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Assessment of the Level of Knowledge about Migraines and Medication Among Pharmacy Technicians

Eczane Teknisyenleri Arasında Migren ve İlaçla İlgili Bilgi Düzeyinin Değerlendirilmesi

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Abstract

Objective: A limited number of studies focus on pharmacy technicians (PT) and their knowledge level regarding migraines. The present study aimed to determine their level of awareness and knowledge regarding migraines and migraine treatment.

Materials and Methods: This cross-sectional study was conducted at Erciyes University Faculty of Medicine in Kayseri, Türkiye. It was conducted from February 2019 to May 2019 and completed with the participation of 324 PTs (75.8% response rate). Forms containing questions about the diagnosis of migraines, the characteristics, and the treatments were administered to the PTs in person and then evaluated by a neurologist.

Results: The ratio of PTs who knew of a drug therapy that reduced migraine attacks was 10.2%. Most PTs (85.2%) had no training in migraine treatment and obtained knowledge from their work experience. Ninety-one participants (28.1%) recommended medication to patients who visited the pharmacy due to headaches. When asked about the drug they recommend for migraines, 29.6% suggested ergotamine, 26.9% suggested analgesics, and 15.7% suggested triptans.

Conclusion: The results of this study revealed that PTs working in pharmacies that support primary care services might not have sufficient awareness and knowledge about migraine treatments, and appropriate training should be provided on this subject.

Keywords: Migraine, pharmacy technician, public health

Öz

Amaç: Migren ile ilgili sınırlı sayıdaki çalışmada eczane teknisyenlerinin (ET) bilgi düzeyine odaklanılmıştır. Bu çalışmada migren ve migren tedavisi ile ilgili farkındalığın ve bilgi düzeylerinin belirlenmesi amaçlanmıştır.

Gereç ve Yöntem: Bu kesitsel çalışma Erciyes Üniversitesi Tıp Fakültesi Kayseri ili Türkiye'de yürütülmüştür. Şubat 2019-Mayıs 2019 tarihleri arasında gerçekleştirilmiş ve 324 ET'nin (%75,8 yanıt oranı) katılımı ile tamamlanmıştır. Migren tanısı, atakların özellikleri ve tedavisi ile ilgili soruları içeren formlar direkt ET'lere uygulanmıştır. Daha sonra bir nörolog tarafından formlar değerlendirilmiştir.

Bulgular: Migren ataklarını azaltan ilaç tedavisini bilen ET oranı %10,2 idi. Çoğu ET (%85,2) migren tedavisi konusunda eğitim almamış ve iş yeri deneyimlerinden bilgi edinmiştir. Doksan bir katılımcı (%28,1) baş ağrısı nedeniyle eczaneye gelen hastalara ilaç önerdiklerini söyledi. Migren için önerdikleri ilaç sorulduğunda, %29,6'sı ergotamin, %26,9'sı analjezik ve %15,7'si ise triptan önermiştir.

Sonuç: Bu çalışmanın sonuçları, birinci basamak hizmetlerini destekleyen eczanelerde çalışan teknisyenlerin migren tedavisi konusunda yeterli migren farkındalığı ve bilgisine sahip olmadığını ve bu konuda uygun eğitim verilmesi gerektiğini ortaya koymaktadır.

Anahtar Kelimeler: Migren, eczane teknisyeni, halk sağlığı

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Introduction

Migraines are estimated to have a prevalence of about 12.0% in the general population and constitute a significant health problem that impairs quality of life (1). They are the second most common headache type among primary headaches, in which genetic and environmental factors are influential. Migraine headaches are characterized by a moderate to severe headache, which often is one-sided, pulsatile, increases with effort, and is accompanied by one or more symptoms such as nausea, vomiting, photophobia, or phonophobia. Different neurological, gastrointestinal, and autonomic changes may also be present along with the headache (2).

