

ORIGINAL ARTICLE

Knowledge, attitude, and practice among pharmacists for migraine management in Al-Madinah Al-Munawarah

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ABSTRACT

Background: The right choice of migraine headache medications can be controlled by knowing the knowledge, attitude, and practice among pharmacists because pharmacists interact with plenty of people who have a migraine headache daily. The present study aimed at evaluating the pharmacists' knowledge, attitude, and practice in migraine management and recognize factors that influence the awareness of migraine management.

Methods: A cross-sectional study was carried out in the Al-Madinah Al-Munawarah region, Kingdom of Saudi Arabia, from October 2020 to June 2021. The study targeted all pharmacists who work in that region. Data were collected using a web-based valid questionnaire conducted through social media.

Results: The study included 303 pharmacists, 56.4% were community pharmacists. Furthermore, 34.3% were pharmacists of the hospitals, and the remainder were from primary healthcare centers. Approximately, half make daily recommendations on between one and five over the counter medications, 26.7% reported giving medications without a prescription, 66% said they are taking a history during their clinical training in their work-life, 49.5% agreed that migraine is a primary brain disease, 84.5% either strongly agreed or agreed that patient sense of healthy- being is an essential consideration in the management of headache.

Conclusion: The study showed that pharmacists have good knowledge about migraine and their management. The most frequent potential barriers to counseling the patients were patients' lack of awareness to be counseled (47.5%), shortage of time (43.2%), and high patient load (39.3%).

Keywords: Headache, knowledge, migraine, pharmacist, Saudi Arabia.

Introduction

Headache disorders are divided into primary and secondary, with migraine being one of the most common primary headaches. Also, migraine is a common chronic neurovascular condition associated with episodic exacerbations of differing power and recurrence [1]. The prevalence of migraine ranges from 6% to 18% among males and females, respectively [2,3]. According to WHO, the estimated number of migraine patients worldwide is about 324 million. A systematic review put the prevalence of headaches in the Saudi population as 8%-12%, with migraine headaches from 2.6% to 5% [4]. According to the International Classification of Headache Disorders, migraines can present with aura or without aura [5]. Symptoms range from nausea, vomiting, phonophobia, or photophobia and are pulsatile or throbbing in nature. Migraines can be managed non-pharmacologically by avoiding the triggers and through

stress management or pharmacologically [6]. The patient should understand the strategy and treatment of the condition, and medication must be taken as soon as possible during an attack. Patients must understand the risk of medication overuse and the risk of conversion to chronic daily headaches [7].

Pharmacists daily recommend over-the-counter (OTC) migraine treatment more than 53,000 times

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[8]. Pharmacists are in an excellent position to assist in managing migraine, especially with respect to medications of migraine prevention, because many patients may not be knowledgeable about the benefits and how to utilize these agents. Pharmacists can make a measurable contribution to the patient's care and enhance the patients' lives with migraine [9]. They are well proportioned to assist in advanced treatment, especially for migraine. However, less is known about pharmacists' perspectives on various issues related to headaches. [9]. This study aims to evaluate the knowledge, practices, and attitudes of pharmacists regarding migraine treatment. The present aimed at evaluating the knowledge, attitudes, and practices among pharmacists on migraine management in Madinah. Furthermore, it also aimed at recognizing the factors that influence the awareness of migraine management.

Subjects and Methods

This was an observational cross-sectional study, with data collected from October 30 to November 30, 2020, in pharmacies in the Madinah region. Madinah is a region in western Saudi Arabia with a population of 2,239,923, according to the 2019 census [10]. It is the third-largest region in Saudi Arabia in terms of surface area and the fifth-largest in terms of the population [11]. The sample size was 303. The study population included all pharmacists who work in the government or private sector

