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| RESEARCH ARTICLE

Community Pharmacists' Roles in Screening and Communicating of Risks about Non-Steroidal Anti-Inflammatory Drugs

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| ABSTRACT

Community pharmacists play an important role in identifying risk factors and communicating potential adverse effects associated with NSAIDs (non-steroidal anti-inflammatory drugs) in ensuring medication safety and patient outcomes. However, pharmacy practice in Cebu City does not meet the international standards, as community pharmacists only occasionally perform these practices. This study aimed to evaluate the practices of community pharmacists in Cebu city about medication safety and patient education regarding NSAIDs. A cross-sectional survey among 147 identified community pharmacists in Cebu city was conducted to gather data on their demographic profiles, the types of NSAID inquiries they receive, and the frequency of performing certain practices in dispensing of NSAIDs. The results indicate that community pharmacists generally dispense NSAIDs for common conditions such as headache, toothache, and fever. The most frequently dispensed drugs are Ibuprofen, Naproxen, Celecoxib, Mefenamic acid, and Diclofenac. While pharmacists may screen the patient's risk factors and provide guidance on the use of both selective and non-selective NSAIDS, it was found out that these practices are inconsistent. The study highlights the need to standardize protocols and enhance training and seminars regarding medication safety and counseling of NSAIDs, which could improve the pharmacy practice, drug safety, and patient outcomes.

| KEYWORDS

NSAIDs, medication safety, pharmacy practice, community pharmacists, patient education

| ARTICLE INFORMATION

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1. Introduction

1.1 Rationale

Pain is an enormous global health problem that affects millions of people [1]. It has been estimated that 1 out of 5 adults suffers daily from pain, and 1 out of 10 adults is diagnosed with chronic pain [2]. NSAIDs are widely used for their ability to be effective in the relief of pain symptoms as well as being cost-effective [3].

The Philippines has guidelines in prescribing NSAIDs that were published by the Department of Health [4]. Despite these guidelines, there is little to no medication review, risk assessment, information provision, or patient medication counseling regarding dispensing of medicines in the Philippines, where only 24% of the pharmacists are involved in such activity [5]. This lack of stewardship contributes to the improper use of NSAIDs, with the patient being unaware of the potential risks associated with their use [6].

The OTC availability and the ease of NSAID acquisition often leads to misuse, posing potential risk to the patient's health [7]. The potential adverse drug reactions of NSAIDs include gastrointestinal (GI) issues such as indigestion,

stomach ulcers, headaches, drowsiness, dizziness, allergic reactions and in rare cases, liver and cardiovascular problems [8]. The likelihood of these potential adverse effects is increased when NSAIDs are taken with other medications such as aspirin especially with vulnerable populations like the elderly, as they are likely to take multiple medications [9].

Studies have also shown that approximately out of 9 million prescriptions, 19.3% of those contained at least one NSAID, to which the most prescribed were Diclofenac (49.21%), Ibuprofen (28.6%), and Naproxen (8%) [10]. Moreover, NSAIDs were also prescribed inappropriately due to factors like limited clinician knowledge, awareness, and willingness to use evidence-based care [11]. Other studies also suggest that regular counseling and patient education are one of the ways to reduce the risk of potential ADRs [12].

Community pharmacists are the most accessible healthcare professionals for patients who seek relief for pain, making them vital in the management of NSAID-related injuries and ADRs [13]. In addition, community pharmacists (90%) demonstrated good to excellent knowledge about gastrointestinal and renal adverse effects of NSAIDs, which puts them in the best position to advise/counsel patients about proper NSAID use. [14]. There is a need for more involvement and proactive initiatives by pharmacists in patient screening prior to the dispensing of NSAIDs [15]. Due to this, there is a gap in the knowledge of patients regarding NSAID use, but it can be better addressed by community pharmacists through improved patient counseling and education [15]. In addition to that, some pharmacists lack the infrastructure, up-to-date knowledge, and appropriate training to carry out these activities [5].

Hence, this study assessed the community pharmacists' role in screening and communicating risks about NSAIDs prior to their dispensing. This study provides baseline data that could inform and serve as a reference for future training and seminars through continued professional development (CPD) programs for pharmacists by understanding the current state of community pharmacy practice in relation to NSAID safety. However, there were limitations such as small sample size, the study locale being in Cebu city only, data collection challenges like difficulties in acquiring participants, and biases. Nevertheless, this study still upholds a stronger role for community pharmacists by encouraging a perception shift from being mere "drug sellers" or "storekeepers" to being recognized as a vital part of the healthcare provider that contributes greatly to better patient outcomes.