In Türkiye, the frequency of migraines in the 15–55 age group was reported at 16.4%, with 21.8% in women and 10.9% in men (3). The worldwide prevalence of migraine varies between 2.6% and 21.7%, with a reported global average of about 12.0% (1). It is the primary cause of disability for people under 50 worldwide (4). Due to the cost of treatment and decreased productivity caused by migraine, Europe has an annual economic loss between 18 and 27 billion euros, and the United States (US) has approximately 13 billion dollars of loss (5,6).

According to the World Health Organization, pharmacies should recognize simple symptoms affecting individuals and inform them about drug treatment and personal care options (7). Pharmacy technicians (PTs) are professionals who assist pharmacists with health services offered to the public and are becoming increasingly important. In many developed countries, PTs receive necessary and adequate training in their professional field. In contrast, vocational training programs for PTs were only developed in the last few years in Türkiye. Not having completed a training or certification program, many technicians might still be working without sufficient competence (8). Those suffering from migraines often utilize pharmacies during headache attacks to request information and treatment. Studies from different countries have suggested that PTs' knowledge of migraines is insufficient (9,10). However, there is no data on this in Türkiye. It may be possible to significantly contribute to the individual's well-being and the country's economy by correctly diagnosing migraines and referring patients to appropriate physicians immediately.

This study evaluated PTs' knowledge regarding migraine and their treatment, their perception of drugs used to treat migraines, and their behavioral tendencies when recommending medications to patients.

Materials and Methods

Study Sample

PTs working within the Kayseri province's borders between February 2019 and May 2019 were included in the study. The study population consisted of PTs working in all the pharmacies (854) in the city center registered with the Kayseri Chamber of Pharmacists, and 50% of the pharmacies (427) were randomly selected and visited. The survey was administered to 324 volunteers with a 75.8% response rate. The consent form explaining the purpose of the research was read to the PT participants, and their written consent was obtained. The Chamber of Pharmacists granted the necessary approval.

The research survey consisted of two parts: the first contained questions about the PTs' socio-demographic characteristics, and the second involved their knowledge and attitudes regarding migraine and their treatment. Some questions in the survey form were open-ended, and others were multiple-choice. The survey was administered using the face-to-face interview method under the supervision of a competent researcher.

The correct answers to the questions about the proper use of migraine drugs were scored. A neurologist assessed the responses to the second part of the survey "blindly" without seeing the participants' socio-demographic variables. The participants' knowledge levels were categorized into five groups based on their self-reports: "I am very well-informed, I am well-informed, I am informed, I have some knowledge, and I have no knowledge".

The Ethics Committee of the Faculty of Medicine at Erciyes University approved the study (approval no: 2016/198). The analysis was performed in accordance with the Declaration of Helsinki, and informed consent was obtained from all participants before the completion of the questionnaires.

Statistical Analysis

Whether the data showed normal distribution was evaluated using a histogram, *q–q* plot graphs, and the Shapiro–Wilk test. Pearson's χ^2 test was used to compare categorical data, and the Bonferroni test was utilized for multiple comparisons. The data was evaluated using R 3.2.0 (www.r-project.org), and the significance level was set at $P < 0.050$.

Results

The study was completed with 324 participants who agreed to answer the survey (response rate = 324/427 = 75.8%).

The mean age of the participants was 29.5 ± 5.5 years, 67.0% were male, 62.7% were married, and 74.0% had high school or higher education. Table 1 displays the primary demographic data for the participants.

Table 1. Distribution of the participants by socio-demographic characteristics

Variables	n = 324*
Age (years)	29.5 (min: 24.0–max: 36.0)
Gender	
Male	67.0
Female	33.0
Marital status	
Single	37.3
Married	62.7
Highest education level	
Primary school	4.7
Secondary school	21.3
High school	55.5
University	18.5
Master's/doctorate	

*The data is expressed as n (%). Min: Minimum, max: Maximum

The most common answer to the question, "What would you recommend to a patient who comes with headaches?" was "I would refer the patient to a physician" (70.1%). "A neurologist" was the most prevalent answer (82.7%) to the question, "To which specialist would you refer a patient with a headache?" of the PTs, 71.3% named ergotamine, non-steroidal anti-inflammatory drugs (NSAIDs), and triptans when asked the open-ended question about drugs they recommended to migraine patients.