in the Madinah region. They were selected randomly by a web-based questionnaire conducted through social media during the study period. Inclusion criteria included all pharmacists who work in governmental hospitals, community pharmacies, primary healthcare centers, and private hospitals in the Madinah region. The study excluded pharmacists who worked outside the Madinah region. Data were collected from randomly chosen pharmacists in the Madinah region. The questionnaire was designed and formulated with a consistent structure and relationship between the questions to meet the study's goals. It contains four sections: 1. Demographic data and work-related information (gender, age, practice and environment, work experience, average working hours/day, qualifications, number of daily OTC medications, and whether the medication was given by prescription or not); 2. drugs selection and barriers; 3. histories of the patient and questions needed by the provider during the encounter; 4. knowledge of migraines and its management. The criteria for migraine knowledge were drawn from 12 questions shown in Table 1. The responses were "strongly disagree" coded as 0, "disagree" coded as 1, "neutral" coded as 2, "agree" coded as 3, "strongly agree" coded as 4, by using the mean as a cutoff point to determine the knowledge level. A score above the mean indicated the pharmacist had an excellent knowledge of migraines. A score equal to or below the mean was considered poor knowledge. The criteria for assessment of factors associated with pharmacists' knowledge of

Table 1. Knowledge about migraine and its management among participants.

	Strongly agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly disagree N (%)
Migraine is primarily a disease of the brain, with a well-established neurological basis	59 (19.5)	150 (49.5)	63 (20.8)	27 (8.9)	4 (1.3)
Managing headache symptomatically is challenging	60 (19.8)	155 (51.2)	60 (19.8)	26 (8.6)	2 (0.7)
Prior to suggesting an OTC headache drug, I always ask patients if they have chronic diseases	149 (49.2)	98 (32.3)	38 (12.5)	13 (4.3)	5 (1.7)
Patient satisfaction is an important consideration in headache treatment	125 (41.3)	131 (43.2)	37 (12.2)	4 (1.3)	6 (2.0)
Triptans should be reserved for patients who have failed at least two other prescription acute medications	58 (19.1)	142 (46.9)	74 (24.4)	27 (8.9)	2 (0.7)
I always encourage headache patients to keep a diary	45 (14.9)	125 (41.3)	104 (34.3)	25 (8.3)	4 (1.3)
I always discuss non-medication therapies as part of headache treatment	67 (22.1)	142 (46.9)	72 (23.8)	20 (6.6)	2 (0.7)
Headache sufferers usually try OTC drugs first, then try prescription drugs	81 (26.7)	134 (44.2)	50 (16.5)	32 (10.6)	6 (2.0)
I teach headache patients to guard against overuse of OTC drugs	106 (35.0)	140 (46.2)	45 (14.9)	10 (3.3)	2 (0.7)
I teach headache patients to guard against overuse of prescription drugs	95 (31.4)	118 (38.9)	55 (18.2)	30 (9.9)	5 (1.7)
Prior to suggesting an OTC headache drug, I always ask patients if their attacks inhibit their ability to perform work, school, and household tasks	77 (25.4)	130 (42.9)	65 (21.5)	25 (8.3)	6 (2.0)
I can identify patients in need of a migraine preventive medication	41 (13.5)	130 (42.9)	92 (30.4)	36 (11.9)	4 (1.3)

migraine and its management are gender, age in years, practice environment, work experience (years), average working hours/day, qualifications, history of having received guidelines about migraine management, history of taking any clinical training during working life, number of OTC medications recommended daily, and whether the medication was given by prescription or not. Also, questions were included related to the practice of participants, such as the type of product preferred by the patient, does it matter that the patient chose their medication, the recommended drugs for non-examined headache, what could participants do for patients with a headache that taking paracetamol and wanted better treatment, and what are potential barriers to counsel patients. Data entry and statistical analysis were performed utilizing the Statistical Package for Social Sciences software, version 26. Categorical variables were described by frequency and percentage, while continuous variables (total knowledge score) were described by the mean and standard deviation (SD). The total score of the knowledge was tested for normality using the Shapiro-Wilk test. Since it was normally distributed, parametric statistical tests were applied for comparisons of means; *t*-test for comparison of two groups and one-way analysis

of variance test for comparison of more than two groups. Statistical significance was determined at $p < 0.05$.

