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Knowledge, Attitude and Practice of Community Pharmacy Staffs Toward Pharmacovigilance and Reporting of Adverse Drug Reactions in Sulaimani City: A Cross Sectional Study

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Abstract

Pharmacovigilance (PhV) is the science that is essential for detecting, preventing and reducing the adverse drug reactions (ADRs). Its main goal is to ensure the safety of post-marketing medications. This study is designed to determine the knowledge, attitude and practice of the pharmacy staffs (pharmacists and their assistants) toward PhV and ADRs reporting in the community pharmacies in Sulaimani City-Kurdistan Region-Iraq. The study designed as a cross-sectional face-to-face survey. A self-administered questionnaire was used on face to face basis from June to October 2022. A total of 141 pharmacists and their assistants in 60 community pharmacies were recruited for this study. The total number of responses was 131(93%). Basically, the finding of the current study revealed that more than half of the community pharmacy staffs were familiar with the term and aim of PhV. However, their knowledge on PhV and ADRs reporting was poor and inadequate. Generally, participants showed a positive attitude towards the aspects of PhV and ADRs reporting. 63.4% believed that the PhV is an important and essential element for the safety of post-marketing medications. Despite this positive attitude, only 7.6% of the participants had previously reported an ADRs during their practice. 46.56% of the community pharmacists and their assistants stated that they were not reporting ADRs because they were unmotivated. In conclusion, the majority of the pharmacy staffs were knowledgeable about the concepts of PhV and had agreed that reporting of ADR is necessary, but the reporting rate was very poor and inadequate. Integration of PhV in an interactive training course is needed to increase the awareness of ADRs reporting by healthcare professionals. Pharmacovigilance should also be taught in detail as a part of pharmacy undergraduate curriculum. Conducting workshops or courses to understand the reporting process is crucial to increase ADRs reporting.
Key words: Attitude, Community Pharmacies, Knowledge, Pharmacovigilance, Practice

Introduction

Pharmacovigilance (PhV) as stated by the World Health Organization (WHO), is the science that is related to the detection, assessment, understanding, and prevention of adverse drug reactions (ADR) or any other drug-related problems. [1,2]. Its main goal is to ensure the safety of post-marketing medications. The scope of PhV in improving patients' safety includes detection and reporting of ADR events, inappropriate medication use, falsified and substandard substances, lack of efficacy of medications, misuse and/or abuse of medicines, and drug–drug interactions [3]. However, the prime focus of PhV activities is ADRs. Additionally, the WHO has defined ADRs as "a response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease, or for modifications of physiological function".

Globally, ADRs, is one of the leading causes of morbidity and mortality, and will continue to pose threat to public health as long as drugs are being used to treat various diseases.

The concept and history of PhV is not new it started 169 years ago [4]. While the term "pharmacovigilance" itself may be relatively recent, the practice of monitoring the safety of medications has been present for many years, although it was carried out in different forms [5]. The thalidomide disaster in the late 1950s and early 1960s was a radical stimulus for the establishment of drug control systems. This tragic event highlighted the need for systematic surveillance and monitoring of drug safety [6,7]. Following the tragedy of thalidomide in the 1960s, a dramatic change of PhV concepts has happened; many countries established their general PhV systems [5].

In the Middle East it has grown rapidly, prior to the year 2000, only three countries (13.6%) were members of the WHO Collaborating Centre for International Drug Monitoring as it known as the WHO-Uppsala Monitoring Centre (WHO-UMC). Currently, more than 76% of the Arab countries in the Middle East are either full or associate members of the WHO-UMC. Recently, many countries established national PhV center to encourage and monitor ADRs including Arab countries [8]. Iraq has been actively involved in many PhV activities in recent years [9]. In 2010, Iraq joined the WHO international drug monitoring program [10] and in 2013, the Iraqi health ministry became a member in the WHO Global Surveillance and Monitoring System for substandard and falsified medications [11]. In Iraq, the Iraqi Pharmacovigilance Centre assures post marketing medication safety in the private and public health care settings. The Iraqi Pharmacovigilance Centre has a regional center in each Directorate of Health which has a person responsible for hospital safety (usually a pharmacist) at each public hospital. The medication safety personnel monitor and report any adverse drug reactions (using a paper-based form) to the regional center, where data are processed using the VigiFlow system (a web-based individual case safety report management system) to send later to the Iraqi Pharmacovigilance Centre [11] .

