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Article Info:

Article type:
Research Article
Received:
14 April 2022
Revised:
03 May 2022
Accepted:
25 May 2022

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Conflict of interest: Nil

Al-Saeeda Journal of Medical Sciences (SJMS)

ISSN: 2710-4877 (Print); ISSN: 27104885 (Online)

Available Online at: journal.su-edu.net/index.php/su-journal

A peer reviewed medical journal published by Faculty of Medical Sciences - Al-Saeeda University, Dhamar, Yemen

SJMS; Volume 4, Issue 1; May: 2022; Page No. 1-19

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To cite this article:
Ahmed G. Al–Akydy, Ahmed Al-Washali and Samir Alsenafy, The knowledge and attitude of the community pharmacists toward rational dispensing of non-steroidal anti-inflammatory drugs in Dhamar Governorate: A community pharmacy-based survey. *SJMS*. (2022).; 4(1):P. 1-19

Abstract:

Background: The community pharmacy service should be a frequent source of the medication information for patients, however in Yemen, little is known about pharmacists' provision of safety information to patients for management and prevention of the drugs adverse effects.

Objective: to evaluate range of awareness of community pharmacists in screening patients for risk factors before supplyin g Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) and provid ing information about potential adverse effects and their management.

Methods: A cross-sectional questionnaire-based study has been performed from March 1, up to April 30, 2021. Knowledge and role of 236 community pharmacists in screening and communication with patients regarding risk factors before dispensing of NSAIDs were investigated.

Results: The majority of the participants (86.9%) recorded having proper knowledge about the NSAIDs, whereas 13.1% revealed that their knowledge about NSAIDs was bad. The majority of risk factors that pharmacists discussed with patients for both non-selective and selective NSAIDs were pregnant and breastfeeding women. Large number of community pharmacists claimed to advice the patients to use non-selective and selective NSAIDs after a meal for purpose of preventing of gastrointestinal complications.

Conclusions: Although the evidence of high screening of risk factors, counseling and provision of information and management for patients using NSAIDs by the large number of community pharmacists at study area, alarmingly slightly high number of the pharmacists still have insufficient knowledge regarding both classes of NSAIDs and the risk factors for their use. This calls for improving of under- and postgraduate educational strategies, not only to elevate the knowledge, but also to change the behavior and practices among pharmacists to prevent potential medication –related problems.

Keywords: Community pharmacists, NSAIDs, screening, knowledge, counseling**.**

Introduction

Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen, are the most common over-the-counter (OTC) drugs in the world. NSAIDs act by blocking the cyclooxygenase (COX) enzyme, which causes direct inhibition of the biosynthesis of prostaglandins and thromboxane from arachidonic acid. They have analgesic, antipyretic, and anti-inflammatory actions. They are used for treating mild-to-moderate pain that arises from a variety of conditions such as osteoarthritis, rheumatoid arthritis, menstruation, headaches, or toothaches[1].

In the United States (the US) itself, approximately 2% of the US population consumes an analgesic, antipyretic or NSAIDS each day. This is even more common among elderly patients, where 10- 20% have a current or recent NSAIDS prescription [2]. The prevalence of NSAIDS use in Thailand is similar to that in the US but Thai patients can obtain NSAIDs without prescription from pharmacies, even those not classified as over the counter (OTC) drugs [3]. Moreover, a recent study in Thailand reported that 30% of people in rural areas use NSAIDs often,[4].

In Saudi Arabia, analgesics were one of the top 10 most used drugs between 2010 and 2015 and the NSAIDs class represented 67% of use [5]. Also many studies in Saudi Arabia found that the majority of people use the NSAIDs, especially ibuprofen and diclofenac to treat headaches, colds, cramps, and fever. As well as, a recent study in Saudi Arabia found that around one-half of the participants in the study practiced self-medication with NSAIDs primarily for pain management [6, 7].

NSAIDs can cause severe side effects such as GI mucosa injuries, allergic reactions, a tendency towards bleeding, liver or kidney problems, and high blood pressure [8]. The non-selective NSAIDs like aspirin are more likely to cause adverse GI effects, which vary from asymptomatic endoscopic erosions to ulcers which complicated with bleeding, perforation, and stenosis. However, selectively target COX-2 like celecoxib have a higher risk of negative cardiovascular effects [8,9].

