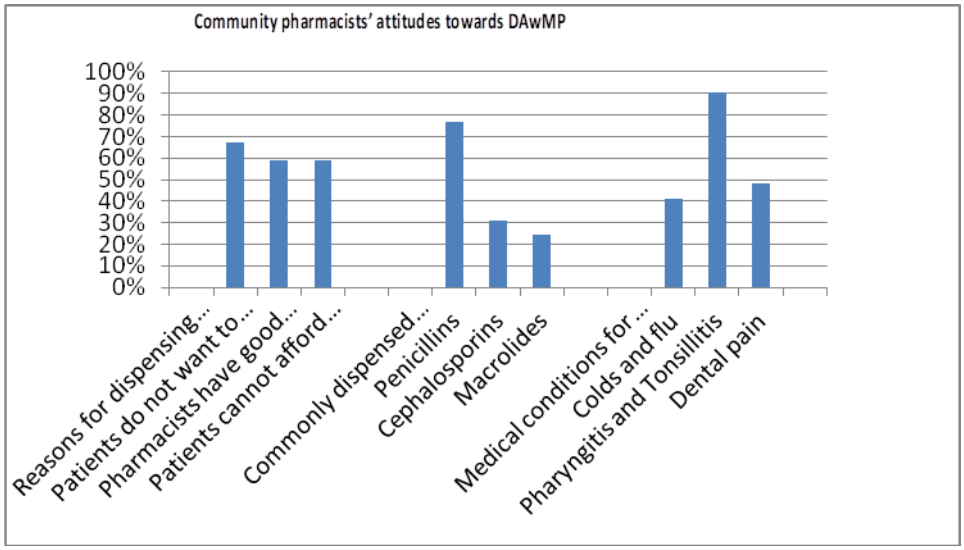

Fig. I: Community pharmacists' attitudes towards DAwMP

A great number of the pharmacists (89.12%) claimed that they always educate patients about the importance of completing the treatment course. There was also a significant correlation between the years of experience of community pharmacists and educating the patients regarding the importance of completing the course of antibiotics treatment. The lesser the years of practice the more the percentage of education the patient (Table IV and Figure II). More than two-thirds of the pharmacists cited that they always asked the patient if they are allergic to any drugs (72.1%) and problems of kidney function (59.2%) before dispensing antibiotics. 68% of the pharmacists surveyed informed that they ask the patients if they were taking other medication for the same infection before dispensing antibiotics (Table IV).

Table IV: Community pharmacists' practices about DAwMP.

Variables	Always n(%)	Never n(%)	Sometime n(%)
Before dispensing antibiotics I ask patients if they are allergic to some drugs.	106(72.1)	12(8.2)	29(19.73)
Before dispensing antibiotics without a medical prescription, I ask patients if they have a problem of kidney functions.	87(59.2)	18(12.25)	42(28.6)
Before dispensing antibiotics without prescription, I inform the patients regarding the potential side effects of the antibiotics.	92(62.6)	14(9.5)	41(27.9)
Before dispensing antibiotics without prescription, I educate and advise the patients to complete the full course of antibiotics.	131(89.12)	8(5.44)	8(5.44)
Before dispensing antibiotics without prescription, I ask patients if they have any other medication for the same medical disease.	100(68)	14(9.5)	33(22.45)
I dispense antibiotics without prescription to all age groups including children.	11(7.5)	96(65.3)	40(27.2)
I always advise the patients to consult the physician and to get a prescription in all cases.	105(71.43)	5(3.4)	37(25.2)