2. Methods

2.1 Study Design

The study utilized a cross-sectional survey research design to evaluate the community pharmacists' roles in screening and communication of risks of non - steroidal anti - inflammatory drugs to patients. The study tested the total population of the community pharmacist through their community pharmacies. The survey included an informed consent form prior to the administration of the questionnaire. A questionnaire was made with references from similar and other studies and was administered with prior validation from experts after gaining the approval from University of San Carlos' Research Ethics Committee's protocol code: 2024-012-Rojas.

2.2 Study Questionnaire

The questionnaire administered was made in reference to a study by Phuenpinit, et. al, (2018) [15] with validation and approval from USC's REC. The questionnaire consisted of three (3) sections: (1) Demographics, (2) General information about NSAID inquiries, and (3) Pharmacists' roles in supplying/dispensing NSAIDS. To ensure validity and reliability of the questionnaire, it was validated by 2 community pharmacists, an academic pharmacist, and a registered psychometrician. Reliability testing (Table 1) was done by pilot testing by surveying 15 pharmacists that fit the criteria for inclusion and exclusion in a different locale (Ormoc City) after the questionnaires have been validated.

Table 1. Reliability testing using Cronbach's alpha.

Variables Tested	Cronbach's Alpha	Interpretation	Recommendation
Practice roles	.915	Excellent	May proceed to actual survey
Risk factors (non - selective NSAIDs)	.867	Good	
Risk factors (selective COX - 2 NSAIDs)	.899	Good	
Advices/ Counsels to patients (non - selective NSAIDs)	.850	Good	
Advices/ Counsels to patients (selective NSAIDs)	.832	Good	

Legend of Cronbach's alpha

- *$\alpha \geq 0.9$ - Excellent*
- *$0.9 > \alpha \geq 0.8$ - Good*
- *$0.8 > \alpha \geq 0.7$ - Acceptable*
- *$0.7 > \alpha \geq 0.6$ - Questionable*
- *$0.6 > \alpha \geq 0.5$ - Poor*
- *$0.5 > \alpha$ - Unacceptable*

The first section contains demographic profile which includes biological gender, age, educational level, years of practice, certifications/specializations, number of pharmacists in the pharmacy, hiring of pharmacy assistants, most recent update on the knowledge regarding NSAIDs, average number of patient visits per day, location of pharmacy, and if they are accepting student interns. The second section; General information about NSAID inquiries consists of 2 parts: (1) Top 5 dispensed NSAIDs in the pharmacy and (2) Top 5 reported symptoms by patients as the reason for buying NSAIDs. The third and last section probes on the frequency of the practices in terms of self - reported dispensing practices, frequency of self - reported medication review for specific conditions, and frequency of advice given concerning management of/ or protection against adverse effects of NSAIDs.

For the first and second sections, frequency and percentage was used to determine the number of respondents who chose or mentioned the same answers. The second section alone contained answers that mentioned brands of NSAID medications. It was converted to their corresponding generic names in collating the data for uniformity of answers. In the third section, the frequency of the practices was measured using the Likert scale with the corresponding numerical values; always is 3, sometimes is 2, never is 1. The higher the number means the higher the frequency of practices.

2.3 Study Locale

The study was conducted in Cebu City, Philippines for being a highly urbanized city and one of the cities in the Philippines with the most population at approximately 900,000 in the 2020 Census [16]

2.4 Study Population

The study population was community pharmacists in Cebu City. Each community pharmacy was assumed to have at least one pharmacist assigned. The pharmacies were the chain pharmacy companies in Cebu City, namely; (a) Mercury Drug (15 stores), (b) Rose Pharmacy (54 stores), (c) ThreeSixty Pharmacy (17 stores), (d) Watsons Pharmacy (22 stores), (e) Southstar Drug (7 stores), (f) MedExpress (3 stores), (g) La Nueva Pharmacy (11 stores), (h) Bing Pharmacy (3 stores), (i) Evercare Pharmacy (3 Stores), (j) Metro Pharmacy (3 stores), (k) Alfar Pharmacy (4 stores), and (l) GV Botica (5 stores). The community pharmacies collectively have a total population (N) of 147 stores initially.

2.5 Exclusion and Inclusion Criteria

Pharmacists in the community setting were the target respondents in the study. Full - time and part - time pharmacists (A.K.A. reliever pharmacist, if any) were included. Pharmacists who have been certified as an Immunizing Pharmacist were also included in this study (if any). Eligible community pharmacists were those at least having an experience of at least a year of cumulative experience in the community pharmacy.