The GI toxicity of NSAIDs has been explored in a large number of epidemiological studies and clinical trials [10]. The researchers founded that about 1 out 100 patients who used aspirin for a mean of 28 months had developed GI bleeding in meta-analysis of 24 randomized controlled trials [11]. In Thailand, NSAIDs were the second most frequently reported drugs in the spontaneous reporting system for Adverse Drug Reaction (ADRs) between 1984 and 2017 [12].

Since, NSAIDs use is widespread, all healthcare professionals should have a duty to identify whether patients have factors potentially increasing the risk of adverse effects before supplying them. In practice, however, studies in

several countries show frequent prescribing of NSAIDs in patients with risk factors [13, 14]. Also use of NSAIDs is common in older patients and in combination with drugs likely to cause serious drug–drug interactions [15]. Furthermore out-patients' awareness about the risks of NSAIDs is lower than desirable and their perceptions concerning these risks are much lower than that of healthcare professionals [16]. Consequently, community pharmacy-based interventions in relation to NSAIDs can prevent serious long-term problem, including acute kidney injury and GI complications, and can positively impact on patient knowledge by providing safety information about the NSAIDs products [16, 17].

In Yemen, NSAIDs can be obtained legally either from a doctor who describes the drug in the course of the therapy of a disease or from a pharmacist with or without a prescription. Moreover, Yemen has no guidelines concerning risk screening and information provision to inform best practice for community pharmacists. Also, there is no or little work has studied the practices of community pharmacists in Yemen. [17]. Therefore this study carried out to evaluate the awareness, knowledge and attitudes of community pharmacists in screening patients for risk factors and to determine the recommendations and information that the community pharmacists given to patients regarding potential ADRs and their management when dispensing of NSAIDs.

Materials and Methods

Study area

The current study was conducted on community pharmacies in Dhamar governorate, which located about 100 kilometers south of the capital city of Yemen, Sana'a. Dhamar governorate was chosen because of the socioeconomic status of the population living in this region, where medication dispensing without prescription is a very common practice.

Study period

Data were collected during the period of two months, from March 1, up to April 30, 2021.

Study design

A cross-sectional questionnaire-based study. Knowledge and role of community pharmacists in screening and communication with the risks regarding with the dispensing of NSAIDs were investigated.

Study tool

A pre-tested, semi- structured questionnaire containing both open- and close-ended and multiple-choice questions. The questionnaire was initially developed in English language, translated into Arabic language, and back-translated into English language to validate the translation, and ensure accuracy.

Validation and pre-testing of questionnaire

The 15-item questionnaire was pretested among fifteen community pharmacists, so as to ascertain the appropriateness of sampling procedure, ensure easy comprehension of the questionnaire, and to revise and finalize the questionnaire. Feedback from the pre-test and validity assessment was considered and corrections were made accordingly. Originally the questionnaire was designed to be self-administrated but based on the lower response during the pre-test, decision was made by the researcher to modify the questionnaire from self –administrated questionnaire to face to face questionnaire. The fifteen community pharmacists were subsequently excluded from the main analysis of the sample of this study.

The final version of questionnaire was divided to two parts and consisted of nineteen close-ended and four open-ended questions. **Part A**, contained eleven items and were pertained to collect socio-demographic characteristics of the pharmacists, including gender, age, marital status, place of residence, the level of education, the number of years of practice experience, pharmacy owner, number of staff in pharmacy, internship program, and number of patients per day. **Part B**, contained 12 items and were pertained to evaluate the pharmacists' role in supplying NSAIDs. The participants were asked to indicate to the type of NSAIDs, screening patients at risk and assessment of the necessity for using NSAIDs were evaluated. As well as, the participants were asked about how communicating potential adverse effects, and which are advices on how to manage and prevent advice on the things that patients should or should not do while taking NSAIDs. Each question provided options related to frequency of practice, such as regularly, occasionally, or never, in addition to those for indicating communication, and ADR management, additional details were requested.

