

Migraine Therapy by Community Pharmacists in Iraq – A Survey

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ABSTRACT

Pharmacists interact with several headache sufferers' multiple times a day. Most of these headache sufferers don't even consult a physician before obtaining medicine from a pharmacist. To assess the knowledge and practice patterns of the pharmacists in Iraq for management of migraine patients. In this cross-sectional survey study, a total of 126 pharmacists were surveyed using a validated Pharmacists' Migraine Survey (PMS) to assess their migraine-related knowledge and management practices. Correlation between pharmacists' demographic characteristics and their management practices was statistically analyzed using the chi-square test. Around 36.5% and 63.5% pharmacists were community and hospital and community pharmacists, respectively. Most pharmacists felt that migraine patients should try over the counter (OTC) drugs before opting for prescription drugs, that triptans must be given only to the individuals whose condition did not improve after consuming OTC drugs, that they could recognize if any patient needed migraine-preventive medicine, and that they knew when to refer the patients to a physician. Significant correlation was observed between pharmacists asking patients for any headache-related morbidity and their experience level ($P=0.03$), pharmacist's gender and the most common reason for which a pharmacist referred a patient to a doctor ($P=0.028$) and whether triptans must be reserved for patients who showed unfavorable outcome to at least two other prescription drugs ($P=0.03$), and pharmacists' working environment and number of referrals per month ($P=0.027$). Our results showed that a majority of the pharmacists neither knew nor practiced adequate migraine therapies. It is vital to further train pharmacists to ensure adequate management.

Keywords: Migraine, Community pharmacists, Over-the-counter drugs, Iraqi population

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INTRODUCTION

Pharmacists are an important part of the healthcare system. Although their primary role is providing drug and medications; however, in recent decades, their role has evolved drastically towards handling other aspects of patient care ¹. The knowledge of the pharmacists with respect to the medical history of the patients, their drug regimen, and dosages of drug intake is often critical in reducing the drug overuse among the patients. Thus, their knowledge and skills are vital in determining the outcome of the patients ¹.

Pharmacists are key learned intermediaries for inadequately treated or misdiagnosed headache patients who prefer taking OTC drugs over going to a physician/doctor for minor ailments such as headache. One of the most common types of OTC drugs that are given by the pharmacists around the world is headache-related OTC drugs. In addition, pharmacists often affect the drug selections in institutes such as hospitals and managed care organizations, which, in turn, adversely affects headache management ².

Despite the extensive research on migraine, it is often misdiagnosed, leading to a high prevalence of this disorder across the world due to sub-optimal treatment. Furthermore, in the case of patients with prescriptions, about 67% either avoid or delay the use of prescription medicine due to various reasons ³. On the contrary, some patients overuse such drugs, which often lead to the transformation of migraines to chronic daily headaches (CDH), the prevalence of which is increasing continuously across the world ⁴.

This study was aimed at assessing the current state of migraine-related knowledge, attitude, and practice patterns of Iraqi pharmacists using a newly devised Pharmacists' Migraine Survey (PMS).

METHODS

Patient recruitment

A total of 126 Iraqi pharmacists were recruited for this prospective cross-sectional study. The survey response data was collected between 26th March and 9th April 2020. All the participants were registered at the Iraqi Syndicate of Pharmacists and worked in either community or both hospital and community settings. The study was approved by the Ethical Committee of the Pharmacy Department of the Al-Rasheed University College.

Survey

We used a validated a 22-item questionnaire, named Pharmacists' Migraine Survey (PMS), based on another instrument previously designed by Lipton *et al* ⁵. This survey is published online on the website of the Iraqi Syndicate of Pharmacists (<https://iraqipharm.org/>). It was used for the evaluation of the knowledge, attitude, and practice patterns of the physicians for the treatment of headaches. The first 10 items, Q1-Q10, were mostly concerned with demographic information and practice patterns of the pharmacists. These items consisted of multiple and varied responses based on the types of questions. The remaining 12 items, Q11-Q22, were mostly associated with the attitude and migraine-related knowledge of the pharmacists. These items consisted of only three responses: agree, neutral, and disagree. All the questions were adapted for pharmacists.