Chain pharmacies with multiple owners (franchised) were not included in the study due to having a less strict protocol such as dispensing harmful antibiotics without prescriptions [17] and pharmacists may have better supervision on corporate pharmacies than franchised pharmacies [18]. Additionally, pharmacists who are pharmacy/ store managers were excluded from the study for having minor patient interactions than regular store pharmacists. Pharmacists who have a rank higher than pharmacy/store manager (Area Managers, District Managers, etc.) who are in the particular pharmacy during the visit were also excluded due to having limited exposure to patients at all and mainly do office work.

2.6 Data Collection

The identified 147 pharmacies in Cebu City that fits the inclusion criteria were considered to participate in the study thus no sampling method was applied. Each of the chain community pharmacies' respective head offices were notified of the study via email. Approval was first acquired from the head offices, after which consent was acquired from the participating pharmacists in person during the course of the study. After identifying the locations of the pharmacies, they were given designated codes based on their company and in no particular order on their locations (E.g. Rose Pharmacy - Fuente; RPI - 01, Mercury drug - Fuente; MDC - 1). Afterwards, the researcher went on the site of the stores and verbal consent was asked from the Store Manager/ Shift manager/Office-in-Charge or whoever is the supervisor on duty prior to performing the study. After acquiring the consent, the participant was asked to pick a comfortable and suitable place and time to explain the study's purpose and to conduct the study. During the study conduct, the participants were given a choice on how to answer the survey in three (3) options; (1) Researcher's device, (2) a link to access a copy of the questionnaire using the participant's own device, (3) and physical copy of the questionnaires. Online surveys (via 2nd option to answer the survey) can be performed but face-to-face (1st and 3rd option to answer the survey) is preferred to increase the chances of getting responses. Moreover, contact numbers were asked for follow - up purposes.

Where there were multiple pharmacists in the pharmacy, the pharmacist with the highest number of years of practice was the one who completed the questionnaire, provided they choose to participate. Each community pharmacy was only given a copy of the questionnaire that was answered by one pharmacist (in case of multiple pharmacists on-duty) should he choose to participate. The survey is divided into three parts which consists of (1) Demographics, (2) General information about NSAID inquiries, and (3) Practices in supplying/dispensing NSAIDs. In total, the study participation for each respondent was 20 - 30 minutes. Participants were given 21 days to complete the questionnaires from the day of they received the questionnaires. Reminders were sent on the 6th, 12^{th,} and 18th days via the contact number or email of the designated pharmacy for those who opted to answer the questionnaire on their own device (second option) or via a physical hard copy of the questionnaire. File documents/ computer folders were created to organize and manage the data from the participants. Afterwards, the data collected was analyzed to obtain results.

2.7 Statistical Treatment and Analysis

The questionnaires have undergone reliability testing using Cronbach's alpha. The data obtained from the questionnaires was analyzed using *Microsoft Excel*®. Percentage was used for statistical treatment for the multiple-choice questions (first and second section). For the Likert scale questions (third section) percentage was also used for determining the frequency of responses and weighted mean was used to determine the average of responses for items in the questions. Post-hoc analyses, using Kolmogorov-Smirnov, Kruskal-Wallis, Mann-Whitney, and Dunn's Test tests were used to identify significant differences in pharmacists' practices based on demographic data and the three areas: dispensing practices (Table 8), screening for specific conditions (Table 9), and advice/counseling on adverse drug reactions (Table 10), with statistical significance set at $p \leq 0.05$.

The scale used in the Likert scale is indicated by the following frequencies; *always* (3), *sometimes* (2) and *never* (1). Moreover, the weighted mean has a corresponding verbal interpretation depending on the range which are as follows; 1.00 to 1.66 is *never*, 1.67 to 2.33 is *sometimes*, and lastly, 2.34 to 3.00 is *always*.

2.8 Ethical Considerations

The study underwent ethics review and given certificate of compliance by the Research Ethics Committee, University of San Carlos (Protocol 2024-012-Rojas).

3. Results and Discussions

3.1 Results

The data collected describes the different community pharmacists' practices in screening and communication of risks of NSAIDs in Cebu City. Different reasons for dispensing NSAIDs are accompanied by varying symptoms also as the reason for buying NSAIDs. The frequencies to which the pharmacists perform their practices roles in dispensing NSAIDs varied, indicating difference in patient engagement and compliance to the recommended guidelines. Table 2 shows the number of respondents per community pharmacy.