Iraq-Kurdistan region established a PhV system in 2011 in the directorate of Kurdistan Medical Control Agency (KMCA) - Pharmacovigilance sector which is part of the Kurdistan Ministry of Health. This sector is in charge and has run the PhV program since that time. The Kurdistan PhV system, like most other countries around the world, suffers from underreporting of ADRs by healthcare professionals [12,13] . There is a lack of information about the reasons behind this underreporting by healthcare professionals in general and community pharmacies in particular, and few studies have explored this issue in Kurdistan region in Iraq [12,14]. Thus, to improve the ADR reporting in the health system, it is very important to understand the knowledge, attitude and practices of health care professionals especially pharmacists and pharmacy staff toward PhV and ADR reporting as many studies have shown that, the optimization of PhV knowledge, attitude and practice is crucial to formulate strategies for the improvement of ADR reporting system [15] . For this reason, this study is designed to determine the knowledge, attitude and practice of pharmacy staffs toward PhV and ADRs reporting in community pharmacies in Sulaimani City-Kurdistan Region-Iraq.

Materials and Methods

Study design and ethical consideration

The study designed as a cross-sectional personal face-to-face interview survey, it was carried during June to October 2022 in the community pharmacies of Sulaimani City, Kurdistan region-Iraq. The proposal of the study was approved by Ethics and Research Registration Committee of the College of Pharmacy-University of Sulaimani with a registration number PH58-22 on 15. 06. 2022.

Inclusion and exclusion criteria

The participants were selected for this cross-sectional survey by convenience sampling method. In convenience sampling, participants are selected according to their convenient accessibility and proximity [16]. The selected participants were pharmacists and, pharmacist assistants with diploma degree who were working full time, as permanent employee in the community pharmacy. The pharmacists were registered in the provincial syndicate i.e. Syndicate of Kurdistan Pharmacists. All the participants provided a written consent to the researcher. All of the employees working in administrative and financial positions were excluded in the study.

Development of survey questionnaire

A self-administered questionnaire was used in this study; the questionnaire was developed from the literature review based on the previous studies with some modification. The studies were on knowledge, attitude, and practices of pharmacy staffs toward understanding of PhV activities and reporting the ADRs [17–21]. The questionnaire was comprised of four main sections with 42 questions covering the following components:

The first section was on demographic data of the participants, which included 4 questions. Demographic data of the participants were age, gender, education degree, duration of experiences in the pharmacy. The second section comprised of the knowledge related questions, and consist of 10 questions that addressed knowledge on PhV and reporting ADRs. Participants were asked to select the correct answer from multiple-choice response options or as “Yes” or “No” answers.

The third section entitled attitude related questions and consist of 20 questions that addressed perception and attitude toward PhV and reporting ADRs. The responses were arranged into a 5-point Likert-scale format (1 = agree, 2=strongly agree, 3 = neutral, 4= disagree, and 5 = strongly disagree). The researcher used a balanced scale, with equal numbers of positively and negatively worded questions to prevent acquiescence bias [22].

While the fourth section comprised of practice related questions and consist of 8 questions that pointed out the actions that the participants have

been experienced in the community pharmacy. The questionnaire was distributed in English language as the targeted population was the pharmacists and their assistants.

To assess the validation, understandability, consistency, clarity and reliability of the questionnaire, a pilot study was carried out. The revised questionnaire delivered to 15 pharmacists and their assistants, and the data obtained from the pilot study were not included in the actual study. To assess the reliability of the questionnaire, the questionnaire was checked by a biostatistician calculating Cronbach's alpha factor, and it gave 0.97 value, which indicate a convenient internal consistency of the questionnaire indicating a good internal consistency of the questionnaire. Additionally, the validation of the questionnaire was performed by face validity based on selecting an expert panel from the pharmacists and biostatisticians. The purpose of the research has been clarified for all the pharmacists and their assistants.

Data collection and statistical analysis

The data of this survey was collected from the community pharmacies after distributing the self-administered questionnaire on face to face basis to clarify the purpose of the research. The participants were given sufficient time to fill the questionnaire. Data was collected over four months during periodic visits to the community pharmacist. The filled questionnaire from the participants was collected. The response from the participants was entirely anonymous and voluntary. The data were entered to an excel spreadsheet and statistically analyzed using Microsoft excel. Descriptive statistics such as frequency and percentages, mean ± standard deviation (SD) was used to analyze the data.

Results

Basic characteristics of the participants

Basic characteristics of the participants are summarized in Table 1. The number of the community pharmacies that has been visited during the survey was 60, and the total number of the interviewed pharmacy staffs was 141. 10(7%) of them were refused to reply as they were unwilling to participate, or their pharmacy location were overcrowded as well as part of them were not the owner of the pharmacy and they did not have the authority to participate. Eventually, the total number of responses was 131(93%). The age of majority of the respondents 112(85.5%) were between 20-40 years old. Number of the male was higher than the female and the majority of the pharmacy staffs were pharmacist with Bachelor degree 83(63.36%) and approximately half of the respondents 60(46%) had an experience of 1-5 years.

