



PHARMACY ASSISTANTS' BEHAVIOR TOWARD DISPENSING ANTIBIOTICS WITHOUT PRESCRIPTION (DAWP) IN JORDAN

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ABSTRACT

Objectives: Assess the knowledge, attitude and practice of pharmacy assistance against the spread of over counter antibiotics in Jordan. **Methods:** A online cross-sectional questionnaire was performed during December 2021 using a standard, reliable and experimental survey. A random selection method was used for 110 pharmacy assistance in King Hussein Medical Hospital, who completed a 28-point survey in English. **Results:** Out of 110 nearby pharmacy assistance, 100 questionnaires were completed. More than half (92%) of them were unaware that DAWP is not right way. Refusal to consult a doctor due to a minor infection (75%) was the most common causes of DAWP. There was a statistically significant relationship between the number of antibiotics dispensing and the patient's education regarding the importance of adherence to all antibiotics and their completion ($p = 0.007$). **Conclusions:** Pharmacy assistance have a bad understanding of an over-the-counter antibiotics in Jordan, which shows the high DAWP rate in Jordan. Government require to play an active role to control OTC antibiotics dispensing among the Jordanian people. Therefore, it decrease wide spread of DAWP.

1. INTRODUCTION

Nearly every sixth death in the world is related to Infectious Diseases.^[1] The increasing antibiotics resistance may pose the greatest threat to public health worldwide.^[2,3] Antimicrobial resistance AMR is a particularly serious problem in developed countries, as most, if not all, countries do not have a comprehensive national AMR action plan.^[4] The negligent use of antimicrobial, the widespread use of antibiotics, and the most unnecessary and incomplete dose antibiotics (dose, error, timing and symptoms), with high dose of antibiotics broad spectrum is the primary reason of global AMR.^[5]

Dispensing antimicrobial without prescription (DAWP) is an important factor to the development of AMR.^[6,7] these dispense antimicrobials has been associated with no longer courses and dose choices.^[8, 9, 10, 11, 12] Although over-distribution is illegal in major countries, it is estimated that over 50% of the world's antimicrobial are sold without a prescription.^[13]

This interference has been showed by studies in many countries in Europe and South America, including Spain, Greece, Portugal, Mexico and Brazil.^[14, 15, 16, 17, 18]

Although it is illegal in many other Middle Eastern countries, such as Syria, Egypt and Saudi

Arabia.^[19,20,21,22] In Riyadh, Saudi Arabia, over than half of local pharmacies prescribe antimicrobial without prescription.^[23]

The major reason for pharmacists and pharmacy assistance in the local pharmacists for this violation was the fear of losing a client because the client buys antibiotics from another pharmacy.^[24]

Irrational sales of antibiotics to the patients globally. This produce antimicrobial resistance.

Although local pharmacy assistance and pharmacists play an important role in creating the safe use of antimicrobials in our country, no study has asses the knowledge, attitudes and practices of pharmacists and pharmacy assistance about DAWP in Jordan.

To fill this research gap, this study was conducted to evaluate the behavior of pharmacy assistances toward dispensing **antimicrobial** without prescription.

2. Methods

A on line cross-sectional survey conducted during October 2021 among a random sample ($n = 110$) of pharmacy assistants across King Hussein Medical City using a online questionnaire on their antibiotic knowledge.

Ethical approval was obtained from royal medical services.

The questionnaire contain 28 questions divided into four parts. The first part focus on the demographic characteristics of pharmacy assistance in KHMS, including age, sex, years of experience in pharmacy assistance, number of OTC dispense per day.

The second part concern about the knowledge of pharmacy assistances about the legal status of DAWP and increasing AMR and general health. The third part consists of six questions designed to evaluate the attitude of the participates towards DAWP.

Finally, the fourth part assesses the practice of them toward DAWP and consists many questions (eg, over-

the-counter antibiotics, combination drugs, over-the-counter medical conditions, allergy issues, advice on cases).

Data were encrypted and analyzed using SPSS 18.0 software.