Sample Size

The final version of the questionnaire was randomly distributed to 363 pharmacists practicing in community pharmacies during the study period. Out of 363 questionnaires, only 236 questionnaires were completed and returned back. Sixty of questionnaires were returned but were not completed, 52 of questionnaires are not filed by participants who lack of interest and refused the participation in this study, whereas, 15 of questionnaires are not returned at all, as seen in Table 1.

Table 1. Distribution of sample of study according to the type of response

Type or response	NO. of questionnaires
Returned complete	236
Returned incomplete	60
Not filed by participants	52
Not returned at all.	15
Total	363

Inclusion and exclusion criteria

All male and female pharmacists, who worked in community pharmacies, and completed all the parts of the questionnaire were included. Community pharmacists who not complete all the parts of questionnaire were excluded from the study.

Study procedure

During the distribution of the questionnaire to the pharmacists in the selected community pharmacies, an explanation of the purpose of the study and assurance of anonymity were provided to participants, as well as, verbal informed consents were obtained. All the community pharmacists were asked to fill out the questionnaire in the presence of the co-investigators should any respondent require any assistance in filling the questionnaire. After the pharmacists completed the questionnaire, the questionnaire manually was collected and the questionnaire's data were reviewed, and tabulated to facilitate the statistical analysis.

Data analysis

The data was entered after looking for incomplete responses and analyzed by using the Statistical Package for Social Sciences (SPSS) for windows version 22. Qualitative data was described as numbers and percentages. Chi square test was used to test the association between group variables and level of significant was accepted as (P value < 0.05). Some questions containing multiple responses by study participants and hence the sum of percentages is not always 100%.

Ethical approval

The protocol of this study was approved by faculty of medical sciences, Al-Saeeda University. A verbal consent was obtained from each participating community pharmacists in charge to participate in the questionnaire. The participation was voluntary and without any incentive or pressure from co-investigators. Any information that exposes the identity of the

pharmacist who participate in the questionnaire was avoided.

Results

Response rate and demographic details

A total of 236 out of 363 administered questionnaires were returned fully completed and met the inclusion criteria, giving a response rate of 65%. The Sociodemographic characteristics of the study participants are as presented in Table 2.

Table 2.Characteristics of community pharmacists during period of study.

Characteristics	N (%)
Gender	
Male	233 (98.7)
Female	3(1.3)
Age (year)	
20- < 30	163 (69.1)
30-50	72 (30.5)
>50	1 (0.4)
Mean± S.D	31.4 ±11.7
Place of residence	
City	206(87.3)
Rural	30 (12.7)
Educational level	
Bachelor	121 (51.3)
Diploma	115 (48.7)
Years of experience	
<10	178 (75.4)
10-20	51 (21.6)
21-30	7 (3)
Mean± S.D	9.9 ± 6.2.
Have assistant in pharmacy	
Yes	191 (80.9)
No	45 (19.1)
Pharmacy owners	
Yes	132 (56)
No	104 (44)
No. of pharmacist in pharmacy	
1-2	213 (90.3)
>2	23 (9.7)
Working hours	
<10	32 (13.6)
10-12	98 (41.5)
>12	106(44.9)
Total	236 (100)

The majority of participants were males (98.7%), with Bachelor qualification (51.3%), and with mean years of practice experience (9.9 ± 6.2) years. The mean age of participants was (31.4 ±11.7), and there was a preponderance of those belonged to the age group of twenty to less than thirty years 163 (69.1%). One hundred and thirty two (56%) of respondents were owners of pharmacies, whereas, 104 (44%) of respondents were working in independently owned pharmacies. The majority of the community pharmacies were located in Dhamar city 206 (87.3%), and most of them 213 (90.3%) had less than two community pharmacists. Other demographic details are shown in Table 2.

Knowledge of NSAIDS information

Range of knowledge of the community pharmacists about non-selective and selective NSAIDs are illustrated in Table 3. The majority of the participants (86.9%) recorded having proper knowledge about the NSAIDs, whereas 13.1% revealed that their knowledge about NSAIDs was bad. About 70.3% and 61.9% of community pharmacists revealed appropriate knowledge regarding non-selective and selective NSAIDs respectively.