Table 1. Demographic data of the participants n=131

Variables	**Number**
Age (Years)	
20-40	112(85.5)
41-60	19(14.5)
Gender	
Male	72(54.96)
Female	59(45.04)
Pharmacy staff Education level	
Pharmacist assistant with Diploma	31(23.66)
Pharmacist with Bachelor degree	83(63.36)
Pharmacist with high Diploma	8(6.11)
Pharmacist with MSc	9(6.87)
Years of experience	
1-5	60(46)
6-10	36(27)
11-15	18(14)
>15	17(13)
Mean±SD	8.67±7.341

Knowledge on reporting of adverse drug reactions and pharmacovigilance

The knowledge of the pharmacy staff on the reporting of ADR and to what extent they were familiar with the concept of PhV has been assessed and their responses have been shown in (Figure 1, Table 2 and 3). Basically, the finding of the current study revealed that more than half of the community pharmacy staffs were familiar with the term PhV. As noted in table 2, the response of the majority of the participants (89.31%) declared that physicians, pharmacists and nurses are qualified to report ADRs, 67.94% have heard about PhV, 64.12% were knew that PhV's aim is to ensure the safety of drug. Additionally, more than half of the participants (54.96%) have had information on how to report ADRs, 93.13% stated that both old and new marketed agents should be reported. 72.52% had knowledge that all ADRs including mild, moderate and severe should be reported. 41.22% stated that it is possible for pharmacy staffs to report ADRs to the Directorate of Health (DOH) of the city. 70.23% mentioned that the internet search is one of the important sources of drug information.

Table 2. Knowledge of the pharmacy staffs on ADR and pharmacovigilance n=131

Question statement	Number (%)
Who is qualified to report Adverse Drug Reactions (ADR)s?	
Only physicians	2 (1.53)
Only pharmacists	12 (9.16)
All of health care providers (physician, pharmacist and nurse)	117 (89.31)
Have you ever heard about pharmacovigilance?	
Yes	89 (67.94)
No	42 (32.06)
Do you know that the aim of Pharmacovigilance is to ensure safety of drugs?	
Yes	84 (64.12)
No	9 (6.87)
I don't know	38 (29.01)
When you need information about ADR, where do you look up for?	
Text books	16 (12.21)
Internet search	92 (70.23)
Journal articles	23 (17.56)
As a pharmacy staff do you know how to report an ADR?	
Yes	72(54.96)
No	59(45.04)
Do you know ADRs of what kind of agents should be reported?	
Only new marketed agents	8 (6.11)
Only old marketed agents	1 (0.76)
Both old and new marketed agents	122 (93.13)
Do you know which type of ADRs should be reported?	
All	95 (72.52)
Only serious adverse effect	36 (27.48)
Is it possible for a pharmacy staffs to report ADRs to the Directorate of Health (DOH) in Sulaimani?	
Yes	54 (41.22)
No	31 (23.66)
I don't know	46 (35.11)

Values expressed as number and percentage n(%)

The knowledge of the participants on the definition of PhV is shown in Figure 1. The majority of the participants did not answer the question that asked to define PhV, (82.4%) and 12.97% gave an incomplete answer, while 4.6% provide correct and complete answer.

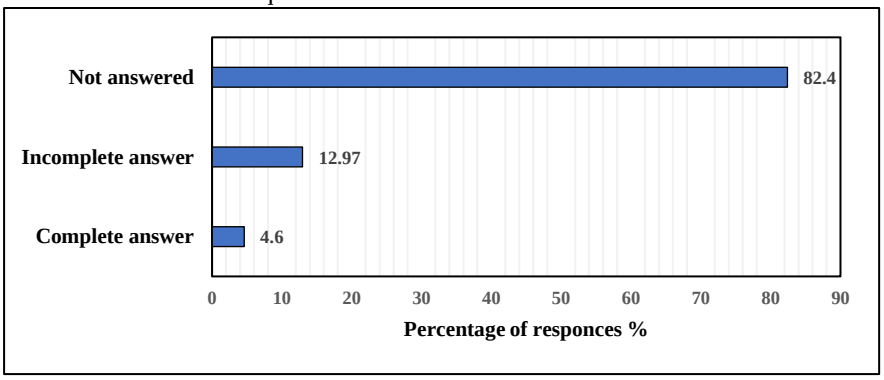

Figure 1. Response of the participants on writing a definition for the Pharmacovigilance (PhV) n=131

The knowledge of the participants on the definition of ADR has been assessed in the current study. 35.88% and 58.78% of the pharmacy staffs were agreed and strongly agreed respectively on the definition that is stated by WHO (Table 3).