Table 2. Number of respondents per chain community pharmacy

Chain community Pharmacies	Number of respondents	% from total respondents
Rose Pharmacy	54	76.06
ThreeSixty	5	7.04
Southstar Drug	3	4.22
MedExpress	3	4.22
Bing Pharmacy	1	1.41
Evercare	2	2.81
Metro Pharmacy	1	1.41
Alfar Pharmacy	1	1.41
GV Botica	1	1.41
Total	71	100%

The data collected is organized according to the frequency (*f*) and the percentage (%) to which the specified NSAIDs are answered or mentioned by the respondents. In the demographic profile section of the data acquired (Table 3), it shows that out of the 71 respondents, the majority of them were female (*f* = 68, 95.77%) and the rest were male (*f* = 3, 4.23%). Most of the respondents are on the ages 26-30 and 36 & above (*f* = 22, 30.99%), followed by the age range of 21-25 years (*f* = 17, 23.94%), and lastly by the ages of 31-35 years (*f* = 10, 14.08%). The respondents mostly have Bachelor's Degree (*f* = 68, 95.77%), followed by those with Doctorate Degree (*f* = 2, 2.82%), and a single respondent answered with an unspecified degree (*f* = 1, 1.41%). Practice experience in most of the respondents are 1-3 years (*f* = 31, 43.66%), followed by those with ≥6 years (*f* = 29, 40.85%), and lastly 3-5 years (*f* = 11, 15.49%). For the respondents' Certifications/Specialties, most of them have none (*f* = 70, 98.59%), with the exception of a clinical pharmacist (*f* = 1, 1.41%). The pharmacies mostly have a single pharmacist (*f* = 56, 78.87%) while some have 2 or more (*f* = 15, 21.13%). Most also hired pharmacy assistants (*f* = 68, 95.77%) while the remaining claimed they don't (*f* = 3, 4.23%). The respondents' most recent update on the knowledge regarding NSAIDS was mostly less than a year ago (*f* = 32, 45.07%), followed next by those 1-5 years (*f* = 23, 32.39%), then by those who don't recall (*f* = 14, 19.72%), and lastly followed those who updated their knowledge 6-10 years ago (*f* = 2, 2.82%). Majority of the pharmacies have a range of 101-300 patient visits per day (*f* = 21, 29.58%), closely followed by those pharmacies having a range of 301-400 patient visits (*f* = 20, 28.17%), then those having patient visits of 1-100 (*f* = 16, 22.54%), afterwards, having 501 and above (*f* = 9, 12.68%) patient visits per day, and finally, a small number of pharmacies have only a range of 401-500 (*f* = 9, 7.04%) patient visits per day. Most of the pharmacies are far (> 200 meters) from hospitals (*f* = 50, 70.42%) and while the rest are near (≤ 200 meters) to

hospitals (*f* = 21; 29.58%). Lastly, while some pharmacies do not accept student interns, (*f* = 7, 9.86%) most of them do (*f* = 64, 90.14%)

Table 3. Demographic profile of respondents

Biological Gender	***f***	**%**	**Total**
Male	3	4.23	100% (n=71)
Female	68	95.77	
Prefer not to say	0	0	
Age	***f***	**%**	
21-25 years	17	23.94	
26-30 years	22	30.99	
31-35 years	10	14.08	
36 and above	22	30.99	
Educational level	***f***	**%**	
Bachelor's degree	68	95.77	
Doctorate degree	2	2.82	
Master's degree	0	0	
Others	1	1.41	
Years of practice	***f***	**%**	
1-3 years	31	43.66	
3-5 years	11	15.49	
≥6 years	29	40.85	
Certifications/Specializations	***f***	**%**	
Clinical Pharmacist	1	1.41	
Immunizing/Vaccinating Pharmacist	0	0	
None	70	98.59	
Number of Pharmacists in the Pharmacy	***f***	**%**	
1	56	78.87	
2 or more	15	21.13	
Hired Pharmacy Assistants	***f***	**%**	
Yes	68	95.77	
No	3	4.23	
Most recent update on the knowledge regarding NSAIDs	***f***	**%**	
Less than 1 year ago	32	45.07	
1-5 years ago	23	32.39	
6-10 years ago	2	2.82	
Don't recall	14	19.72	
Average number of patient visits per day	***f***	**%**	
1-100	16	22.54	
101-300	21	29.58	
301-400	20	28.17	
401-500	5	7.04	

501 and above	9	12.68
Location of pharmacy	***f***	**%**
Near to hospital (≤200 meters)	21	29.58
Far from hospital (>200 meters)	50	70.42
Accepts student interns	***f***	**%**
Yes	64	90.14
No	7	9.86

The top 5 dispensed NSAIDs in the pharmacies according to the community pharmacists' subjective analysis are as follows; Ibuprofen (*f* = 61, 85.92%), Naproxen (*f* = 60, 84.51%), Celecoxib (*f* = 54, 76.06%), Mefenamic acid (*f* = 54, 76.06%), and Diclofenac (*f* = 45, 63.38%) and the top 5 reported symptoms by patients as the reason for buying NSAIDs according to the community pharmacists' subjective analysis are as follows are the following; Headache (*f* = 44, 61.96%), Toothache (*f* = 37, 52.11%), Fever (*f* = 31, 43.66%), Arthritis (*f* = 27, 38.03%), and Muscle pain (*f* = 21, 29.58%) (Table 4).

