



## ORIGINAL ARTICLE

## Evaluation of Pharmacists' Knowledge Dealing with Gastrointestinal Complaints and Preferred Over-the-counter Prescriptions

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Received: 25 September 2024

Accepted: 18 December 2024

## KEYWORDS

Knowledge;  
Pharmacy;  
Over-the-counter;  
Prescription;  
Drug

**ABSTRACT:** Over-the-counter (OTC) or non-prescription drugs are a large category of drugs that do not require a doctor's prescription to get them from a pharmacy. This study was aimed to investigate the knowledge of pharmacists employed in the Shahrekord pharmacies in encountering with gastrointestinal complaints and favorite OTC prescription. The statistical population of the study was pharmacists working in pharmacies in Shahrekord city. According to the information obtained from the Deputy of Food and Drug of Shahrekord University of Medical Sciences, 51 pharmacists in 40 pharmacies in Shahrekord during 2021. A two-part questionnaire was developed by the investigators. After collecting the data, the information was entered into the software (SPSS version 21) to analyze the data. The mean knowledge score in this study was  $12.70 \pm 1.96$  (minimum 8, maximum 17), and the pharmacists' knowledge level regarding gastrointestinal complaints and appropriate OTC drug prescriptions was 74.1%. OTC drug training had significant statistical relationship with pharmacists' knowledge scores ( $p=0.002$ ). The pharmacists working in Shahrekord pharmacies demonstrated average knowledge in managing gastrointestinal complaints and providing appropriate over-the-counter prescriptions. As a result, it is essential to offer specific courses to enhance their expertise in this area. Furthermore, the research findings indicate that the current retraining courses for pharmacists may not adequately address their awareness of various diseases and should be reassessed accordingly.

## INTRODUCTION

Recently, Over-the-counter (OTC) drugs the utilization of over-the-counter (OTC) medications has been arise around the world [1]. OTC or non-prescription drugs (legally allowed to be sold by pharmacists) are a large category of drugs that do not require a doctor's prescription to get them from a pharmacy [2]. The predictors of OTC medication use included youngsters,

having a low-medium socioeconomic level, non-formal educational qualifications, and leading a poor lifestyle [1, 3]. The use of OTC drugs is very important because of the occurrence of drug side effects. Various studies show that some medicines and even herbal medicines may cause many side effects in patients due to various reasons, including inattention or lack of awareness of

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DOI: 10.60829/JCHR.2025.1185159

contraindications, interactions and recommended dose [4-10]. The World Health Organization (WHO) outlines several risks of OTC self-medication. Consumers and pharmacy owners often lack pharmacological knowledge, leading to incorrect dosing and drug use. Self-diagnosis is frequently inaccurate, and even correct diagnoses may result in poor therapy choices. Risks also include double dosing, harmful drug interactions, incorrect administration methods, dependency from prolonged use, and potential drug shortages for those with other conditions [11].

To prevent secondary events resulting from a lack of knowledge about OTC drug usage, measures should be implemented to optimize their safe and informed use [1]. Patients understand the risks of buying drugs outside of pharmacies and recognize pharmacists as knowledgeable healthcare professionals. They trust pharmacists' expertise in advising on safe medication use and strongly support the availability of OTC drugs exclusively through pharmaceutical distribution to ensure proper guidance and minimize risks [12].

In this regard, the role of the pharmacist has become more prominent and is of special importance. On the other hand, people in the community consider the pharmacist as an available and knowledgeable source who can guide them about the use of medicines [13]. The pharmacist has an important role in answering the questions of the clients about the symptoms of diseases and prescribing OTC drugs, and hence it is necessary to improve the level of knowledge and skill in the field of diseases and how to treat them [14].

There are few studies that show the level of awareness of pharmacists regarding the recognition of diseases or their symptoms, as well as how to deal with diseases in Iranian pharmacies. The studies that have been done indicate that pharmacists do not have good knowledge in this field. For example, Mehralian et al.'s study shows that pharmacists' knowledge about non-prescription drugs is weak [15]. Another study revealed that most pharmacists (96.5%) inquired about consumers' symptoms before dispensing medications, but only 51% provided counseling on how to properly administer them. While the majority of pharmacists were qualified to

dispense medications, only a small portion had adequate knowledge of OTC drugs [16].

To optimize the use of OTC medicines, it is essential to have a legally recognized category, implement patient awareness programs, and provide support from both pharmacists and pharmaceutical companies [17]. In this regard, evaluating the level of knowledge of pharmacists about the correct answers to various questions of the people ensures the correct process of treating diseases and can prevent the unwanted complications. This study was conducted with the aim of investigating the awareness of pharmacists working in Shahrekord pharmacies in dealing with gastrointestinal complaints and prescribing appropriate OTC drugs.