Table 3. Community pharmacists' knowledge regarding NSAIDs and their types

NSAIDs Types	No. of pharmacists (%)	
General		
Bad	31 (13.1)	
Good	59(25)	67 (28.4)
Very good	79 (33.5)	
Excellent		
Non-selective		
Bad	70 (29.7)	
Good	72(30.5)	
Very good	43 (18.2)	
Excellent	51(21.6)	
Selective		
Bad	89 (37.7)	
Good	61(25.8)	34 (14.1)
Very good	52(22)	
Excellent		

Screening of risk factors before the use of NSAIDs

The frequency of community pharmacists' self-reported practice regarding screening of risk factors for the use of NSAIDs are outlined in Table 4. The majority of the community pharmacists reported that they always performed a proper self-reported risk factor screening for

specific conditions when they are dispensing NSAIDs. The commonly risk factors that community pharmacists discussed with patients for either non-selective or selective NSAIDs were pregnancy and breastfeeding, followed by history of GI ulcers / bleeding, and uncontrolled hypertension..

Table 4. Community pharmacists' self-reported risk factor screening for certain conditions before use of NSAIDs

Details on screening of risk factors	No. of community pharmacists (%)		
	Always	sometimes	Never
Dispensing of non-selective NSAIDs			
History of GI ulcer/bleeding	167 (70.8)	56 (23.7)	13 (5.5)
History of renal impairment	21 (8.9)	117 (49.6)	98(41.5)
History of liver impairment	97 (41.1)	100(42.4)	39 (16.5)
Cardiovascular disease	78 (33.1)	132 (55.9)	26 (11)
Older age	145 (61.4)	71(30.1)	20(8.5)
Pregnancy breast feeding	181 (76.7)	41 (17.4)	14 (5.9)
Uncontrolled hypertension	148 (62.7)	68 (28.8)	20 (8.5)
Multiple NSAIDs/long term/high Dose	117 (49.6)	83 (35.2)	36 (15.3)
Taking steroid drug	97 (41.1)	96 (40.7)	43 (18.2)
Dispensing of selective COX-2 NSAIDs			
History of GI ulcer/bleeding	157 (66.5)	64 (27.1)	15 (6.4)
History of renal impairment	133 (56.4)	83(35.2)	20 (8.5)
History of liver impairment	120 (50.8)	80 (33.9)	36 (15.3)
Cardiovascular disease	127 (53.8)	87 (36.9)	22 (9.3)
Older age	132(55.9)	80 (33.9)	24 (10.2)
Pregnancy breast feeding	166 (70.3)	61 (25.8)	9 (3.8)
Uncontrolled hypertension	135 (57.2)	74 (31.4)	27 (11.4)
Multiple NSAIDs/long term/high Dose	117 (49.6)	81 (34.3)	39 (16.1)
Taking steroid drug	108(45.7)	86 (36.4)	42 (17.8)

Prevention and management of side effects of the different classes of NSAIDs

Table 5 shows the descriptive data which focused on the most frequently reported advice regarding how to prevent or manage the side effects for the different classes of NSAIDs. For non-selective NSAIDs, pharmacists' most mutual input to prevent GI complications was to take NSAIDs after a meal (81.8%), but many also claimed they

would advise patients to use gastroprotective agents (61%), reduce the dose of NSAIDs (45.8%), switch to selective NSAIDs (45.3%), or use other painkillers (42.8%). In the other hand and for selective NSAIDs, the most frequent advice given was to take NSAIDs after a meal (68.6%), use gastro protective agents (55.1%), stop taking NSAIDs (40.7%), switch to other painkillers (40.7%), or reduce the dose of NSAIDs (39.8%).