Results

The study included 303 pharmacists. Their demographic and work-related characteristics are summarized in Table 2. Males represent 73.3% of the pharmacists; 74.6% were between 25 and 35 years old. More than half of the participants, 56.4%, worked at community pharmacies, 26.7% at governmental hospitals, 48.5% worked as pharmacists for more than 5 years, and 51.8% worked for more than 8 hours/day. Regarding qualification, the majority were pharmacists (general practitioners) (93.1%). The number of OTC medications dispensed daily ranged between one and five for almost half of participants (48.8%); 26.7% reported giving medications without a prescription.

Over the counter

64.7% of pharmacists have a history of having received clear guidelines on migraine management (Figure 1); while the percentage of pharmacists having had any clinical training during their work-life was 66%, seen in Figure 2.

Table 2. Demographic and work-related characteristics of participants ($n = 303$).

	Frequency	Percentage
Gender		
Male	222	73.3
Female	81	26.7
Age in years		
25-35	226	74.6
36-45	64	21.1
>45	13	4.3
Practice environment		
Governmental hospital	81	26.7
Community pharmacy	171	56.4
Primary healthcare center	28	9.2
Private hospital	23	7.6
Work experience (years)		
<1	67	22.1
1-5	89	29.4
>5	147	48.5
Average working hours/day		
1-8	146	48.2
>8	157	51.8
Qualification		
Pharmacists	282	93.1
Consultant pharmacist	21	6.9
Number of daily given OTC ^a		
None	36	11.9
1-5	148	48.8
6-10	119	39.3
Was the medication given by prescription?		
No	81	26.7
Yes	222	73.3

^a = (OTC) over the counter

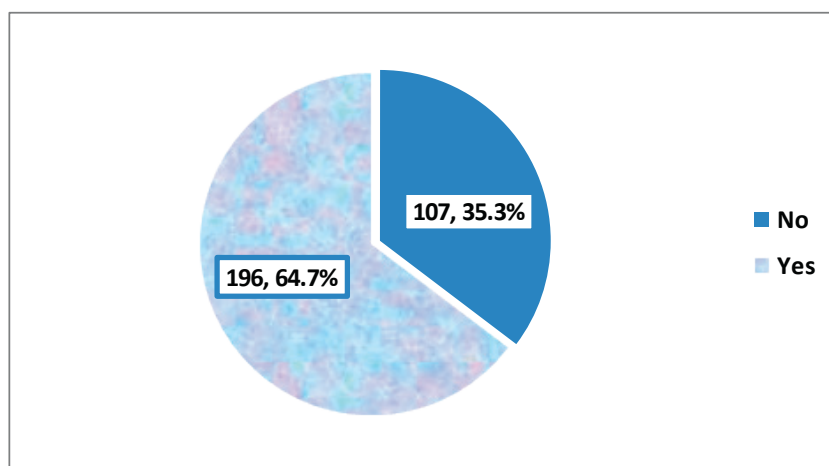


Figure 1. History of having guidelines on migraine management among participants.

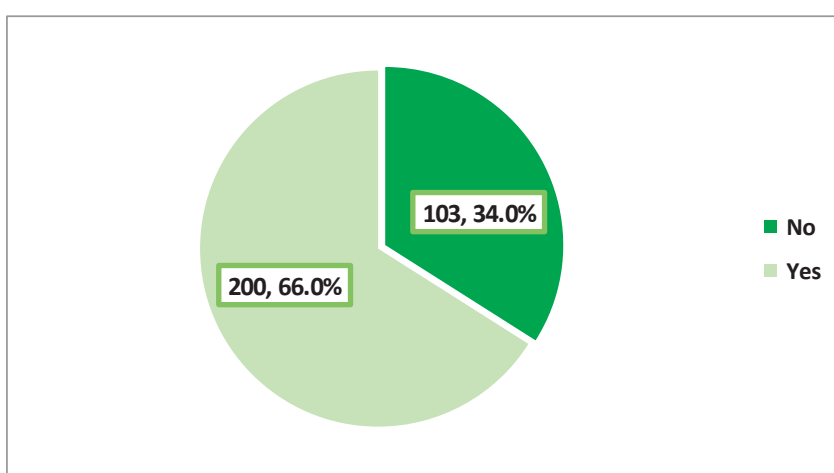


Figure 2. History of having any clinical training during their work-life among participants.