3. RESULTS

3.1. Socio-demographic characteristics of respondents

Out of 110 pharmacy assistances in KHMH, 100questionnaires were completed. More than 50% of them have over than 5 years of experience (55). more than (40%) showed the delivery of more than 300 drugs a day and the distribution of about 90 less than 50 antibiotics daily. Further result are shown in Table 1.

Table 1: Demographic characteristics of the pharmacy assistances.

Characteristics	Number (%)
Age, years	
≤30	49 (49)
31–40	40 (40)
>41	11(11)
Sex	
Male	25 (25)
Female	75(75)
experience, years	
<3	10 (10)
3–5	20(20)
>5	70 (70)
prescription dispensed per day	
≤100	25 (25)
101–200	20 (20)
201–300	15(15)
>300	40 (40)
Antimicrobial dispensed per day	
≤25	65 (65)
26–50	25 (25)
>50	8(8)

3.2. Knowledge and attitudes towards DAWP

60% of the respondents surveyed are unaware that DAWP is illegal in Jordan. More than two third of them showed that DAWP is a common practice among pharmacy assistances in Jordan. Most of respondents were aware that DAWP contributes to the problem use of

antimicrobial (70%) and resistance (80%), and AMR has become a common health problem (80%).

Nearly all pharmacy assistances (90%) support patients to consult a doctors before taking antibiotics, and (70%) believe that pharmacy assistance should discontinue DAWP. Further results are shown in (Table 2).

Table 2: Knowledge and attitudes towards DAwP.

Item	Yes <i>n</i> (%)	No <i>n</i> (%)	Don't know <i>n</i> (%)
DAwP is a legal in Jordan	20 (20)	60(60)	20(20)
DAwP is a common prescription among pharmacy assistances	45 (45)	25 (35)	30 (30)
Do you think there is any problem DMwP	70(70)	20 (20)	10 (10)
DAwP is a major cause of antibiotic resistances	80 (80)	10 (10)	10(10)
Antimicrobial resistance has become a common disease	80 (80)	15 (15)	5 (5)
DAwP is contributing to rational use of antibiotics	77 (77)	15(15)	6(6)
Pharmacy assistances must stop DAwP	70(70)	19 (19)	11 (11)
I encourage patients to visit a doctor	90(90)	4(4)	6 (6)
Fairing the patients buy a medication from another pharmacy	81 (81)	9(9)	10 (10)
No DAwP will negatively affect	52 (52)	38(38)	9 (8)

3.3. Practices towards DAwP

The major reasons of pharmacy assistance expose to DAwP are: patients' unwillingness to see a doctor due to a mild infection (92%), inability to see a doctor (65%) and good knowledge of pharmacy assistance toward antibiotics (40%) (Table 3). Penicillin (82%), cephalosporins (73%) and macrolides (40%) were the

most common rates of over-the-counter antibiotics. Colds and flu (88%), runny nose (66%) and toothache (50%) were the the major conditions for which DAwP were prescribed.

The tablet and suspension (86%) were the most common DAwP(Table 3).

Table 3: pharmacy assistances practices towards DAwP.

	<i>n</i> (%)
Reasons for DAwP^a	
Pharmacy assistances have good knowledge about antimicrobial use	40 (40)
Patients just see a doctor in severe cases only	75(75)
The pharmacy is only profit institution	26(26)
Fear of miss a patient	17 (17)
Less knowledge about rules of DAwP	28 (28)
Commonly DAwP	
Penicillins	82(82)
Cephalosporins	73(73)
Macrolides	50 (50)
Quinolones	23 (23)
Tetracycline	14 (14)
Common dosage form of DAwP	

	<i>n</i> (%)
Oral	86(86)
Eye drops	58(58)
Ear drops	32 (32)
Topical	65 (65)
Common conditions	
Colds and flu	88(88)
Rhinitis	66(66)
Diarrhoea	30(30)
Toothache	50(50)
Earache	15(15)
Other (e.g., eye infection, wound, UTI)	21(21)

More than half of respondents showed that they always ask patients for allergies to medications (86%) and renal function (80%) before prescribing antibiotics (Table 4).

Nearly the majority of them surveyed (85%) showed that they always counsel patients about the importance of taking and supplementing the antibiotic and asked them

if they co-administrate other medications before prescribing antibiotics(85%) consume or not.