Table 3. Knowledge of the participants on the ADR definition n=131

Adverse Drug Reactions ADR is defined as any noxious, unintended, and undesired	Number (%)
Agree	47 (35.88)
Strongly agree	77 (58.78)
Neutral	4 (3.05)
Disagree	0.0 (0.0)
Strongly disagree	0.0 (0.0)

Attitude and believes on adverse drug reactions reporting and pharmacovigilance

In this section, there were twenty attitude-related questions. The response of the participants interpreted and presented as Figure 2,3,4 and Table 4. Generally, participants showed a positive attitude towards the aspects of PhV and ADRs reporting.

Opinion of the community pharmacy staff on the necessity of ADR reporting

The pharmacists and their assistant were asked about the necessity of ADR reporting and the importance of PhV (Figure 2); 63.4% believed that the PhV is an important element for safety of post-marketing medications, and a negligible number 2.3% was disagreed on the importance of this aspect.

When the opinion of the participants on ADR reporting observed; more than half of them (51.1%) were strongly disagreed on the non-essentiality of reporting ADR, only very few numbers (3.1% and 3.8%) was agreed and strongly agreed respectively on that reporting ADR is not essential. Furthermore, 40.5% and 31.3% were disagreed and strongly disagreed respectively on the opinion that reporting ADRs is time consuming. On the other hand, 67.2% of the participants believed that reporting of ADR is not mandatory and very few numbers (6.1% and 3.1%) has an opposite point of view.

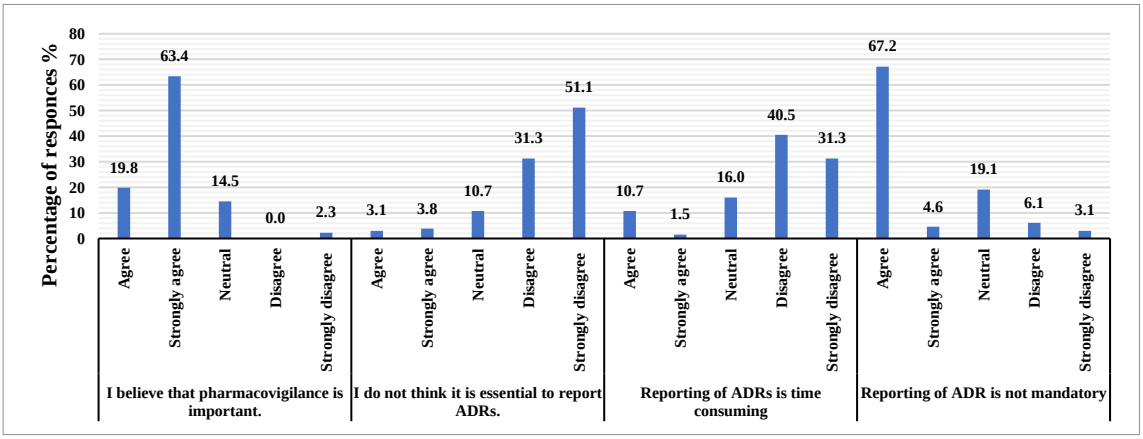

Figure 2. Opinion of the community pharmacy staff on the importance of ADR reporting and pharmacovigilance (n=131)

Pharmacy staff's attitude toward the responsibility of ADRs reporting

Section three also covers other logical aspects of ADRs reporting as presented in Table 4. It provides other attitude-related questions such as whether ADRs reporting is a part of pharmaceutical care or a part of the professional role of pharmacy staff. 35.11% and 62.60% of the participants believe and strongly support the idea that reporting of ADRs is part of the professional role of a pharmacy staff. 61.83% of the participants believe that it is part of pharmaceutical care. 53.44% of them thought that physician consultation is necessary before reporting an ADR. Half of them believed that reporting ADRs is the responsibility of the doctors. One/fourth of the participants believed that they could not report ADRs and they would not have enough information on how and where to submit their ADRs reports. However, nearly half of them (47.33%) and (41.98%) were disagreed and strongly disagreed respectively on that all marketed drugs are safe. One/fourth of them disagreed (34.35%) and strongly disagreed (38.17%) that all serious ADRs are detected before registration.

More than half of the participants (52.67%) did not agree with the idea of using these reports for personal activities. On the other hand, 46.56% of the pharmacy staff mentioned that they are not-reporting ADRs because they are unmotivated. Lastly a few of them (14.50%) showed that the ADRs are not associated with the drugs.

