

Dispensing Pattern of Non-Steroidal Anti-inflammatory Drugs (NSAIDs) Among Pharmacists of Ilorin Metropolis, Kwara State

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ABSTRACT

The use and misuse of Non-steroidal anti-inflammatory drugs (NSAIDs) across the world and especially in Nigeria is very high and Pharmacists are a vital channel by which these drugs reach the patients. They can also be a source of determining the extent of use and misuse of NSAIDs among a population. This work therefore aims at assessing the dispensing pattern of NSAIDs among the community Pharmacists in Ilorin metropolis and also to assess their perception towards the use of NSAIDs in Ilorin metropolis. A survey type of research carried out among Pharmacists in Ilorin metropolis. Out of all the Community Pharmacists in Ilorin metropolis, fifty one Pharmacists consented to participate. Self-administered questionnaires were distributed to Pharmacists in community practice to elicit information on their demographic information and dispensing characteristics of NSAIDs in their Pharmacy. Data was analyzed using Statistical Package for Social Sciences (SPSS) software package version 16. Descriptive statistical analysis was used. Result showed that 35.3% of Pharmacies have estimated distance of less than 2km from an existing health facility. About 60.6% of Pharmacies fill less than 20 prescriptions per week with the prescriptions frequently containing at least one NSAID. About 51% of respondents perceived the level of prescribed NSAIDs as very high and Ibuprofen (45.1%), diclofenac (56.9%) and piroxicam (56.9%) were perceived as individual NSAIDs with high level of inappropriate use by residents. The Pharmacists' perception of public attitude to Pharmacists include Pharmacists are more accessible than other health care practitioners (62.7%), public sees Pharmacists as knowledgeable in drugs (58.8%) and awareness of Pharmacists role by public is low (54.9%) among other perceptions. Dispensing pattern of NSAIDs by Pharmacists shows that there were minimal prescriptions filling although most of the prescription frequently contained NSAIDs. Pharmacists perceived ibuprofen, diclofenac and piroxicam as those NSAIDs with high level of misused by the Public.

Keywords: Dispensing pattern, NSAIDs, Community Pharmacists, Community Pharmacy, Pharmacists' perception.

INTRODUCTION

Nonsteroidal anti-inflammatory drugs (NSAIDs) represent diverse group of drug with analgesic property and most frequently prescribed drug globally.¹ This is first choice of drug with well demonstrated efficiency for the pain management primarily musculoskeletal disorder and osteoarthritis to treat mild to moderate pain. Although their serious toxicity related to GIT limits their expediency.

The use of NSAIDs accounts for an estimated 76 000 hospitalizations and 7600 deaths in the United States² and 3897 hospitalizations and 365 deaths in Canada³ every year. These hospitalizations and deaths are majorly due to ulcer and gastrointestinal bleeding related to NSAID use. Irrational prescribing has further complicated the adverse effects from the use of NSAIDs.

Aside gastrointestinal toxicity, renal failure has been recently known to be a risk if the patient is also concomitantly taking an ACE inhibitor and a diuretic - the so-called “triple whammy” effect. Liver problems are also possible with the long term use of NSAIDs.⁴

Self-medication is widespread all over the world and occurs in both urban and rural population.^{5,6} These medications may be acquired with or without recommendation from qualified medical practitioners. Studies from within and outside the country has shown that NSAIDs are commonly abused by people and this could cause unwanted effects on the abusers.^{7,8,9-11}

Evaluation of drug use revealed that there was a great deal of drug misuse ranging from sub therapeutic dosing, wrong indication and irrational combination of drugs, even in high doses.¹²

Pharmacists are usually the custodian of drugs and are charged with the responsibilities of delivering safe and efficacious medicines to the public.¹³ Expanding the role of pharmacists is supported by evidence-based outcomes and existing innovative models. The benefits translate into improved consumer outcomes that support many tenets of health reform - enhanced access and quality of care, cost-effectiveness and patient safety. The Report is framed around four focus points that clearly articulate and present objective data that support the need for innovative practice models that include pharmacists as essential health care providers.