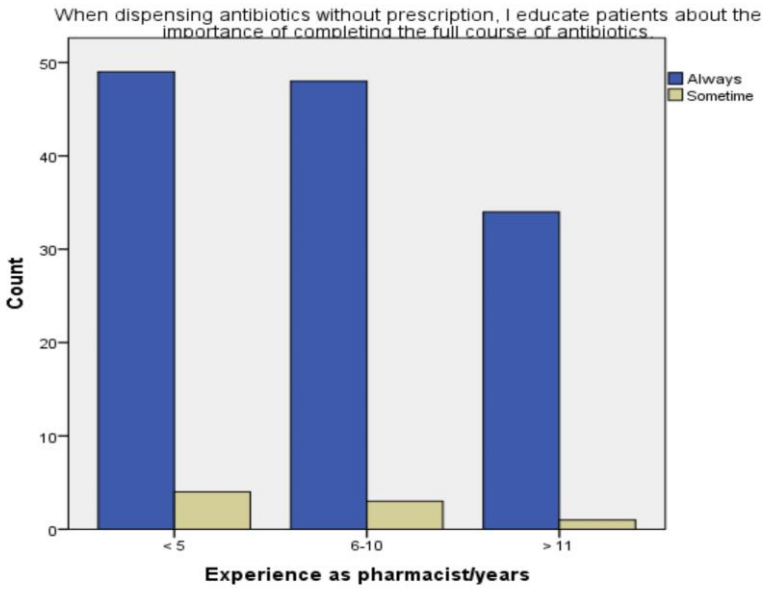

Fig. II: Correlation between experience and educating patient about completing antibiotic course

DISCUSSION:

This study is among many studies which evaluated the community pharmacists' knowledge, attitudes, and practices towards DAwMP in Saudi Arabia. In earlier studies in Saudi Arabia reported increased rate of DAwMP (21,22,24). Therefore, it is of great importance to realize the standpoints of community pharmacists so that suitable policies can be designed to minimize the danger of this public health issue. The majority of the pharmacists participating in our study were not well known that DAwMP is illegal and the penalty should be imposed on community pharmacists for this misbehaviour in Saudi Arabia. This may be due to the fact that Saudi Arabia mainly depends on foreign community pharmacists, as indicated in this study and other previous studies (21,22), who have not fully known the regulation and policies about DAwMP in Saudi Arabia.

In the present study, penicillins are highly dispensed antibiotics without a medical prescription, compatible with the results obtained in Riyadh and Makkah, Saudi Arabia (21,22). This can explain why the rate of resistance to penicillins is elevated among infections caused by *Streptococcus pneumoniae* and *S. aureus* in Saudi Arabia (25,26).

In our study, a great number of the pharmacists surveyed were well known that DAwMP contributes in the rising of resistant pathogens, and that antibiotic resistance has become a public health problem, but when faced by customers and due to the pressure exerted by patients to obtain an antibiotic, their behaviour changes (15,21,22). More than half of the respondents in our study cited that they always ask patients if they are allergic to any drugs and describe the side effects of antibiotics before dispensing, agreeable to the results obtained in Makkah (22). However, these results are in contrast to the findings reached in a study conducted in the city of Riyadh (21). In this study, the main reason mentioned by surveyed pharmacists for DAwMP was the incompetence to endure a consultation with a physician, agreeable with the research outcomes of different local and international studies (13,15, 21,22). Therefore, it is essential to combat DAwMP by improving access to and affordability of healthcare. In different European countries, poor control of antibiotics usage results from the absence of strict policies and their application mechanisms (11,15,27,28).

A reasonable combination of regulation and educational campaigns is probably effective to tackle the problem of DAwMP in Saudi Arabia. First of all, over-the-counter sales list must be created and controlled by Saudi regulators and a penalty should be enforced on those who do not comply with the law. Different studies estimated the impact of the restriction on DAwMP concluded a significant decrease of consumption rate of antibiotics and improvement in resistance profiles as happens in Mexico, Chile, South Korea and Brazil (14,29,30,17). Secondly, educational interventions should be planned to elevate the community pharmacists' compliance with antibiotics dispensing policies and professionalism. Finally, improvement of general public knowledge and change in their behaviour towards antibiotics and increasing

awareness regarding the misuse of antibiotics could also reduce non-prescription sales of antibiotics (23).

CONCLUSION:

The high rates of DAwMP in Saudi Arabia may be partially due to deficiency knowledge of rules and policies forbidding the sale of antibiotics without a prescription. This may be due to the high number of foreign community pharmacists in Saudi Arabia. However, the pharmacists are convinced of the reverse effect of DAwMP on public health. Comprehensive plans and strategies of educational interventions which target both general public and the community pharmacists and strict implementation policies regarding DAwMP could potentially lead to a reduction of the self-use of antibiotics and an improvement of the antibiotic resistance profiles in Saudi Arabia.

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