## **MATERIALS AND METHODS**

This cross-sectional study was performed on 51 pharmacists in 40 pharmacies during 2021. The population surveyed is the technical directors of pharmacies in the city of Shahrekord. The statistical population studied consists of pharmacists working in Shahrekord pharmacies. According to information obtained by the Deputy of Food and Drug of the Shahrekord University of Medical Sciences, 40 pharmacies work in Shahrekord. Because of the small number of pharmacies in Shahrekord, all pharmacists working in pharmacies were included in the study. Enrolment criteria for this study include all technical directors of pharmacies operating in Shahrekord. Exclusion criteria include participants refused to respond to the questions.

The population in this study includes all technical directors of pharmacies in Shahrekord (during 2021). The number of pharmacies (40) and pharmacists (51) working in those pharmacies is the population size and census sampling so  $N = 51$ .

The research tool was a two-part questionnaire developed by the investigators. The first part is about personal information, including age, gender, year of graduation, university of study, work experience, location of pharmacy, and type of pharmacy. In addition, the first part contains questions about the history of participation in retraining courses, the prescription of OTC and the interest of participating in retraining classes.

The second part consists of twenty-three questions on digestive problems and complaints related to pharmacies based on the available sources. This questionnaire was completed by the technical directors of pharmacies with PhDs in pharmacy. The formal validity and validity of the questionnaire content were evaluated based on the opinions of experts. Cronbach's alpha was used to assess the reliability of the questionnaire (Cronbach's alpha coefficient 0.84). In this study, the researchers ensured formal validity by having experts evaluate the questionnaire and they confirmed the questionnaire is well-designed and has favorable validity. This questionnaire was provided to pharmacists by the investigator and gathered after an appropriate opportunity. For this questionnaire, a score of 20 is considered, which after correcting the scores is divided into four categories: 17 - 20: excellent, 14 - 17: good, 10 - 14: average, and less than the score of 10: poor ratings. This classification was determined by the Department of Education of the University of Medical Sciences in accordance with the rules to determine the rank of the student.

Participants enrolled in the study after getting consent and receiving comprehensive information from the principal investigator.

After collecting the data, the data entered in the software (SPSS version 21). To analyze the information, descriptive statistics were used to compute the central indicators and dispersion. Moreover, analytical statistics was used to express the relationship between the data: Mann-Whitney Test and Kruskal-Wallis Test).

## RESULTS

The study was conducted on 51 pharmacists working in pharmacies in Shahrekord city (Southeast of Iran). The findings revealed that 60.8% of participants were female, and the rest were male. The majority of the pharmacists graduated between 2011 and 2021 (66.7%). The mean work experience of the pharmacists was  $7.43 \pm 6.64$  years. Most pharmacists (90.2%) worked in city pharmacies, while the rest were hospital-based. Regarding the type of pharmacy, 15.7% were public, 68.6% were private, and 15.7% were 24-hour pharmacies (Table 1).

Most pharmacists (76.5%, 39 people) reported having participated in continuing education, and 74.5% (38 people) mentioned receiving training on over-the-counter (OTC) drug prescription. In this study, the majority expressed interest in participating in further training on OTC drug prescriptions (96.1%, 49 people) (Table 2).

**Table 1.** Comparison of mean knowledge scores by gender, graduation year, pharmacy location, and type of pharmacy

Variables	Label	Number (%)	Knowledge (Mean $\pm$ SD)
Gender	Female	31 (60.8%)	12.67 $\pm$ 2.07
	Male	20 (39.2%)	12.75 $\pm$ 1.83
<b>p-value*</b>			0.814
Graduation Year	2001-2011	6 (11.8%)	13.83 $\pm$ 1.16
	2011-2021	34 (66.7%)	12.94 $\pm$ 2.01
<b>p-value**</b>			0.062
Pharmacy Location	City	46 (90.2%)	12.63 $\pm$ 2.02
	Hospital	5 (9.8%)	13.40 $\pm$ 1.14
<b>p-value*</b>			0.358
Pharmacy Type	Public	8 (15.7%)	13.62 $\pm$ 1.50
	Private	35 (68.6%)	12.48 $\pm$ 2.11
	24-Hour	8 (15.7%)	12.75 $\pm$ 1.48
<b>p-value**</b>			0.239

\*Mann-Whitney Test; \*\*Kruskal-Wallis Test

**Table 2.** Comparison of mean knowledge scores by participation in continuing education, OTC drug training, and interest in further OTC drug prescription training

Variables	Label	Number (%)	Knowledge (Mean $\pm$ SD)
<b>Participation in Training</b>	Yes	39 (76.5%)	12.71 $\pm$ 1.93
	No	12 (23.5%)	12.66 $\pm$ 2.14
<b>p-value*</b>			0.910
<b>OTC Prescription Training</b>	Yes	38 (74.5%)	13.07 $\pm$ 1.86
	No	13 (25.5%)	11.61 $\pm$ 1.89
<b>p-value*</b>			0.002**
<b>Interest in OTC Training</b>	Yes	49 (96.1%)	12.69 $\pm$ 1.99
	No	2 (3.9%)	13.13 $\pm$ 1.41
<b>p-value*</b>			0.805

\*Mann-Whitney Test; \*\*p<0.05 considered significant

According to the study results, there was no significant relationship between knowledge and the variables of gender (p=0.814), graduation year (p=0.062), pharmacy location (p=0.358), or pharmacy type (p=0.239) (Table 1). Additionally, participation in continuing education (p=0.910), and interest in further OTC drug prescription training (p=0.805) had no significant statistical relationship with pharmacists' knowledge scores. OTC

drug training had significant statistical relationship with pharmacists' knowledge scores (p=0.002) (Table 2).