When asked, "When would you advise a migraine patient to take a painkiller for headaches?", 56.6% of the PTs said they would recommend the patient take it when the headache started. When asked, "When would you advise a migraine patient to take a migraine-specific drug for a migraine-type headache?", 60.2% of the PTs disclosed they would suggest the patient take it when the headache started. In response to the question, "Is there any medication that reduces the frequency of migraine attacks?", most of the PTs (89.8%) stated that they did not know of any or there was no such medication (Table 2).

The PTs indicated that 88.0% of migraine-type headaches were standard in women, 24.4% had a family member diagnosed with migraines, and 85.2% knew about migraines from their work experience (Table 3). When asked to write the names of the drugs they most frequently noticed on the prescriptions of patients who visited their pharmacy, 14.8% of the participants stated that they could not remember. In contrast, the remaining 276 participants answered with triptans, followed by ergotamine, prophylactic agents, and analgesics.

The relationship between migraines and drug advice was questioned according to the participants' knowledge level, and they were asked to self-assess. For the question regarding the timing of analgesics, 70.0% of the group, consisting of 10 participants who reported being very well informed, stated that they would recommend taking it when the headache started. The ratio was found to be 54.3% among those who reported being well-informed (116 participants), 55.4% among those who reported being informed (56 participants), 61.8% among those who reported having some knowledge (123 participants), and 31.6% among those who reported having no knowledge (19 participants). The difference between the groups was statistically insignificant (P = 0.188) (Table 4).

Evaluating the "migraine-specific medication" advice the PTs gave to patients based on their self-reported knowledge level, 80.0% of those who reported being very well-informed recommended taking the drug when the headache started, and the difference between the groups was statistically insignificant (P = 0.136) (Table 4).

When asked, "Is there any medication that reduces the frequency of migraine attacks?", 60.0% of those who reported being very well-informed said, "No". However, 10.0% of those who reported being well-informed said, "Yes". Of those who reported having no knowledge, 57.9% responded with, "I do not know", and the variance between the groups was statistically significant (P < 0.001) (Table 4).

Table 2. Distribution of the participants' responses regarding drugs used to treat migraines

Variables (n = 324)	Number	%
"When would you advise a migraine patient to take a painkiller for a headache?"		
Those who recommend taking it when the headache starts	183	56.4
Those who recommend taking it when the patient has a headache	95	29.3
Those who recommend taking it when the headache is severe	29	9.0
Those who recommend taking it every day	8	2.5
Other	9	2.8
"When would you advise a migraine patient to take a migraine-specific drug for migraine-type headaches?"		
Those who recommend taking it when the headache starts	195	60.2
Those who recommend taking it at the most severe point of the headache	72	22.2
Those who recommend taking it when the throbbing starts	24	7.4
Those who recommend taking it at the middle point of the headache	15	4.6
Other	18	5.6
"Is there any medication that reduces the frequency of migraine attacks?"		
I do not know	149	45.9
No	142	43.8
Yes	33	10.2

The data is expressed as n (%)

Table 3. Distribution of the participants according to their answers to the questions about migraine epidemiology and their information sources

Variables (n = 324)	Number	%
Migraine-type headaches are more common in which sex?		
Male	38	12.0
Female	286	88.0
Do you have a family member diagnosed with migraine-type headaches?		
No	245	75.6
Yes	79	24.4
What are your sources of information about migraines?		
Work experience	276	85.2
Internet	17	5.2
School	11	3.4
Seminars and meetings	2	0.6
Other	18	5.6

Discussion

This study revealed that the knowledge level of PTs who support primary health care services regarding the diagnosis and treatment of migraines was deficient. One study from Türkiye showed that a physician advised only 43.1% of patients with

migraines, and other patients were on medication recommended by a pharmacy or self-prescribed (11). This finding showed the importance of PTs in guiding patients toward an appropriate treatment and using their knowledge about migraines. It is safe to assume that PTs with insufficient knowledge might be unable to provide proper guidance and follow-up treatment.