Drug selection and counseling barriers

According to pharmacists, 58.4% of patients preferred a brand name headache/migraine medication, and 48.5% chose their medication based on price, effectiveness, and safety. Most pharmacists (89.8%) recommended paracetamol for a non-examined headache. More than one-third recommended either ibuprofen (39.9%) or diclofenac (34.3%) and/or refer patients to a nearby hospital (34.3%) who were taking paracetamol and wanted better treatment, as seen in Table 3.

Barriers to counseling patients, according to pharmacists: patients were unaware they could seek counseling from the pharmacist (47.5%); shortage of time (43.2%); and high patient load (39.3%), as seen in Figure 3.

Questions and patient history required

It is evident from Table 4 that most pharmacists inquire about the duration of headache, 75.9%; location of pain,

70%; patient's age, 69.6%; and timing of headache, 69% during their encounter with a patient. On the other hand, less than half of pharmacists inquire about allergies (44.9%), specific conditions that could affect diagnosis or recommended treatment (38.6%), relieving factors (36.3%), exacerbating factors (35.3%), whether the patient needs additional information (33.7%), and/or involve the patient in medication selection and the process (29%)

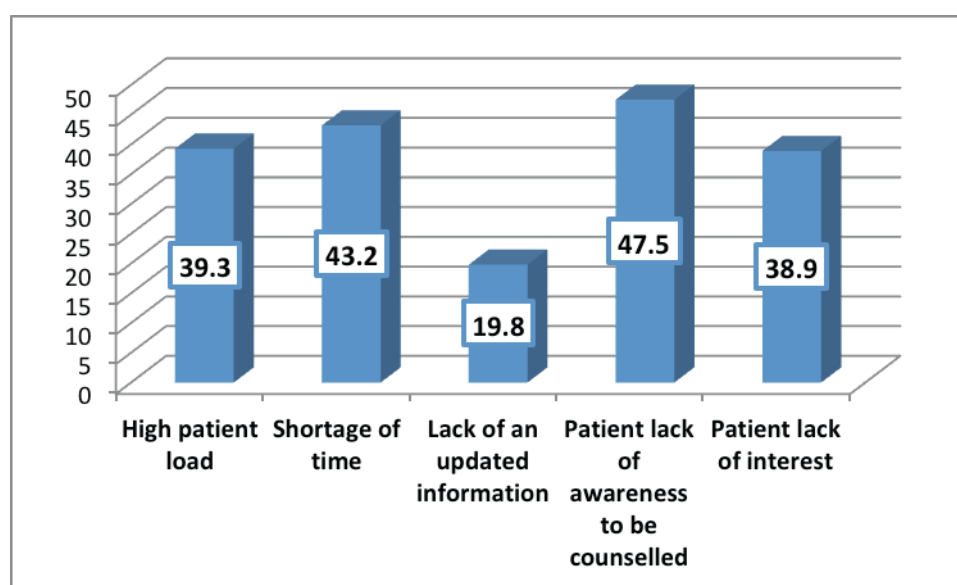
Knowledge about migraine and its management

Most of the pharmacists either strongly agreed or agreed that the patient's sense of well-being is an essential consideration in managing headaches (84.5%). Before suggesting an OTC headache drug, they always ask patients about chronic diseases (81.5%); and teach headache patients to avoid the overuse of OTC drugs (81.2%). However, only 56.4% strongly agreed or agreed that they could identify patients needing a migraine

Table 3. Headache/migraine-related practice of participants.

	Frequency	Percentage
Type of product preferred by the patient		
Generic	82	27.1
Brand	177	58.4
Both	44	14.5
What matters to the patient when choosing medication?		
Price	19	6.3
Effectiveness	24	7.9
Price & effectiveness	75	24.8
Effectiveness & safety	38	12.5
Price & effectiveness & safety	147	48.5
Drugs recommended for non-examined headache ^a		
Paracetamol	272	89.8
Diclofenac	56	18.5
Ibuprofen	61	20.1
Tramadol	20	6.6
Aspirin	17	5.6
What would you do for a headache patient taking paracetamol who wants better treatment? ^a		
Diclofenac	104	34.3
Ibuprofen	121	39.9
Tramadol	21	6.9
Aspirin	23	7.6
Refer to a nearby hospital	131	43.2

^a Not mutually exclusive.