The items of this questionnaire are listed as follows:

Q1_Gender

Q2_Years of experience

Q3_Clinical practice environment

Q4_Suffering from migraine/chronic headache

Q5_Frequency of OTC headache product advice

Q6_The most common headache conditions that exist in your practice that comprises one-third or more of your patients

Q7_Have attended a lecture/educational event about headache/migraine before

Q8_Frequency of referral to doctor for headache/migraine complain

Q9_The most common reason for referring a patient to a doctor

Q10_Ask patients about headache related morbidity

Q11_Migraine is primarily a disease of the brain, with a well-established neurological basis

Q12_Headache patients are an important part of my pharmacy practice

Q13_Migraine specific drugs (triptans) should be reserved for patients who have failed at least two other prescription acute drugs

Q14_I always encouraging a headache patient to keep a diary

Q15_I always discussing non medication therapies as part of headache treatment

Q16_Patient satisfaction is an important consideration in headache treatment

Q17_Headache sufferers should try OTC drugs first then try prescription drugs

Q18_I teach patients to guard against overuse of OTC drugs

Q19_I teach patients to guard against overuse of prescription medications

Q20_Prior to suggesting an OTC drug that they always ask the patient about headache attack-related disability

Q21_I can identify a patient in need of a migraine preventive medication

Q22_I know when to refer a patient to a physician

Statistical analysis

IBM Statistical Package for Social Services (SPSS) Statistics (IBM Corp. Version 25.0. Armonk, N.Y., USA) software was used for the statistical analysis of the data. We used descriptive statistics for data analysis, wherein the categorical variables were expressed as frequency and percentage. Pearson's chi-square test was used to assess the significance level of the association between the demographic characteristics of the pharmacists and their practice patterns. A p -value < 0.05 was considered to be statistically significant.

RESULTS

Socio-demographic information

A total of 126 participants were included in the study. Of these, a majority of the participants were male ($n = 80$; 63.5%), with less than 5 years of experience ($n = 69$; 54.8%) and working at hospital and community pharmacies ($n = 80$; 63.5). Table 1 lists the study participants' responses to the items Q1 to Q10 of the PMS questionnaire. About a fourth of the study participants themselves suffered from migraine or chronic headache ($n = 33$; 26.2%). Approximately 80% of the pharmacists suggested the patients for an over the counter (OTC) drug on a daily basis. They also reported that the most prevalent type of headache was sinus headache, followed by tension headaches and migraines. More than 50% of the pharmacists had previously attended a lecture or educational event for migraines or any other kind of headache, and all of them referred at least one patient per month to a doctor, the most common reason being suspicion of organic illness or inadequate treatment. Finally, about 61% of pharmacists asked the patients regarding any potential headache-related morbidity.

Attitude and knowledge of the pharmacists for migraine management

These items mostly assessed the attitude and knowledge of the pharmacists regarding migraines. Table 2 lists the responses of the participants for these items. All the responses were chosen from three alternatives: Agree, Neutral, and Disagree. As shown in Table 2, less than half of the pharmacists (44.4%) knew migraine to be a neurological disorder, and even a smaller number of pharmacists (42.1%) encouraged the patients to maintain a diary or a journal to keep a record of their headaches. Most of the pharmacists (64.3%) agreed that headache patients are an important part of their practice.

About 80.2% of the pharmacists believed that the patients must try OTC drugs first before opting for prescription medicine, and 57.1% of the pharmacists reserved the migraine-specific drugs only for patients who did not show favorable outcomes even after taking at least two prescription drugs. More than 60% of the pharmacists recognized a patient in need of migraine-preventive medication, discussed the option of non-medication therapies for headache management, and advised their patients against the overuse of OTC as well as prescription drugs. More than three-fourth of the pharmacists asked their patients regarding any headache-related disability before suggesting to them an OTC drug, and 71.4% pharmacists knew when to refer the patients to a physician. Finally, the vast majority of the participants (84.1%) believed patient satisfaction to be of utmost importance.

Association between survey items

We conducted association analyses to determine the effect of the demographic characteristics of the pharmacists on their management practices.