The ratio of PTs who knew whether there was a drug treatment that reduced the frequency of migraine attacks was 10.2%. Most PTs (85.2%) had no training in migraine treatment and obtained their current knowledge from work experience. This indicates that those who work as technicians in pharmacies providing health counseling services for migraine patients do not have sufficient experience and knowledge about migraine treatment and do not receive the necessary training from competent institutions and individuals. These findings are similar to the results of studies conducted in other countries (9,10).

Most PTs stated that they referred patients to a physician in cases of headaches (70.1%), and when asked what type of specialist, 82.7% indicated that they referred those patients to a neurologist. A few PTs reported referring such patients to family physicians, neurosurgeons, and other specialists. A recent study on migraine awareness among family physicians in Türkiye concluded that family physicians might not be knowledgeable enough about migraine diagnosis and treatment methods (12). Therefore, referring patients to a neurologist as early as possible is critical.

When participants were asked which drugs they recommend for a migraine-type headache, 29.6% responded with ergotamine, 15.7% with triptans, and 26.9% with basic analgesics. In a study from Thailand where pharmacists and PTs were evaluated with simulated migraine patients, ergotamine was reported as the first drug option, while NSAIDs were second (9). In a similar study administered in Brazil, the first drug chosen was NSAIDs. However, metamizole was the most preferred (13). It is concerning that ergotamine was the first choice by PTs for migraine-type headache treatment in this study because intensive use of ergotamine and triptans can be associated with a risk of headaches caused by drug overuse (14).

Migraine-specific drugs should be taken immediately at the beginning of an episode to get the maximum benefit (10). When taking the medicine late, the pain might not be suppressed sufficiently, and the patient will require other medications, which can lead to drug overuse. In the present study, 39.8% of the PTs stated that migraine-specific medications should be taken outside

Table 4. Comparison of the participants' drug advice to migraine patients according to their knowledge level

Variables (n = 324)	Knowledge level about migraines					*P*
	I am very well-informed	I am well-informed	I am informed	I have some knowledge	I have no knowledge	
Advice to migraine patients regarding "pain killers"						
Those who recommend taking it every day	0 (0.0)	2 (1.7)	2 (3.6)	2 (1.6)	2 (10.5)	
Those who recommend taking it when the patient has a headache	3 (30.0)	39 (33.6)	17 (30.4)	30 (24.4)	6 (31.6)	
Those who recommend taking it when the headache starts	7 (70.0)	63 (54.3)	31 (55.4)	76 (61.8)	6 (31.6)	0.188
Those who recommend taking it when the headache is severe	0 (0.0)	10 (8.6)	3 (5.4)	13 (10.6)	3 (15.8)	
Other	0 (0.0)	2 (1.7)	3 (5.4)	2 (1.6)	2 (10.5)	
Advice to migraine patients regarding "migraine-specific drugs"						
Those who recommend taking it when the headache starts	8 (80.0)	76 (65.5)	31 (55.4)	76 (61.8)	4 (21.1)	
Those who recommend taking it at the middle point of the headache	0 (0.0)	4 (3.4)	4 (7.1)	6 (4.9)	1 (5.3)	
Those who recommend taking it at the most severe point of the headache	2 (20.0)	22 (19.0)	15 (26.8)	26 (21.1)	7 (36.8)	0.136
Those who recommend taking it when the throbbing starts	0 (0.0)	7 (6.0)	3 (5.4)	10 (8.1)	4 (21.1)	
Other	0 (0.0)	7 (6.0)	3 (5.4)	5 (4.1)	3 (15.8)	
Is there any medication that reduces the frequency of migraine attacks?						
Yes	3 (30.0)[a, b]	12 (10.3)[a, b]	11 (19.6)[b]	7 (5.7)[a]	0 (0.0)[a, b]	
No	6 (60.0)[a]	59 (50.9)[a]	26 (46.4)[a]	43 (35.0)[a]	8 (42.1)[a]	**<0.001**
I do not know	1 (10.0)[a]	45 (38.8)[a]	19 (33.9)[a]	73 (59.3)[b]	11 (57.9)[a, b]	