Table 4. General information about NSAID inquiries

Top 5 dispensed NSAIDs in the pharmacy	***f***	**%**	**Total**
Ibuprofen	61	85.92	100% (n = 71)
Naproxen	60	84.51	
Celecoxib	54	76.06	
Mefenamic acid	54	76.06	
Diclofenac	45	63.38	
Top 5 reported symptoms by patients as the reason for buying NSAIDs	***f***	**%**	
Headache	44	61.97	
Toothache	37	52.11	
Fever	31	43.66	
Arthritis	27	38.03	
Muscle pain	21	29.58	

Table 5 shows the frequency of community pharmacists' self - reported practices in supplying NSAIDs. Most of the respondents claimed to sometimes (overall; n = 71, $\bar{x}$ = 2.17) give patients advice, give information, and screen patients regarding the use of NSAIDs with the exception of assessing the need to use NSAIDs in which the respondents claimed to practice it always (n = 71, $\bar{x}$ = 2.41). Post-hoc analysis revealed that there is no significant differences when compared with the demographic factors except for the *average number of visits/ patients/ customers per day* which showed a significant difference in the frequency of performing these practice roles (p = 0.0009)

Table 5. Frequency of community pharmacists' self - reported practices in dispensing NSAIDs

Statement/ Question	**Scale**	***f***	**%**	**Weighted Mean ($\bar{x}$)**	**Interpretation**
I screen patients for risk factors before dispensing for non - selective NSAIDs	1	4	5.63	2.14	Sometimes
	2	53	74.65		
	3	14	19.72		

I screen patients for risk factors before dispensing for selective COX - 2 NSAIDs	1	5	7.04	2.25	Sometimes
	2	43	60.56		
	3	23	32.39		
I assess patients of the need to use NSAIDs	1	2	2.82	2.41	Always
	2	38	53.52		
	3	31	43.66		
I provide information for the ADRs of NSAIDs for non - selective NSAIDs	1	2	2.82	2.14	Sometimes
	2	57	80.28		
	3	12	16.9		
I provide information for the ADRs of NSAIDs for selective COX - 2 NSAIDs	1	2	2.82	2.21	Sometimes
	2	52	73.24		
	3	17	23.94		
I give advices in managing and preventing NSAID ADRs for non - selective NSAIDs	1	3	4.23	2.23	Sometimes
	2	49	69.01		
	3	19	26.76		
I give advices in managing and preventing NSAID ADRs for selective COX - 2 NSAIDs	1	3	4.23	2.3	Sometimes
	2	44	61.97		
	3	24	33.8		
I ask patients about food supplements that are currently taken	1	27	38.03	1.72	Sometimes
	2	37	52.11		
	3	7	9.86		
I advise patients on what should/should not be done/ taken/ eaten while taking NSAIDs	1	9	12.68	2.17	Sometimes
	2	41	57.75		
	3	21	29.58		
Overall				***2.17***	***Sometimes***

The same can almost be said in the frequency of self - reported medication review for specific conditions of patients prior to dispensing NSAIDs except that majority of the respondents claimed to sometimes practice (overall; n = 71, $\bar{x}$ = 2.01) medication review of patients' specific conditions prior to dispensing NSAID as illustrated in Table 6.

Table 6. Frequency of self - reported medication review for specific conditions of patients prior to dispensing NSAIDs