The mean knowledge score in this study was 12.70  $\pm$  1.96 (minimum 8, maximum 17), and the pharmacists' knowledge level regarding gastrointestinal complaints and appropriate OTC drug prescriptions was 74.1%. In terms of knowledge level, the majority of participants had a moderate level of knowledge (74.5%), followed by good (13.7%) and poor (11.8%) levels (Table 3).

**Table 3.** Pharmacists' knowledge level in managing gastrointestinal complaints and appropriate OTC drug prescriptions

Knowledge Level	Number (%)
<b>Poor (&lt;10)</b>	6 (11.8%)
<b>Moderate (10-14)</b>	38 (74.5%)
<b>Good (14-17)</b>	7 (13.7%)

## DISCUSSION

This study was aimed to investigate the knowledge of pharmacists employed in the Shahrekord pharmacies in encountering with gastrointestinal complaints and favorite OTC prescription. In our study, the average knowledge score in the study was 12.70  $\pm$  1.96 (minimum 8, maximum 17), and the pharmacists had a 74.1% knowledge level regarding gastrointestinal complaints and appropriate OTC drug prescriptions. The study found that OTC drug training was significantly related to pharmacists' knowledge scores (p=0.002).

In line with the results of our study, a study assessed community pharmacists' knowledge, attitude, and practice regarding Irritable Bowel Syndrome (IBS) and examined the effect of training courses on enhancing their skills. The score of pharmacists' knowledge was average in basement. The study found that correct responses increased across all areas after the training

course, and this improvement was sustained during the follow-up stage, with statistical significance observed in all three domains. The increase in correct responses was evident in attitude, practice, and knowledge [18]. A cross-sectional study by Hamadouk et al. demonstrated that community pharmacists' counseling for acute diarrhea needed to be improved, and they did not refer patients for medical consultation as often as expected. Community pharmacists' dispensing practices must be enhanced, so promoting professional education in this area is essential [19]. Another research was carried out on complication related to drugs and interventions by pharmacies in OTC medications, particularly those that are considered high-risk. Pharmacists are essential in identifying and preventing issues related to OTC drugs, particularly high-risk drugs like analgesics, which can lead to severe consequences due to consumers' lack of

knowledge. With the increasing diversity and use of OTC medications, it is crucial for pharmaceutical guidance to be readily available and consistently provided to consumers to encourage safer self-treatment [20]. Hanna and Hughes conducted a study to explore pharmacists' perspectives and beliefs regarding the decision-making process for OTC medication and its effectiveness assessment. The research revealed that pharmacists' primary concern when making decisions about over-the-counter medicines was safety. It was found that pharmacists needed to be more familiar with evidence-based practice and considered medications without evidence of effectiveness to be influential in self-care. These findings highlight significant barriers to the widespread adoption of evidence-based practice [21]. To assess the KAP of OTC medicine usage among dispensers working in retail pharmacies, it is crucial to acknowledge the significant role that drug dispensers play in promoting the proper use of OTC drugs. However, it has been observed that they often need more knowledge about various aspects of OTC drugs. Therefore, providing them with proper training and regular updates is essential to enhance their understanding in this area [22]. Pharmacists can assist patients in accurately self-diagnosing by asking concise and direct questions to determine the nature, severity, and frequency of symptoms. Additionally, pharmacists can inquire about red flags that indicate the need for a physician's evaluation. Pharmacists also should provide guidance to patients who are suitable candidates for OTC drugs regarding their proper use [23].

### CONCLUSIONS

The level of knowledge of pharmacists working in Shahrekord pharmacies in dealing with gastrointestinal complaints and proper OTC prescription was in average level. Therefore, it is necessary that this course be offered to pharmacists. In addition, the results of the research show that the training courses that are held as retraining for pharmacists are usually not based on the necessary studies regarding the level of awareness of pharmacists about diseases and should be reviewed in this regard. However, it should be noted that medical doctors should prescribe the drug rather than the pharmacologists.

### ACKNOWLEDGEMENTS

The authors would like to declare their appreciation about Vice-chancellors in the Deputy of Research and Technology and Deputy of Food and Drug in Shahrekord University of Medical Sciences, who helped implementing this plan with their financial and spiritual support.

### ETHICAL CONSIDERATION

This study ethically approved by Vice-Chancellor of Research and Biomedical Ethics Committee of Shahrekord University of Medical Sciences with ID: IR.SKUMS.REC.1400.156.

### Conflict of interest

The authors declared no conflict of interest, financial or otherwise.

### Funding

This study was funded by Shahrekord University of Medical Sciences.

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