Table 4. Attitude of the community pharmacists and their assistant toward ADRs reporting (n=131)

Statement questions	Agree %	Strongly agree %	Neutral %	Disagree %	Strongly disagree %
I believe that reporting ADRs is part of the professional role of a pharmacist/ pharmacy technician?	35.11	62.60	2.29	0.00	0.00
Reporting ADRs is part of pharmaceutical care	30.53	61.83	7.63	0.00	0.00
It is necessary to be sure that an ADR is related to a particular medication before reporting it	29.77	64.89	5.34	0.00	0.00
It is important to consult the physician before reporting an ADR	53.44	6.87	17.56	19.08	3.05
I report ADRs so that patients know that their concern is being taken seriously	60.31	4.58	27.48	6.87	0.76
I'm not certain how/where to report	37.40	5.34	18.32	33.59	5.34
I'm not sure I have enough knowledge to report ADRs	44.27	3.82	16.03	32.06	3.82
I'm not certain that I do have enough time to report ADRs.	12.21	0.76	16.79	41.22	29.01
It is doctors' responsibility to report ADRs.	48.85	7.63	22.14	20.61	0.76
I believe that all marketed drugs are safe	2.29	0.00	8.40	47.33	41.98
I believe that all serious ADRs are detected before registration	9.16	3.82	14.50	34.35	38.17
I want to publish about ADRs myself so that I don't report them	12.98	1.53	25.19	52.67	7.63
I don't report ADRs because I am not motivated to do it	46.56	16.03	16.79	19.08	1.53
I don't report ADRs since I am not certain the ADRs is caused by the drug	14.50	3.05	21.37	51.15	9.92

Factors encourage ADRs reporting

To elucidate the factors enhancing ADRs reporting, many questions were delivered to the participants within attitude-related questions to obtain their opinion as shown in Figure 3. More than half of them (52.7%) believed that attending workshops or courses to understand the reporting process is crucial to increase ADRs reporting and 32.1% believed that teaching pharmacovigilance and ADR-reporting as a part of pharmacy undergraduate curriculum is also encourage this process.

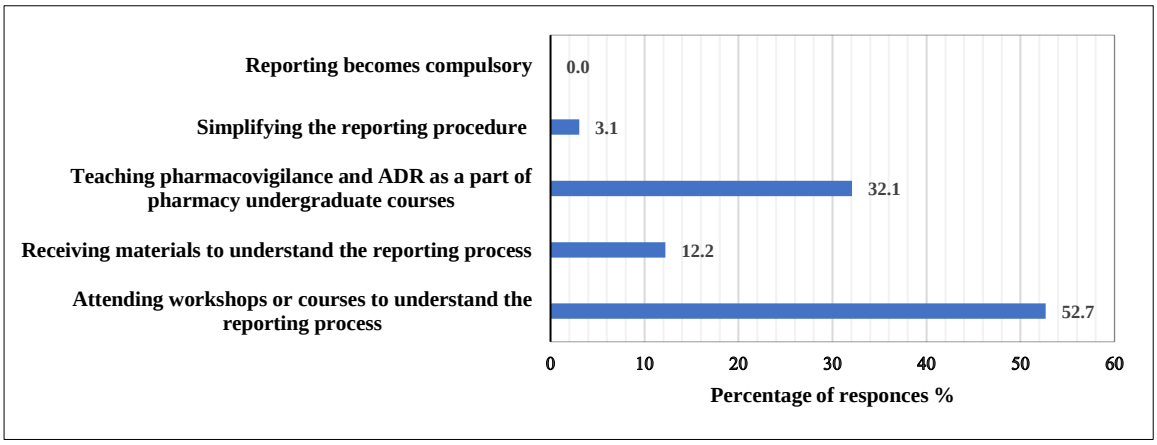

Figure 3. Opinion of pharmacy staffs on the Factors that encourage ADRs reporting

Furthermore, the attitude of the community pharmacists and their assistants towards sending the ADRs reports to the National Pharmacovigilance Center have been investigated. It has been found that 77.9% of them agreed to report and send the ADRs reports to the National Pharmacovigilance Center in their region (Figure 4).

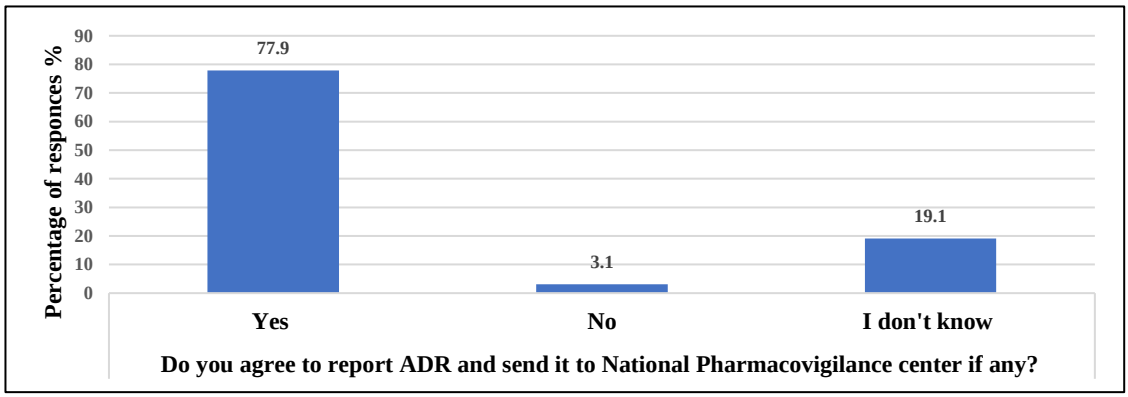

Figure 4. Opinion of pharmacy staffs on sending the ADRs reports to National Pharmacovigilance Center n=131