Table 5. Community pharmacists' advice concerning management of or protection against ADRs due to the use of NSAIDs

Advice on management	No. of community pharmacists (%)		
	Always	sometimes	never
Dispensing of non-selective NSAIDs			
Taking NSAIDs after meal	193 (81.8)	33 (13.9)	10 (4.2)
Using with gastro protective agents	144 (61)	80(33.4)	12(5.1)
Switching to selective COX-2 NSAIDs	107 (45.3)	109 (46.2)	20(8.5)
Switching to other painkillers	101(42.8)	1140(46.6)	25 (10.6)
Dose reduction	108 (45.8)	111 (47)	17 (7.2)
Consult with physicians	88 (37.3)	115 (48.7)	33 (14)
Stop taking NSAIDs	88 (37.3)	124 (52.5)	24 (10.2)
Dispensing of selective COX-2 NSAIDs			
Taking NSAIDs after meal	162(68.6)	60(25.4)	14 (5.9)
Using with gastro protective agents	130 (55.1)	90 (38.1)	16 (6.8)
Switching to selective COX-2 NSAIDs	94 (39.8)	114 (48.3)	28 (11.9)
Switching to other painkillers	96(40.7)	117 (49.6)	23 (9.7)
Dose reduction	94 (39.8)	110 (46.6)	32 (13.6)
Consult with physicians	83 (35.2)	122 (51.7)	31(13.1)
Stop taking NSAIDs	96 (40.7)	112 (47.5)	28 (11.9)

Table 6.Factors associated with frequency of adverse drug reactions (ADR) information provision to patients taking non-selective NSAIDs.

Factor	NO. pharmacists	%	*p*-value
Age			
20 - <30	**163**	**69.1**	**0.097**
30- 50	**72**		**0.56**
> 50	**1**	**0.4**	**0.06**
Education level			
Bachelor	121	51.3	0.08
Diploma	115	48.7	0.07
Experience (years)			
< 10	178	75.4	0.01
10-20	51	21.6	0.07
21-30	7	3	0.06
Working hours			
< 10	32	13.6	0.233
10-12	98	41.5	0.225
>12	106	44.9	0.012

Table 7. Factors associated with frequency of adverse drug reactions (ADR) information provision to patients taking selective NSAIDs.

Factor	No. pharmacist	%	*p*-value
Age			
20 - < 30	163	69.1	0.07
30 -50	72	30.5	0.31
> 50	1	0.4	0.70
Education level			
Bachelor	121	51.3	0.77
Diploma	115	48.7	0.49
Experience (years)			
< 10	178	75.4	0.08
10-20	51	21.6	0.04
21-30	7	3	0.006
Working hours			
< 10	32	13.6	0.49
10-12	98	41.5	0.05
> 12	106	44.9	0.04

Discussion

NSAIDs are one of the most widely prescribed drugs worldwide for the treatment or relief of symptoms of pain and inflammation. As well as, some NSAIDs can be purchased without prescription[12, 18-21].Therefore, extensive and long-term use of these agents has been frequently associated with risk of complications, that range from GI upsets to renal failure, particularly in elderly patients and those with chronic diseases [21- 24].

Many studies have been conducted worldwide illustrated inadequate knowledge and attitude regarding the adverse effects of over-the-counter (OTC) medications, particularly NSAIDs, that need more advice and counseling regarding convenient management or prevention from community pharmacists [25-29] In addition, a previous study done on hospital pharmacists in Thailand revealed that providing verbal information and additional written information could raise patients' knowledge and awareness of their drugs[20, 27].

Community pharmacies are an important source of NSAIDS supply, so they play a key role in screening of drug-related problems,[16] identifying high-risk patients, and counseling and providing information to patients. These pharmacists- related interventions can promote the appropriate selection of NSAIDs and prevent their serious long-term problems[12, 24, 30].

A total of 236 out of 363 administered questionnaires were returned fully completed and met the inclusion criteria, giving a response rate of 65%. In the present study, the majority of respondents were males compared to females, as shown in Table 2. The same findings were seen in a previous study conducted in Saudi Arabia, which revealed that the majority of participants were males (95.5%) [83]. Nevertheless, these findings are incompatible to those obtained in a previous study carried out in Thailand [12] which showed that the majority of community pharmacists were females (65.4%).