There is also a significant relationship between the number of antimicrobial prescribed and the patient's education regarding the importance of ensuring complete antibiotic course ($p = 0.007$) (Table 4).

Table 4: Association between DAWP practices and demographic and professional characteristics of the pharmacy assistances.

Item	Always <i>n</i> (%)	Never <i>n</i> (%)	Sometimes <i>n</i> (%)
Asking client about drug reaction	86 (86)	7(7)	5(5)
Asking patient about any renal disease when DAWP	80(70)	10(10)	10 (10)
Counseling the patient about side effect of any antibiotic	64 (64)	7 (7)	24 (24)
Counseling the patients about adherence and complete course of antimicrobial	85 (85)	2(2)	13 (13)
Asking the patient of co-administrate another antibiotics	85 (85)	3(3)	12 (12)
Dispense antibiotics only for adults	61 (61)	17(17)	20 (20)

4. DISCUSSION

This is the first study to assess behavior pharmacy assistances toward DAWP in Jordan. Due to the growing prevalence of DAWP in Jordan and other countries as reported in previous studies.^[22, 23, 24]

Understanding the views of pharmacy assistance in our country is essential in order to plan and implement appropriate interventions and policies to address this dangerous issue for the benefit of community health. Only less than half respondents in the study showed that

DAWP was illegal. Because pharmacy assistances were aware of the adverse effects of DAWP due to increase AMR in this study, increasing awareness of prescriptions and local prescriptions may reduce antimicrobial sales.

The findings show that penicillin is the major antimicrobial in mustard. Similar study that occur in Abdulka^[23] who showed that amoxicillin / clavulanate is the major antibiotic in Riyadh, Saudi Arabia. This can in part be attributed to increased penicillin resistance caused by streptococcal pneumonia produced in Saudi Arabia.^[27] However, the role of DAWP in the

development and spread of AMR is unknown.^[28] However, DAWP plays a key role in the development of AMR because countries with high AMR levels recognize and use OTC.^[29,30,31]

In the study, more than half of pharmacy assistance said they asked patients about medication allergies and tell the patients about side effect of antibiotics. These results is opposite to the findings of Abdul Hak et al., Who did the study in Riyadh, they had no pharmacy explain side effects to the patients.^[23] Differences in perception can be associated with the manifestation of social will - the desire of respondents to choose socially acceptable answers, rather than options that reflect their true feelings or actions.^[32]

A multifaceted manner is required to effectively address the DAWP issue in Jordan. First, the government showed restrict the sales of antibiotics sale of antibiotics must be strictly enforced.

A study evaluating the effect of restrictions on OTC antibiotics in Brazil and Mexico showed a significant decrease in antibiotic use.^[18] Similarly, resistance profiles have been reported to have increased in Chile and South Korea^[36] following the restriction OTC antibiotic use.

Second, educational programs should be carried out to increase the compliance of pharmacy assistances in the community with ethical and professional principles.

It has been showed that the attitude of community pharmacy assistances, such as patient satisfaction, negligence and lack of awareness, is related to DAWP.^[16]

In addition, the authors argued that because attitudes may change, educational strategies seeking to change attitudes can significantly improve adherence to antibiotic regimens.^[16]

Finally, raising awareness of antibiotic abuse can reduce antibiotic sales without prescription.^[27] In this study, according to the results of various international studies, the inability to provide medical advice was the major common reason of DAWP by pharmacy assistances.

4.4. CONCLUSIONS

Pharmacy assistances are generally unaware of the rules and policies refusing dispense of over-the-counter antibiotics. This lack of awareness could lead to high DAWP rates in Jordan. However, the respondents are aware of negativity of DAWP on overall health. A different manners that includes counseling designed for pharmacy assistances and community patients precise implementation and a better and more cost-effective approach to medical care may reduce DAWP use in Jordan that lead to decrease AMR. Ministry of Health require to serious work to control OTC antibiotics dispensing among the Jordanian people. enhancement of

laws to control this phenomena, increasing knowledge among patients and pharmacy assistance.

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