Pharmacy staff's practice on PhV and ADRs reporting

This section consisted of eight questions on the actual practices for reporting ADRs. The pharmacy staffs have been asked about the necessary action that they would take when they have a patient with severe ADRs. Their replies were as follows: nearly half of them (42.7%) referred the patient to the physician, 29.8% refer the patient to the emergency department, 25.2% would contact the doctor. Unfortunately, very few of them (2.3%) stated that they would report the ADRs. The details of the responses of these questions are shown in Figure 5 and Table 5.

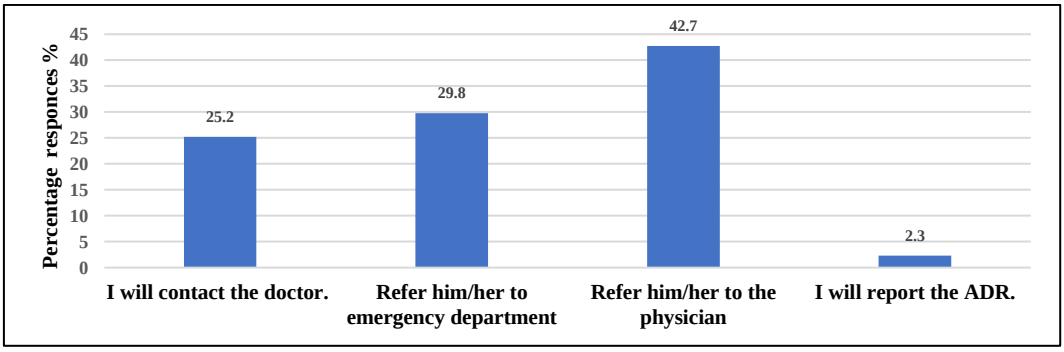

Figure 5. Necessary action of the pharmacy staffs when patients suffer from severe ADRs n=131.

Additionally, the participants have been asked if in the last 12 months they had read an article related to ADRs, counselled patients regarding ADRs, counselled patients regarding food /drug interaction, or discussed an ADR with the prescriber or colleagues in the pharmacy, had ever reported any ADR, prevented a serious ADRs. More than half of the participants (58.78%) read an article relevant to ADRs in the last 12 months. About three/fourth (¾) of the participants discussed ADRs issues with their colleagues in the pharmacy and approximately, half of them (47.33%) discussed them with the prescriber. Unfortunately, only 7.6% of the participants reported an ADRs during their practice. However, half of them (50.38%) prevented serious ADRs (Table 5).

Table 5. Pharmacy staff's practice on PhV and ADRs reporting

Practice related questions statement	Yes	No
In the last 12 months have you read an article related to ADRs?	77 (58.78)	54 (41.22)
Do you discuss an ADR with your colleague in the pharmacy?	102 (77.86)	29 (22.14)
Do you discuss an ADR with the prescriber?	62 (47.33)	69 (52.67)
Have you ever reported any ADR?	10 (7.63)	121(92.37)
Have you ever prevented a serious ADRs?	66 (50.38)	65 (49.62)
In the last 12 months have you counselled patient regarding ADRs?	75 (57.25)	56 (42.75)
In the last 12 months have you counselled patient regarding food /drug interaction?	90 (68.7)	41 (31.3)

Discussion

This survey-based cross-sectional study has concentrated on the community pharmacists and their assistants working in the community pharmacies in the city; because they can be an essential source receiving ADR information from people as they are a crucial part of primary care system in which patients can easily access community pharmacists and consult for their health problems. The response rate of this survey was 93% which is extremely high in comparison with response rate of the other study [23–25]. The questionnaire was delivered face-to-face to the participants this allows the investigator to have better control over the data collection policy and its accuracy. However, non-personal interviews, electronic survey such as utilizing telecommunication or email may be less encouraging way to convince the people to participate and always need junction of other methods.