[a, b]: The same letters in the same line show similarity between groups, different letters show a difference between groups

that timeframe. One study from Thailand indicated that pharmacy staff had meager rates of advising patients to take their medication as quickly as possible when a headache begins (10). These findings could be considered indicators of a lack of knowledge.

Only 10.2% of the technicians had accurate knowledge when asked whether there was a medication that reduces the frequency of migraine attacks. Population-based studies showed that approximately 6%–13% of migraine sufferers worldwide take prophylaxis medication, and up to 25% cease the treatment halfway. Other studies discovered that the availability of prophylactic therapy, which can decrease the frequency of migraine attacks, is not well known (15,16). PTs should have accurate information, especially regarding prophylaxis treatment of migraines, to educate patients about their options. Additionally, they should direct patients to an appropriate physician to prevent chronic migraine pain and drug overuse headaches (17). Evaluating the participants' self-assessed knowledge level about migraines indicated that even those who reported being very well-informed were unaware of drugs that reduced the frequency of migraine episodes. That could suggest that PTs' migraine knowledge level is limited, and they are unaware of helpful information. Furthermore, 85.2% of the PTs disclosed they had not received any formal training on migraine diagnosis and treatment and obtained their knowledge about migraines from their work experience. A study in Ethiopia reported that 88.2% of PTs had not received clinical training on headaches and that the resource allocation rate for headache management was only 2% (18). This result indicates the necessity of developing effective migraine training programs.

This study showed that PTs in Türkiye might not have sufficient knowledge about migraines, one of the most common types of headaches and diseases that can cause disability and workday losses in Europe and the US. Notably, the finding related to PTs' lack of knowledge regarding migraine prophylaxis (89.8% of the PTs did not know about prophylaxis) was quite significant. It could be associated with a very low rate of prophylactic treatment among those with chronic migraines. It is essential to draw attention to this issue, to provide PTs with the necessary training on migraines and other neurological diseases, and to create awareness about the subject. Other studies worldwide have reported that pharmacists and PTs should be trained in migraines and various headache types. It is emphasized that this could significantly improve public health (19).

Long-term use of drugs for chronic and disabling headaches can cause a medication overuse headache (MOH). Patients with MOH may have several types of primary headaches, with migraine being the most significant group. Patients suffering from migraines may unnecessarily use drugs for prevention because they fear that a migraine could cause labor loss or hinder their social activities, even though most do not have frequent attacks (20). In addition, MOH could be prevented by increasing PTs' awareness of migraine treatment medications.

Study Limitations

A substantial aspect of this study is that it presents the first research data on migraine awareness of PTs in Türkiye. A limitation is that it was performed with voluntary PTs in a single city and cannot be generalized to the whole country. However, it displays meaningful data to form an opinion so that larger-scale studies can support these findings.

Conclusion

The resolution of migraine-type headaches is possible with appropriate and effective treatment. Considering there are a considerable number of people with migraines in Türkiye (about ten million), this could affect to the country's economy and the individual's finances. For this reason, it is important to refer patients with migraines to the correct physician and provide appropriate advice when they utilize pharmacies. That can only be achieved by improving migraine awareness and providing PTs with further education and in-service training.

Ethics

Ethics Committee Approval: The Ethics Committee of the Faculty of Medicine at Erciyes University approved the study (approval no: 2016/198).

Informed Consent: Written consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Concept: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Design: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Data Collection or Processing: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Analysis or Interpretation: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Literature Search: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B., Writing: R.B., D.K.G., Ş.B., M.G., M.F.Y., E.B.

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