A significant association was found between the gender of the pharmacist (Q1) and the most common reason for which the pharmacists refer a patient to a doctor (Q9) ($P = 0.028$; Table 3). The male pharmacists mostly referred a patient to a doctor in cases suspected of organic illness, followed by overuse of OTC and/or prescription drugs, the ineffectiveness of the current treatment, and decreased quality of life. On the other hand, the female pharmacists mostly referred a patient to a doctor in cases that were not affected by the current treatment, followed by suspicion of organic illness, decreased quality of life, and overuse of OTC and/or prescription drugs.

The gender of the pharmacists (Q1) was also found to be significantly associated with the practice of preserving the migraine-specific drugs only for the patients who did not show any favorable outcome for at least two prescription medications (Q13) ($P = 0.03$; Table 3). A higher proportion of male pharmacists (63.8%) compared to the female pharmacists (45.7%) reserved triptans for late usage.

The experience level of the pharmacists (Q2) was also found to be significantly associated with whether the pharmacists asked the patients about headache-related morbidity (Q10) ($P = 0.03$; Table 4). Most of the pharmacists with 6-10 years of experience (76.5%) did not ask the patients about any headache-related morbidity. On the other hand, most of the pharmacists with 11-15 years of experience (83.5%) did ask the patients regarding headache-related morbidity, followed by those with less than 5 years of experience (66.7%).

Another significant association was found between the clinical practice environment of the pharmacist (Q3) and the frequency with which the pharmacist referred a patient to a doctor (Q8) ($P = 0.027$; Table 5). It was

observed that a higher proportion of pharmacists (71.3%) who worked at the hospital and community pharmacies provided more referrals to headache patients per month compared to those who worked at community pharmacies (50%).

DISCUSSION

To the best of our knowledge, this was the first study that involved surveying the migraine-related knowledge, attitude, and practice patterns of the pharmacists. Our findings showed that most pharmacists who worked in community pharmacies tended to recommend the use of OTC drugs to manage headaches at least once daily. Our results corroborated those of Wenzel *et al.* who reported that 97% of the community pharmacists made OTC suggestions daily ².

Furthermore, the participants reported that a significant portion of the headache sufferers included migraine patients. Several pharmacists discussed the non-drug therapy alternatives with the patients, and most of them made referrals to a doctor/physician at least once per month. We also observed that pharmacists tend to reserve the triptans only for patients who were not content with other OTC drugs. Ideally, triptans must be consumed with the occurrence of the first symptoms of migraine. However, these drugs are only available on prescription. To promote triptans' administration, previous studies have encouraged the switching of triptans from Rx to OTC status, so that they are not reserved by the pharmacists ⁶. More than half of the participants endorsed step-care, which, till date, remains the most frequently used migraine management approach in Iraq, as opposed to the stratified care that has been reported to be a more effective and cost-efficient approach by several clinical trials ⁷⁻⁹.

Several questionnaire-based instruments, such as the Headache Impact Test (HIT) and the Migraine Disability Assessment tool (MIDAS), have been validated for the assessment of headache-related morbidities ^{10,11}. Such tools can be used by pharmacists for the screening of the patients who complain of headaches, providing better guidance towards a better treatment approach, and assessment of treatment benefits and outcomes. With respect to our study sample, we observed that in the areas covered by the pharmacists, in addition to migraines, sinus headache and tension headache were also highly prevalent. Usually, a condition such as a migraine and headache is self-diagnosed by the patients or diagnosed by non-trained professionals, causing migraines to be misdiagnosed as sinus or tension headache ¹².

Although most of the pharmacists discuss non-drug management approaches and advise their patients to avoid overuse of OTC and prescription medicines, the high prevalence of CDH (chronic daily headache), which is believed to be related to acute overuse of drugs, indicates that these efforts of the pharmacists have not been very efficient. In a recent review, Xu *et al.* reported that about 2.5-3.1% of migraine patients develop CDH annually, and medication overuse was one of the factors significantly associated with this phenomenon ¹³. Most of the participants in this study focused on relieving the headaches' symptoms as they were more concerned about the satisfaction of the patient rather than the treatment of the disease. However, this approach is not appropriate. In a previous study, Torres-Ferrus *et al.* (2020) reported that the overuse of symptomatic drugs, including pain relievers, such as barbiturates and opioids,