**Figure 3.** Potential barriers to counsel patients, per pharmacists' perspectives.

prophylaxis medication (see Table 1). Overall, the total knowledge score ranged between 18 and 48, with a mean of 34.4 and SD of (± 6). As shown by the insignificant Shapiro-Wilk test, it was normally distributed, $p = 0.094$ (Figure 4). Among factors studied, the only one significantly associated with pharmacists' knowledge about migraine and its management was the practice environment; those practicing in community pharmacies had the highest knowledge score (34.95 ± 5.87), while

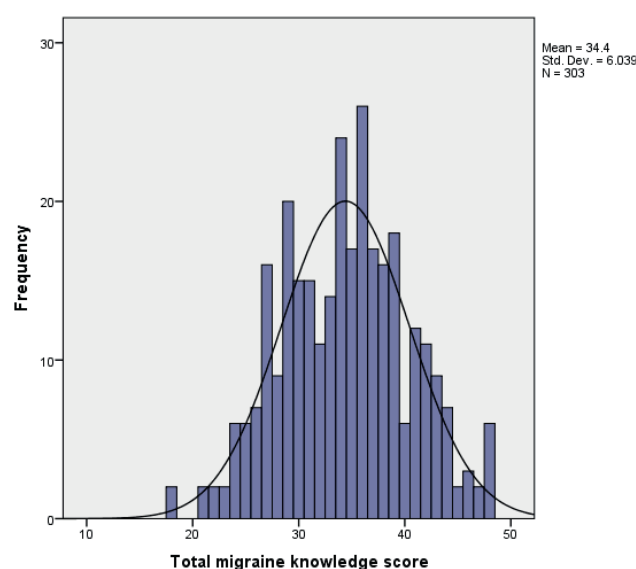
those practicing in private hospitals had the lowest score (29.91 ± 5.47), $p = 0.002$ (Table 5).

Discussion

Migraine headache is one of the most common disabling primary headaches. A systematic review in 2010 estimated that the prevalence of headaches in the Saudi population ranges from 8% to 12%, with migraine

Table 4. Histories of the patient and questions needed by the provider during encounter.

	Frequency	Percentage
Patient's age	211	69.6
Timing of headache	209	69.0
Duration of headache	230	75.9
Location of pain	212	70.0
Intensity of pain	172	56.8
Typical signs & symptoms/types of headaches	159	52.5
Exacerbating factors	107	35.3
Relieving factors	110	36.3
Current or previous medical condition	172	38.6
Specific conditions that could affect diagnosis or recommended treatment	117	56.8
Any current medication that the patient takes	181	59.7
Which type of medication used	169	55.8
Presence of allergy	136	44.9
If the patient needs additional information	102	33.7
Involving the patient in medication, selection process	88	29.0

**Figure 4.** Distribution of the total migraine knowledge score among participants.

headaches ranging from 2.6% to 5%. This study was conducted as an initial step toward evaluating the level of knowledge, attitude, and practice among pharmacists in migraine management in Madinah, Saudi Arabia. The results of this study can help recognize what factors influence the awareness of migraine management.

The present study revealed that of the 303 pharmacists, 73.3% were males, and 74.6% of them were between 25 and 35 years old. According to the practice environment, most participants (56.4%) worked at community pharmacies, with (26.7%) at governmental hospitals. Of

the participants, 64.7% followed the guidelines when they gave migraine medications, and 66% received clinical training in their work life. In contrast to another study that included 51 participants, only one had any headache management guidelines. 11.8% of participants received clinical training in their work-life [12]. Findings indicate that 48.5% of patients choose their medication based on price, effectiveness, and product safety. Another study showed that more participants choose medications based on effectiveness (61.7%) [12]. About half of pharmacists, 48.8%, give OTC medications ranging from 1 to 5 times. Moreover, most of them (89.8%) recommended

Table 5. Factors associated with pharmacists' knowledge about migraine and its management.