Statement/ Question	Scale	*f*	%	Weighted Mean ($\bar{x}$)	Interpretation
In dispensing non - selective NSAIDs, I check for history of GI ulcer/ bleeding	1	20	28.17	1.97	Sometimes
	2	33	46.48		
	3	18	25.35		
In dispensing non - selective NSAIDs, I check for history of renal impairment	1	25	35.21	1.85	Sometimes
	2	32	45.07		
	3	14	19.72		
In dispensing non - selective NSAIDs, I check for history of liver impairments	1	26	36.62	1.79	Sometimes
	2	34	47.89		
	3	11	15.49		
In dispensing non - selective NSAIDs, I review patients who are of old age	1	8	11.27	2.3	Sometimes
	2	34	47.89		
	3	29	40.85		
In dispensing non - selective NSAIDs, I check	1	8	11.27	2.27	Sometimes

if the patient is currently taking multiple NSAIDs or long term NSAID use/high doses of NSAID	2	36	50.7		
	3	27	38.03		
In dispensing non - selective NSAIDs, I review if the patient is currently taking steroids	1	21	29.58	1.89	Sometimes
	2	37	52.11		
	3	13	18.31		
In dispensing selective COX - 2 NSAIDs, I check for history of GI ulcer/ bleeding	1	18	25.35	1.93	Sometimes
	2	40	56.34		
	3	13	18.31		
In dispensing selective COX - 2 NSAIDs, I check for history of renal impairment	1	23	32.39	1.87	Sometimes
	2	34	47.89		
	3	14	19.72		
In dispensing selective COX - 2 NSAIDs, I check for history of liver impairments	1	24	33.8	1.83	Sometimes
	2	35	49.3		
	3	12	16.9		
In dispensing selective COX - 2 NSAIDs, I review patients who are of old age	1	7	9.86	2.28	Sometimes
	2	37	52.11		
	3	27	38.03		

In dispensing selective COX - 2 NSAIDs, I check if the patient is currently taking multiple NSAIDs or long term NSAID use/high doses of NSAID	1	6	8.45	2.25	Sometimes
	2	41	57.75		
	3	24	33.8		
In dispensing selective COX - 2 NSAIDs, I review if the patient is currently taking steroids	1	24	33.8	1.85	Sometimes
	2	34	47.89		
	3	13	18.31		
Overall				***2.01***	***Sometimes***

In table 7, most of the respondents also claimed to sometimes practice (overall; n = 71, $\bar{x}$ = 2.09) giving advice/counsel on the management of ADRs of NSAIDs, except in regards to counseling on taking NSAIDs with meals which the respondents claimed to practice always (n = 72, $\bar{x}$ = 2.69).

Table 7. Frequency of advice/counsel given concerning management of/ protection against adverse drug reactions from NSAIDs

Statement/ Question	**Scale**	***f***	**%**	**Weighted Mean ($\bar{x}$)**	**Interpretation**
When I dispense non - selective NSAIDs, I give advice/counsel on taking NSAIDs with/after meals	1	2	2.82	2.69	Sometimes
	2	18	25.35		
	3	51	71.83		
When I dispense non - selective NSAIDs, I give advice/counsel on the use of NSAIDs with gastroprotective agents	1	19	26.76	2.01	Sometimes
	2	32	45.07		
	3	20	28.17		
When I dispense non - selective NSAIDs, I give advice/counsel on switching to selective COX - 2 NSAIDs	1	18	25.35	1.87	Sometimes
	2	44	61.97		
	3	9	12.68		

When I dispense non - selective NSAIDs, I give advice/counsel on switching to other pain relievers	1	7	9.86	2.07	Sometimes
	2	52	73.24		
	3	12	16.9		
When I dispense non - selective NSAIDs, I give advice/counsel on completely stop taking NSAIDs	1	14	19.72	1.96	Sometimes
	2	46	64.79		
	3	11	15.49		
When I dispense selective NSAIDs, I give advice/counsel on switching to other pain relievers	1	13	18.31	1.96	Sometimes
	2	48	67.61		
	3	10	14.08		
When I dispense selective NSAIDs, I give advice/counsel on the use of NSAIDs with gastroprotective agents	1	17	23.94	1.92	Sometimes
	2	43	60.56		
	3	11	15.49		
When I dispense selective NSAIDs, I give advice/counsel on consulting first with Physicians	1	4	5.63	2.46	Sometimes
	2	30	42.25		
	3	37	52.11		
When I dispense selective NSAIDs, I give advice/counsel on completely stop taking NSAIDs	1	14	19.72	1.96	Sometimes
	2	46	64.79		
	3	11	15.49		
When I dispense selective NSAIDs, I give advice/counsel on decreasing of the current dose	1	14	19.72	1.96	Sometimes
	2	46	64.79		
	3	11	15.49		

Overall	***2.09***	***Sometimes***

The post-hoc analyses in Table 8, non-parametric tests were used to account for unequal group sizes. The responses from Rose Pharmacy, which are the majority of the participants, were ranked alongside with other chain community pharmacies. This ensured that the results were not disproportionately influenced by the higher representation of Rose Pharmacy respondents, as significant differences were identified in different situational variables (e.g., knowledge updates, patient volume, pharmacy location) rather than specific affiliation of the pharmacy.