This discrepancy may be attributed to differences in the traditions between Thailand and the region of this study, where female can't work in the community pharmacies. As well as, the number of graduates from males from pharmacy collages in Dhamar, was higher than the number of graduates from females. The mean age of pharmacist was (31.3±11.7) and there was a preponderance of those belonged to the age group of less than 30 years (68.9%). These findings were agreeing with a previous study conducted in Saudi Arabia [31], which revealed that the majority of respondents were aged between 25 to 34 years. However, other study done in Thailand revealed that the average age of participants was 37.2 ± 11.42.

Although, the current study are agreeing with the study done in Saudi Arabia[31]. Bachelor was the highest level of education for participants, Doctor of Pharmacy and Master of Science are not present in community pharmacies in Yemen. most of community pharmacists had less than 10 years of experience, which is disagreeing with two studies carried out in Saudi Arabia and Thailand, which illustrated that 71% and 57.9% of community pharmacists respectively had more than 5 years of experience in community pharmacies[12, 31]. Community pharmacists should be aware of the most risk factors while dispensing NSAIDs and able to screen and monitor patients with risks to reduce NSAIDs complications[32].

In the present study, community pharmacists had a range of knowledge on different classes of NSAIDs, where the majority of the participants (86.9%) recorded having proper knowledge about the NSAIDs, whereas 13.1% revealed that their knowledge about NSAIDs was bad. About 70.3% and 62% of community pharmacists revealed appropriate knowledge regarding non-selective and selective NSAIDs respectively, as summarized in Table 3. The risk factors for NSAIDs are well-define and apply to both selective and non-selective NSAIDs [33-36]. Community pharmacists should be aware of the need to both screen and monitor patients at high-risk and provide information, both of which can help to reduce NSAIDS complications, such as acute renal failure [32, 37-39].

Regarding risk factors screening, evaluation of questionnaire revealed that the majority of the community pharmacists indicated that this was performed always when dispensing NSAIDs, as summarized in Table 4. The community pharmacists who claimed to routinely screen patients for risk factors before supplying selective COX-2 NSAIDs, were slightly more than those did so for non-selective NSAIDs, as seen in Table 4. These results incompatible with those in two previous studies carried out in Saudi Arabia and Thailand [12, 31].

Although the majority of pharmacists claimed to screen patients for potential risk factors and provide patients with information about adverse drug effects (ADRs) of both classes of NSAIDs and how to their management, many pharmacists reported they did not do so for all patients, where approximately 41% and 36% of community pharmacists reported they did not ask questions relating to history of taking steroid drug as a risk factor for the use of non-selective and selective NSAIDs respectively, as seen in Table 4. On the contrary, other study revealed that 14.5% and 17% of pharmacists indicated they did not ask questions relating to history of taking steroid

drug as a risk factor for the use of non-selective and selective NSAIDs respectively[31].

In the present study, the main risk factors that community pharmacists discussed with patients for the use of non-selective NSAIDs were pregnancy/or breast-feeding, history of GI ulcer and bleeding, uncontrolled hypertension, and older age, as outlined in Table 4. These findings are disagreeing with those in study carried out in Saudi Arabia [31], which revealed that pregnancy/or breast-feeding, older age, history of GI ulcer and bleeding, and number, duration and high dose of NSAIDs were the major risk factors for using of non-selective NSAIDs. In addition, a previous study conducted in Thailand revealed that history of GI ulcer /or bleeding, number, duration and high dose of NSAIDs, and history of renal impairment were the key risk factors for the use of non-selective NSAIDs[12].

In the other hand, showed that pregnancy/or breast feeding, history of GI ulcer/or bleeding and uncontrolled hypertension were the major risk factors for selective NSAIDs, as outlined in Table 4. Another study done in Saudi Arabia [27], showed that pregnancy/or breast feeding, older age, and uncontrolled hypertension were the main risk factors for the use of selective NSAIDs. However, a previous study conducted in Thailand revealed that cardiovascular disease, history of GI ulcer/or bleeding and number, duration and high dose of NSAIDs, were the main risk factors for the use of selective NSAIDs [12].