	Total migraine knowledge score mean \pm SD	t/f value	p-value
Gender Male (n = 222) Female (n = 81)	37.07 \pm 5.99 35.28 \pm 6.10	1.55	0.122
Age in years 25-35 (n = 226) 36-45 (n = 64) >45 (n = 13)	34.58 \pm 5.83 33.63 \pm 6.60 34.92 \pm 6.84	0.68	0.508
Practice environment Governmental hospital (n = 81) Community pharmacy (n = 171) Primary healthcare center (n = 28) Private hospital (n = 23)	34.67 \pm 6.37 34.95 \pm 5.87 33.89 \pm 5.18 29.91 \pm 5.47	5.02	0.002
Work experience (years) <1 (n = 67) 1-5 (n = 89) >5 (n = 147)	34.25 \pm 6.59 33.98 \pm 5.27 34.71 \pm 6.23	0.44	0.648
Average working hours/day 1-8 (n = 146) >8 (n = 157)	34.29 \pm 5.99 34.49 \pm 6.10	0.28	0.778
Qualification Pharmacist (n = 282) Consultant pharmacist (n = 21)	34.49 \pm 6.05 33.10 \pm 5.92	1.02	0.307
History of having guidelines about migraine management No (n = 107) Yes (n = 196)	33.77 \pm 5.77 34.74 \pm 6.17	1.34	0.180
History of taking any clinical training in work-life No (n = 103) Yes (n = 200)	34.82 \pm 5.67 34.18 \pm 6.22	0.87	0.386
Number of daily given OTC* None (n = 36) 1-5 (n = 148) 6-10 (n = 119)	34.50 \pm 6.54 33.79 \pm 5.63 35.12 \pm 6.34	1.61	0.203
Was the medication given by prescription? No (n = 81) Yes (n = 222)	33.73 \pm 6.12 34.64 \pm 6.0	1.16	0.246

paracetamol for a non-examined headache. Also, 81.2% of pharmacists teach headache patients to avoid the overuse of OTC drugs. Pharmacists' education about stratified care, the appropriate role of OTC agents, and avoiding drug overuse is valuable. From the pharmacists' perspectives, the most frequent potential barriers to counseling patients: patients' lack of awareness that they can be counseled (47.5%), shortage of time (43.2%), and high patient load (39.3%). Pharmacists should be encouraged to play an essential part in enhancing awareness about this disease and its management to patients. During encounters with patients, pharmacists did ask about headache clinical pictures, duration, medication profile, and previous or current medical conditions. Pharmacists must ask for relevant information on patient history and medication compliance to help pharmacists

choose appropriate alternative medications for patients. Regarding pharmacists' knowledge about migraines and their management, most pharmacists in this study agreed that migraine is a primary brain disease. Also, they acknowledged that the patient sense of healthy-being is an essential consideration in the management of headaches. That indicates that most participants in the present study had good knowledge about migraines and their management. That does not mean further training is not needed to optimize pharmacists' roles in migraine management. Study findings show that the most significant factor associated with pharmacists' knowledge about migraine and its management was the practice environment. Community pharmacists had the highest knowledge score about migraines, while those practicing in private hospitals had the lowest score. This study has

several strengths: it used an electronic questionnaire to collect the data, which was cost-efficient, as it did not require any financial support. This study surveyed pharmacists in the Madinah region. The limitation of the study is that it only studied the pharmacy setting and pharmacological-related specialties, so it is not helpful in other specialties. Also, the study methodology, relying on self-reporting (depending on the pharmacist's memory and recall), can allow bias to occur.

Conclusion

This study showed that most pharmacists agree that migraine is a primary brain disease, demonstrating good knowledge of migraine. The practice environment dictated a significant knowledge about migraine and its management; community pharmacists had more knowledge of migraine than hospital-based pharmacists did. The most frequent potential barriers to counseling patients about migraines, were patients' lack of awareness that they could be counseled (47.5%), shortage of time (43.2%), and high patient load (39.3%).

List of Abbreviations

OTC Over the counter
SD Standard deviation

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent to participate

Written informed consent was obtained from all the participants.

Ethical approval

Ethical approval for the study was obtained from the scientific, ethical committee of the College of Medicine at Taibah University in Madinah, Saudi Arabia (IORG0008716 – IRB00010413).

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