Table 8. Summary of post-hoc analysis results

Biological Gender				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	Male	46.17	0.381	No significant difference
	Female	35.55		
Advice on ADRs	Male	57.33	0.065	No significant difference
	Female	35.06		

Age				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	36 and above	43.5	0.182	No significant difference
	Other age groups	27.54–35.32		
Advice on ADRs	36 and above	41.09	0.499	No significant difference

Educational Level				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Advice on ADRs	Doctorate Degree	62	0.19	No significant difference
	Other groups	35.22–43.00		

Practice Experience				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Advice on ADRs	≥6 years	39.07	0.303	No significant difference
	Other groups	27.86–36.02		

Certifications/Specialties				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Advice on ADRs	Clinical Pharmacist	4	0.116	No significant difference
	None	36.46		

Number of Pharmacists in the Pharmacy				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Advice on ADRs	1 pharmacist	36.82	0.514	No significant difference
	≥2 pharmacists	32.93		

Hired Pharmacy Assistants				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	No assistants	21.33	0.206	No significant difference
	With assistants	36.65		

Most Recent Update on NSAID Knowledge				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	<1 year ago	35.22	**0.011**	Significant difference
	6-10 years ago	46.5		
	Don't recall	50.18		
Advice on ADRs	<1 year ago	35.83	**0.018**	Significant difference
	6-10 years ago	57.5		
	Don't recall	47		

Average Daily Visits				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	1-100 visits	48.59	**0.009**	Significant difference
	401-500 visits	19.6		

	Other groups	36.10–36.83		

Pharmacy Location				
Practice Category	**Group**	**Mean Rank**	**p-value**	**Interpretation**
Medication Review	Near hospital	45.67	**0.01**	Significant difference
	Far from hospital	31.94		

3.2 Discussions

The results from this study gives essential insights into the activities of community pharmacists in terms of screening and communication of risks associated with the use of NSAIDs in Cebu City. Since it is a critical function, data gathered showed that most community pharmacists sometimes practice the mentioned practices. The findings emphasize inconsistency and highlight significant areas for improvement in the roles that pharmacists play in patient education and safety.

Post-hoc analysis showed that demographics data such as the most recent update on NSAID knowledge, location of pharmacy, and number of visits/ patients/ customers per day, significantly impacted the frequency of performing screening and communicating risks. Pharmacists who recently updated their knowledge on NSAIDs within the last year showed lower frequency in performing of self - reported medication review for specific conditions of patients prior to dispensing NSAIDs ($p = 0.011$) and in giving advice given concerning management or protection against adverse drug reactions from NSAIDs ($p = 0.018$) compared to those who updated their NSAID knowledge 6-10 years ago or those who could not recall. This result could be related to older pharmacists being overconfident by which they overestimate their performance [19]. This finding relates to another study which shows that pharmacists have challenges in performing medication therapy management, such as collecting patient information and lack of confidence [20].

Number of patients per day also impact frequency of performing the practice roles to which pharmacies with low patient count (1-100 visits/ patients/ customers) perform practice roles in dispensing NSAIDs unlike in pharmacies with high patient count (401-500 and 501- above) ($p = 0.009$). This finding relates with other studies which shows that factors like high volume of patients and busyness of the pharmacy pose a challenge in patient-pharmacist interaction [21]. Optimization of workflow and additional support systems for community pharmacists in high patient-count pharmacies are vital in addressing these challenges [22].

Location of the pharmacy also influenced the frequency of performing the practice roles to which pharmacies near hospitals perform more medication review for specific conditions compared to those who are far from hospitals ($p = 0.010$). There is limited data whether pharmacists near hospitals are more exposed to complex cases, however, frequency of performing screening and communicating risks should be more consistent to adverse effects [23].

In countries like the Philippines, United Kingdom, and Malaysia, the practices of dispensing and screening which should be the exclusive role of the pharmacists are performed instead by the pharmacy assistants due to the low number of pharmacists that leads to limited patient interaction which potentially compromises in foreseeing the quality of care and medication management for patients [24]. This also aligns with the previous studies that suggest that the role of pharmacists especially in the community setting in low-to-middle-income countries, is frequently underutilized due to reasons such as systemic and operational challenges [25].