Using of both classes of NSAIDs and duration of use would increase the risk of side effects of cardiovascular and bleeding complications. In the other hand, age is considered to be a significant risk factor for NSAIDs related GI complications, therefore, proper management interventions should be achieved in the elderly. Many studies were conducted in other areas of the world reported that patients should be screened for the existence of GI and cardiovascular side effects before using NSAIDs, and should undergo GI-prevention therapy when risk could be an issue[31].

In Europe, most of patients, who using NSAIDs with one or more risk factors for GI complications may be received poor prevention treatments [31, 40]. Receiving information about NSAIDs in any way other than from the qualified individual may result in inappropriate and nonspecific information. The material in the medication leaflets is not suitable for the public. Therefore, only a few individuals are capable to understand the leaflets 'content [28, 41, 42].

NSAIDs are often used for long term and in high doses, both of which can increase the risk of adverse drug effects [12]. As well as, since

NSAIDs can be dispensed with or without prescription, multiple NSAIDS may be used, by patients who may not inform pharmacists about their medicines. All this make the health care providers, particularly, community pharmacists, as medication experts, vital source of important and accurate information, in which community pharmacists should enhance consciousness of NSAIDs risks between consumers, provide proper counseling and evaluate potential risk factors to assure safe and suitable use of these drugs [43,44].

For non-selective and selective NSAIDs, respectively 81.8% and 68.6% of community pharmacists claimed to advice the patients to use the drug after a meal for purpose of preventing of GI complications, as seen in Table 5. These finding similar to those in Saudi study, which showed that respectively 86.5% and 83.5% of pharmacists claimed to advice the patients to use the drug after a meal for purpose of preventing of GI complications [31]. A previous study in Thailand revealed that 83.3% of pharmacists claimed to advice the patients to use the drug after a meal for purpose of preventing of GI complications due to non-selective NSAIDs [12].

Slightly more than half of the pharmacists indicated that they regularly guide patients to use gastro protective agents for both non-selective and selective NSAIDs. and 46.6% and 49.6% of participants also claimed that they explain when to switching to other painkillers for both non-selective and selective NSAIDs, as outlined in Table 5. These results lower than those in another previous studies done in Saudi Arabia an Thailand[12, 31].

Table 6 & 7 revealed that pharmacists with less than 10 years' experience were significantly more likely to counsel their patients about ADRs related to users of non-selective. This finding also corresponds with significant association between years of experience and patient ADRs related to users of non-selective. In a similar manner, pharmacists who work more than 12 hours were significantly more likely to counsel their patients about ADRs related to users of non-selective and selective NSAIDs. However, there were no statistically significant differences for other factors such as age, education, which influenced the discussion of ADR linked to non-selective and selective COX-2 NSAIDs users.

Conclusions

Although the screening of risk factors, counseling and provision of information and management for patients using NSAIDs by community pharmacists, were high frequently than is the predictable, effective strategies are required from the health regulatory authorities to ensure that community pharmacy services in study area contribute in improving the dispensing

practices, communication and awareness of risk factors for using NSAIDs, especially in high-risk patients who are taking NSAIDs. As well as, the medical education strategies should aim, not only to elevate the knowledge, but also to alter the behaviour and practices among under- and postgraduate students of pharmacy departments of medical sciences colleges to prevent potential medication -related problems.

Acknowledgement

Authors thank Al-Saeeda University and pertinent staff for their support and cooperation. Authors also convey their sincere thanks to all students of the year of excellence in pharmacy department, faculty of medical Sciences – Al-Saeeda University (Abdalmalk Al-mujahid, Abdullah Al-junied, Abdullah Al-Hetari, Ali Al-shokamy, Amatalmalk Al-dailami, Ameed Al-wahedi, Fatima Al-miziji, Jalaladdin Al-Hetari, Loay Al-usta, Mohmmed Ayyash, Naseem Fadel, Refad Al-mujahid, Sadiq Al-rubaie, Saleem Al-mansuri, Saleh Al-obbisy, Shaimaa Al-maghrebi, Zakaria Al-Sheikh) who devoted their time to distribute, collect and review the questionnaires in our study. Authors also convey their sincere thanks to the community pharmacists who accepted to participate in this study.

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