often leads to the transformation of episodic migraine to chronic migraine ¹⁴. Furthermore, despite the well-known and widely studied pathophysiology of migraine, a majority of the participants disagreed for migraines to be a neurological disorder. Due to this, many pharmacists attribute this condition to other factors, such as depression, anxiety, etc. Such beliefs are often responsible for miscommunication and distrust between patients and clinicians, which often leads to inadequate care. In 2009, Donnet *et al.* conducted a pharmacist survey-based study using a questionnaire based on the International Classification of Headache Disorders ¹⁵, 2nd edition (ICHD-II), and reported that 81% of the migraine patients, who exhibited medication overuse, commonly used the non-recommended regimens. In addition to proper recognition of the symptoms of the condition, the continuously ongoing research on migraine also deems it necessary for the pharmacists to be trained regarding the novel medications that have been tested and validated for migraine patients ¹⁶.

The practice environment of the pharmacists plays an important role in shaping the practice pattern and attitude the pharmacists. Our findings showed that a significantly higher number of pharmacists working the hospital and community pharmacies referred the patients to a doctor per month compared to those working at community pharmacies. Furthermore, we observed that the gender of the pharmacists was significantly associated with the most common reason for referring a patient to a doctor. The most common reason for male pharmacists was suspicion of organic illness, whereas, for female pharmacists, it was the ineffectiveness of current treatment. In addition, we also observed that a significantly higher proportion of male pharmacists thought that triptans must be reserved only for the patients who did not present any favorable outcomes to at least two other prescription acute drugs. Furthermore, we also found a significant association between the level of experience of the pharmacists and their practice of asking a patient about any headache-related morbidity. To the best of our knowledge, this was the first study that used a custom PMS tool to assess the attitude and knowledge of pharmacists with respect to migraines. We propose that more cross-sectional studies must be conducted across different countries using our PMS tool, which might be helpful in a more comprehensive determination of the prevalence and comparison of the practice patterns of the pharmacists across the world.

There were a few limitations of our study. First, the survey participants included the pharmacists who were interested in the study, and this group of pharmacists may or may not have a higher knowledge compared to the pharmacists in general. This might compromise the subjectivity of our analysis, which is an intrinsic component of all surveys. Second, more than one-fourth of the participants themselves suffered from chronic headaches/migraines. This might lead to a bias in their responses.

CONCLUSION

With the number of headache sufferers interacting daily with pharmacists, they play an important role in adequate care and appropriate management of such patients. Overall, in this study, we observed a low level of knowledge of the Iraqi pharmacists with respect to migraine. In addition, their migraine management approach also deviated from the recommended one. Since most of the pharmacists worked in hospital and

community pharmacies, their attitude may also affect the drug regimen prescribed by a doctor, which might interfere with the systemic management of migraine. Furthermore, the pharmacists were more concerned with patient satisfaction rather than alleviation of the causes of the condition. We propose that the pharmacists must be more rigorously trained in this aspect to reduce the rate of misdiagnosis and sub-optimal treatment of migraine.

ACKNOWLEDGEMENT

None

FUNDING

The study was conducted at the expense of the authors.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

Table 1. The socio-demographic information of the pharmacists

Item No.	Socio-demographic information		Frequency (Percentage)
1	Gender	Male	80 (63.5)
		Female	46 (36.5)
		Total	126
2	Years of experience	<5	69 (54.8)
		6-10	17 (13.5)
		11-15	12 (9.5)
		>15	28 (22.2)
		Total	126
3	Clinical practice environment	Community Pharmacy	46 (36.5)
		Hospital and Community Pharmacy	80 (63.5)
		Total	126
4	Suffering from migraine/chronic headache	Yes	33 (26.2)
		No	93 (73.8)
		Total	126
5	Frequency of OTC headache product suggestion (per day)	1-5	87 (69)
		>6	14 (11.1)
		No suggestion	25 (19.8)
		Total	126
6	The most common headache conditions exist in your practice that comprises one-third or more of your patients	Migraine	23 (18.3)
		Sinus headache	51 (40.5)
		Chronic headache	7 (5.6)
		Tension headache	35 (27.8)
		Do not know	10 (7.9)
7	Ever attended a lecture/educational event about headache/migraine before	Yes	71 (56.3)
		No	55 (43.7)
		Total	126
8	Frequency of referral to doctor for headache/migraine complain (per month)	At least 1	80 (63.5)
		At least 2	18 (14.3)
		At least 3 or more	28 (22.2)
		Total	126
9	The most common reason for referring a patient to a doctor	Ineffectiveness of the current treatment	41 (32.5)
		Decreased quality of life	12 (9.5)
		Overuse of OTC and/or prescription drugs	28 (22.2)
		Suspicion of organic illness	45 (35.7)
		Total	126
10	Ask patients about headache related morbidity	Yes	77 (61.1)
		No	49 (38.9)
		Total	126