One of the worrying findings drawn from the study is that despite community pharmacists being highly expected to perform screening for risks and to communicate the potential adverse effects of NSAIDs to patients, all practice

roles are only performed sometimes. The findings show the general reasons for which patients want NSAIDs, yet may lead to abuse if sufficient education is not offered, rather deteriorating their quality of life than improving it. This finding aligns with previous studies that reveal the significance of roles that pharmacists play in educating the patient so as to achieve medication safety [26]. This could be attributed to a number of challenges which may include time, limited seminars and training, and one being unable to communicate with the patient [27] which could be according to the theory of planned behavior. The removal of these challenges through training, seminars, and review of policies could empower a pharmacist, especially the community pharmacists in doing their duties. The study establishes that pharmacy practice in Cebu city lags behind international practice standards.

The Pharmacists of United States of America undergo routine and regular comprehensive patient education by counseling and communicating about medication management, hence contributing much to safety in the care of patients [28]. The diversity of practices suggests an imperative to which the local education and professional development programs in pharmacy need to update with these universal practices. By doing so, we can enhance the skill set of the pharmacists that will improve patient outcomes and will ensure that pharmacists are ready to address various medication concerns of patients.

Furthermore, it was determined that the most commonly prescribed NSAIDs in the top five were dispensed without adequate risk screening for patients. This has evident public health implications such that improper use of these drugs may lead to serious adverse effects which include gastrointestinal bleeding [29]. Since the pharmacists are generally the most accessible provider of healthcare [30], their role in educating patients on how to use NSAIDs is rather critical. The post-hoc findings emphasize that improved training and support systems are crucial in addressing these gaps in improving patients' safety especially in pharmacies with high-patient count.

This study places more emphasis on the call by the public health sector to implement more training and seminars regarding knowledge of NSAID use to pharmacists and carrying it out to community health campaigns. Improved communication skills of the pharmacists and knowledge about NSAIDs would further assist in mitigating the risks presented by the use of these medications by the clients. At the same time, the findings of this study may suggest that pharmacy practice should be expanded to include regular risk assessments and patient consultations to better health outcomes. The post-hoc results suggest that demographic characteristics, not the chain community pharmacy brand, influences the frequency of performing the practices roles. The collaboration of pharmacists with the physician or other health professionals can foster a more holistic approach to care for patients wherein the latter is provided with comprehensive guidance and the best possible information regarding his use of medication.

This study's generalizability to other regions of the Philippines is limited due to the selection of the study locale and low response rate (48.30% response rate). There were difficulties in acquiring respondents due to the head offices of the chain community pharmacies declining. Moreover, there were identified chain community pharmacies that insisted their pharmacist was either on their day-off or leave despite returning every three days on three occasions. In addition, despite the study being conducted anonymously, the nature of the topic covered by this study might have led respondents to give out socially acceptable responses instead of revealing their true practices. Moreover, the research focused entirely on non - steroidal anti - inflammatory drugs (NSAIDs), excluding other drug classes that might present different varieties of challenges and opportunities for the pharmacist to be involved.

4. Conclusions

This study provides an overview of the community pharmacists' roles in screening and communicating risks about non-steroidal anti-inflammatory drugs, which highlight different demographic profiles which include age groups and educational backgrounds. The findings reveal variation in knowledge and training, particularly community pharmacists who have significant years of experience in the community setting, such as those with ≥6 years and 1-3 years of experience.

In terms of NSAID inquiries, community pharmacists receive various inquiries about managing acute and chronic conditions, with Ibuprofen, Naproxen, and Celecoxib being the most commonly used drugs to address symptoms

such as headache, toothaches, and arthritis. This indicates a reliance on NSAIDs for relief of pain and inflammation. These results highlight the important role of the pharmacists in screening for risk factors and educating patients for proper use of NSAIDs to promote patient safety.

Regarding pharmacists' practices in dispensing NSAIDs, while most community pharmacists often engage in risk screening and patient education in regards to the use of NSAIDs, these practices are performed sometimes ($\bar{x}$ = 2.17) across different pharmacies. The frequency of screening differs among pharmacists, with some of them assessing risks infrequently but others do so regularly. This affects overall patient safety in regards to use of NSAIDs

Risk screening for specific conditions are also sometimes ($\bar{x}$ = 2.01) performed by community pharmacists prior to dispensing NSAIDs. Barriers like time constraints and lack of access to patient records causes restrictions to perform effective risk screening. This indicates varying availability of resources to consistently perform screening activities.

When it comes to giving advice/counsel about the management of adverse reactions of NSAIDs, the practice roles are again done sometimes ($\bar{x}$ = 2.09) by community pharmacists. Some community pharmacists do offer advice such as using gastrointestinal protection, but it differs from one community pharmacist to another which leads to different levels of patient knowledge regarding NSAIDs. The inconsistency emphasizes the need for standardized patient education to ensure all patients receive the information needed to manage risks that come with NSAID use.

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