One of the main goals of this study was to investigate the pharmacists and their assistant's knowledge, towards ADRs reporting and importance of PhV, generally, the results showed that the knowledge of the studied population on PhV and ADRs reporting was poor and inadequate. More than three/fourth (3/4) of the participants not defined PhV and left this question behind, which might be related to a poor knowledge of the participants on this aspect, only 5% of the participants gave the correct definition of PhV. This result was inconsistent with the finding of the other studies that have been conducted in the other countries including Kuwait, Saudi Arabia and Oman in which the majority of the pharmacists had acceptable knowledge on the concept of PhV and ADRs in terms of the definitions and the aim [18,24,25]. However, this finding was consistent with the study conducted in Jordon in which the majority of the pharmacists had lack of knowledge and inadequate awareness on PhV and ADR reporting [26] . On the other hand, another study conducted in Basra-Iraq showed that the majority of the pharmacists were familiar with the term of PhV and ADRs, however they had a poor knowledge and awareness on ADRs reporting [27]. Interestedly, Albayark et al, found that clinical and hospital pharmacist are more knowledgeable on PhV and ADRs than community pharmacists [28].

From the investigation of the attitude of the participants, it has been revealed that they had a positive attitude toward reporting ADRs, majority of the participants believed that reporting of ADRs is part of the professional role of a pharmacy staff. This finding is supported by the previous studies conducted in different countries and stated that that reporting ADRs is a professional obligation [18,29]. Despite this positive response, less than 8% of the participants had previously reported an ADR. This might be related to the lack of information on ADRs reporting, have not enough information on how and where to submit their ADRs report, unavailability of a standard template or ADRs reporting form in their pharmacies, additionally they believe that reporting ADRs is not mandatory. Therefore, the rate of reporting is suboptimal as reported in the other studies [25,29–31,32] .

In Kurdistan region, under-reporting of ADRs is being expected in all cities of the region as there is lack of awareness of a national ADR reporting center or inadequate knowledge on ADR reporting procedure. This situation is seen in the rest regions of Iraq and in most countries in Middle East as the most national ADR reporting systems in those area are in their infancy [26,27,31,33] , although some countries having more developed systems [34]. For instance, six countries described formal national PhV programs (Egypt, Iraq, Jordan, Oman, Saudi Arabia and the United Arab Emirates), while five (Bahrain, Kuwait, Palestine, Qatar and Yemen) reported no active program or PhV center. Oman has a national PhV program which has been established in the middle nineteenth and a majority of community pharmacists were aware of their national PhV center. Other countries such as Jordan, Kuwait and Saudi Arabia have well developed national PhV centers; however, studies show that practicing pharmacists are not aware of them nor are they aware of the ADR reporting process [25] .

Some efforts in Iraq and particularly in Kurdistan-Region are made by the Ministry of Health (MOH) and KMCA- Pharmacovigilance sector through holding conferences or workshops to develop and establish a formal strategy to implement the principles of pharmacovigilance and encourage ADRs-reporting based on WHO requirement and international web-based platform reporting system. Inopportunely, slow progress is seen in respect of ADRs reporting's. Almost two reports associated with ADRs were raised from health professionals to the MOH and/or PhV sector in MOH in 2011 as stated in a study conducted by Allella et al. [12]. In total, this suggests that developing a national PhV program and in order to ensure that the program meets its targeted goals, it is critical that adequate training and information on the ADRs reporting should be provided to the end-users.

Concerning the practice section of the study, a total of eight questions were designed to assess the actual practice of reporting of ADRs. The pharmacy staffs have been asked for the necessary action to take once comes upon a severe ADR. Unfortunately, very few numbers (2.3%) were emphasized on reporting ADRs. They focused mainly on referring of the patients to emergency department or the physician or contacting the doctors. This finding is inconsistent with the studies conducted in the other countries in which higher ADRs reporting's have been found, since they were (10.8%) in Syria [35] , (17.8%) in

Dammam [36] and (19.5%) in Jordon [26] , (26.8%) in Kuwait [25] . These data showed that still under-reporting of ADRs are predicted in many countries and almost there is a huge gap between the identification and reporting ADRs by the pharmacy staffs or hospital healthcare professionals.

The factors responsible for ADRs underreporting were also highlighted in this study; half of the participants believed that ADR-reporting is not their responsibility; it is the doctor's duty. One/fourth of the participants believed that they would not have had enough information to which agency and how to submit their ADRs reports. Furthermore, approximately half of the pharmacy staffs think that they are not-reporting ADRs because they are unmotivated. In this study, pharmacist's experiences on reading the published articles related to ADRs, patient counseling regarding ADRs, food /drug interaction, and interventions to avoid ADRs were also investigated. The results revealed that more than half of the participants were interested in reading an article relevant to ADRs in the last 12 months and they were discussed ADRs issues with their colleagues in the pharmacy. Unfortunately, few of them (7.6%) reported an ADRs during their practice, however, half of them (50.38%) prevented serious ADR. Generally, it is concluded from many previous studies that knowledge and attitude towards PhV is continuously improving among healthcare professionals, but unfortunately the actual practice of reporting ADR is still unsatisfactory.