Table 2. Pharmacists' attitude and knowledge regarding migraine management.

Item No.	Item Description	Agree*	Neutral*	Disagree*
11	Migraine is primarily a disease of the brain, with a well-established neurological basis.	56 (44.4)	45 (35.7)	25 (19.8)
12	Headache patients are an important part of my pharmacy practice.	81 (64.3)	38 (30.2)	7 (5.6)

13	Migraine specific drugs (triptans) should be reserved for patients who have failed at least two other prescription acute drugs.	72 (57.1)	44 (34.9)	10 (7.9)
14	I always encourage a headache patient to keep a diary.	53 (42.1)	58 (46.0)	15 (11.9)
15	I always discuss non medication therapies as part of headache treatment.	82 (65.1)	28 (22.2)	16 (12.7)
16	Patient satisfaction is an important consideration in headache treatment.	106 (84.1)	15 (11.9)	5 (4.0)
17	Headache sufferers should try OTC drugs first then try prescription drugs.	101 (80.2)	16 (12.7)	9 (7.1)
18	I teach patients to guard against overuse of OTC drugs.	88 (69.8)	28 (22.2)	10 (7.9)
19	I teach patients to guard against overuse of prescription medications.	77 (61.1)	36 (28.6)	13 (10.3)
20	Prior to suggesting an OTC drug that they always ask the patient about headache attack-related disability.	96 (76.2)	27 (21.4)	3 (2.4)
21	I can identify a patient in need of a migraine preventive medication.	76 (60.3)	37 (29.4)	13 (10.3)
22	I know when to refer a patient to a physician.	90 (71.4)	25 (19.8)	11 (8.7)

* all values presented as frequency(percentage)

Table 3. Association of the gender of the pharmacists with the most common reason to refer a patient to a doctor and the practice of reservation of triptans for patients failing at least two other prescription medicine

	Male n (%)	Female n (%)	<i>P</i> *
The most common reason for referring a patient to a doctor			
Ineffectiveness of the current treatment	21 (26.3)	20 (43.5)	0.028
Decreased quality of life	5 (6.3)	7 (15.2)	
Overuse of OTC and/or prescription drugs	22 (27.5)	6 (13)	
Suspicion of organic illness	32 (40)	13 (28.3)	
Migraine specific drugs (triptans) should be reserved for patients who have failed at least two other prescription acute drugs			
Agree	51 (63.8)	21 (45.7)	0.03
Neutral	26 (32.5)	18 (39.1)	
Disagree	3 (3.8)	7 (15.2)	

Test applied: Pearson's Chi-Square analysis.

Table 4. Association between the years of experience of the pharmacists with their behavior of asking the patients about any headache-related morbidity

		Asked patients about headache-related morbidity n (%)		P*
		Yes	No	
Years of Experience	<5	46 (66.7)	23 (33.3)	0.03
	6-10	4 (23.5)	13 (76.5)	
	11-15	10 (83.3)	2 (16.7)	
	>15	17 (60.7)	11 (39.3)	

Test applied: Pearson's Chi-Square analysis

Table 5. Association between the practice environments of the pharmacists and the frequency with which they refer a patient to a doctor for a headache/migraine complain

		Frequency of referral to doctor for headache/migraine complain n (%)			P*
		At least 1 per month	At least 2 per month	At least 3 or more per month	
Clinical practice environment	Community Pharmacy	23 (50)	11 (23.9)	12 (26.1)	0.027
	Hospital and Community Pharmacy	57 (71.3)	7 (8.8)	16 (20)	

Test applied: Pearson's Chi-Square analysis

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