There are some limitations to our study. The questionnaire was administered to community-based pharmacist's staffs and as such, it remains to be determined whether the results can be extrapolated to pharmacists and healthcare professionals working in other settings, such as public polyclinics and hospitals pharmacies. Similarly, it would be interesting to document knowledge, attitudes and practices toward ADR reporting with a broader population of healthcare professionals, namely physicians, in order to have a thorough understanding of the situation in the region. The recall bias cannot be excluded as the study included some questions especially in the practice section that requiring recalling information during the pharmacy staff experiences.

Conclusion

The fact that the majority of the participants agreed that reporting of ADR is necessary and PhV should be taught in detail as a part of pharmacy undergraduate curriculum. Integration of PhV in the training of health professionals should also be promoted. Conducting workshops or courses to understand the reporting process is crucial to increase ADRs reporting. Furthermore, ADR reporting need suitable and sustained promotion and can be facilitated by improved collaboration with professional agencies, including participation in educational programs and scientific meetings with the countries which have more experience in reporting and PhV awareness programs.

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Conflicts of Interest

The authors declare no conflict of interest.

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Ethics Statements

This work was approved by Ethics and Research Registration Committee of the College of Pharmacy-University of Sulaimani with a registration number PH58-22 on 15.06.2022.

Author Contribution

K.T.H. performed literature review, distributed the questionnaire, assisted in data analysis, contributed to the manuscript writing, reviewed and edited the manuscript. B.H. M. conceived and designed the study, supervised the research, wrote the first draft of the manuscript, statistically analyzed the data, reviewed, revised and approved the final manuscript. All the authors reviewed the results and approved the final version of the manuscript.

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معرفة ومواقف وممارسات صيادلة المجتمع ومساعدوا الصيادلة نحو التيقظ الدوائي والتبليغ عن التفاعلات الدوائية الضارة في صيدليات المجتمع في محافظة السليمانية: دراسة استقصائية مقطعية

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الخلاصة

التيقظ الدوائي هو العلم الضروري لاكتشاف ومنع وتقليل التفاعلات الدوائية الضارة. هدفها الرئيسي هو ضمان سلامة الأدوية بعد التسويق. صُممت هذه الدراسة لتحديد معرفة مواقف وممارسات الصيادلة ومساعدوا الصيادلة نحو التيقظ الدوائي والتبليغ عن التفاعلات الدوائية الضارة في صيدليات المجتمع في محافظة السليمانية-أقليم كردستان –العراق. صُممت الدراسة على شكل دراسة استقصائية مقطعية متمثلة بالمقابلات وجهاً لوجه. تم استخدام استبيان ذاتي في هذه الدراسة، حيث تم تعيين ما مجموعه ١٤١ صيدلاني ومساعد صيدلي في ٦٠ صيدلية مجتمع لهذه الدراسة. وكان العدد الإجمالي للاستجابة ١٣١ (٩٣٪). كشفت نتائج الدراسة الحالية أن أكثر من نصف العاملين من الصيادلة ومساعدي الصيادلة في صيدليات المجتمع كانوا على علم بمصطلح التيقظ الدوائي وهدفه. ومع ذلك، فإن معرفتهم بالتيقظ الدوائي والتبليغ عن التفاعلات الدوائية الضارة كانت ضعيفة وغير كافية. بشكل عام، أظهر المشاركون موقفًا إيجابيًا تجاه جوانب التيقظ الدوائي و تقارير الابلاغ عن التفاعلات الدوائية الضارة. يعتقد ٦٣,٤٪ من المشاركون أن التيقظ الدوائي عنصر مهم وأساسي لسلامة الأدوية بعد تسويقها. وعلى الرغم من هذا الموقف الإيجابي، فأن ٧,٦٪ من المشاركين قاموا فعليا بالإبلاغ عن التفاعلات الدوائية الضارة أثناء ممارساتهم السابقة. ذكر ٤٦,٥٦٪ من الصيادلة ومساعدين الصيادلة في الصيدليات المجتمع أنهم لا يبلغون ولا يسجلون التفاعلات الدوائية الضارة لأنهم غير متحمسين بهذه العملية. في الختام، كان غالبية الصيادلة ومساعدين الصيادلة على علم بمفاهيم التيقظ الدوائي واتفقوا على أن التبليغ عن التفاعلات الدوائية الضارة أمر ضروري، ولكن معدل التقرير كان سيئًا للغاية وغير كاف. هناك حاجة إلى دورات تدريبية تفاعلية في التيقظ الدوائي لزيادة الوعي بالإبلاغ عن التفاعلات الدوائية الضارة من قبل مقدمي الرعاية الصحية.

الكلمات المفتاحية: المواقف، صيدليات المجتمع، الممارسة، المعرفة، التيقظ الدوائي.