Based on current practice models, perceptions of pharmacists' roles, specifically as a health professional exclusively associated with drug product and delivery should now include many additional patient care, primary care, and public health services. It is essential to note that pharmacists currently provide multiple levels of direct and indirect patient care services in a variety of practice settings. Management of

disease through medication use - inclusive of Collaborative Drug Therapy Management (CDTM), Comprehensive Medication Management (CMM) or Medication Therapy Management (MTM), health promotion, patient safety, disease prevention, care coordination, follow-up care and other primary patient care services - are performed by pharmacists in a similar manner as other health care providers. The rationale for this practice model is the fact that once a diagnosis is made, patient care services rely on pharmacologic interventions as the major form of therapy. Data clearly suggest that medications are currently the cornerstone of chronic disease therapy, yet our health care system continues to fragment care and ‘reward’ reactive health care delivery models.¹⁴

Pharmacists have unique, comprehensive knowledge about the safe and effective use of medications and about the adverse effects of their inappropriate use. The provision of pharmaceutical care to individual patients involves pharmacists assessing the appropriateness of pharmacotherapy, counseling, and monitoring medication-use outcomes.

Health-system pharmacists have responsibilities for ensuring a safe and effective medication-use system, including legal and organizational responsibilities for medication distribution and control across the continuum of practice settings within health care organizations. With this combination of knowledge and organizational responsibilities, pharmacists are prepared to serve in leadership and service roles in substance abuse prevention and education and assist in a variety of patient care, employee health, and community activities.

It is as a result of the background above that this work aimed at assessing the dispensing pattern of NSAIDs among the community Pharmacists in Ilorin metropolis and also to assess their perception towards the use of NSAIDs in Ilorin metropolis.

METHOD

Settings

Ilorin metropolis is made up of three Local Government Areas (LGAs) namely: Ilorin West, Ilorin East and Ilorin South. The population figure of the study area according to 2006 population census was 777, 667 with Ilorin West; 364,666, Ilorin South; 208,691 and Ilorin East; 204,310.¹⁵

The study area has one tertiary health facility, University of Ilorin Teaching Hospital, two secondary health facilities and a host of primary healthcare centers. The metropolis also has a number of wholesale and retail pharmacies distributed across the three LGAs but more concentrated in Ilorin West LGA which host the state capital city, Ilorin. Many outlets of patent medicine stores are visible within the main city and other settlements across the three LGAs.

Study design

This is a survey type of research.

Study Population

The inclusion criteria include all community Pharmacists practicing in Ilorin metropolis while all Pharmacists not practicing as community Pharmacists and all patent medicine vendors and outlets were excluded. All community Pharmacists who consented to participate were used for the study.

Sample size determination

List of all Pharmacies was obtained from the department of Pharmaceutical services, Kwara state ministry of health. All the Pharmacies across the three Local Government areas in Ilorin metropolis were visited and only those who consented to partake in the survey were used. A total of 51 Pharmacists consented.

Data collection

Self-administered questionnaires were distributed to Pharmacists in community practice to elicit information on their demographic information and dispensing characteristics of NSAIDs in their Pharmacy. This was done between the 8am and 6pm when most

Pharmacies were opened and when there is a high chance of meeting the Pharmacist on duty. The questionnaire contained relevant questions relating to Pharmacists perception on various issues relating to NSAIDs and those relating to dispensing of NSAIDs in their various outlets.

However before the data collection, five questionnaires were pretested in Offa, Offa Local Government Area of Kwara State among the community Pharmacists.

Data analysis

The data from the questionnaires was sorted and properly checked to ensure that the questionnaires were filled correctly and completely. Data was coded and analyzed with the computer using the Statistical Package for Social Sciences (SPSS) software package version 16.

Analyzed data were presented in form of frequency tables, percentages, charts for descriptive statistic.

Ethical approval

Ethical approval for the study was granted by the University of Ilorin Ethical Review Committee with reference number: UITH/CAT/189/18^A/883

RESULTS

A total of 51 pharmacists participated in the study across the three Local Government Areas in Ilorin metropolis. The socio demographic data of the respondents are as shown on table 1. The mean age of the Pharmacists was 43.2 years with standard deviation of 8.4. The minimum age was 29 years while the maximum was 65 years.

The average year of experience was 16 years. The mean opening hours for the premises was 13.3 with maximum of 24 hours. The mean coverage hour per day by pharmacists was 7.6 with minimum of 3 hours. Average distance of pharmacy from an existing Clinic/ Hospital was 3.7 kilometer with maximum of 15 kilometer.

Table 1: Socio-demography and practice of Pharmacists in community setting

Demographic data	Options	Frequency (%) n= 51
Gender	Male	38 (74.5)
	Female	13(25.5)
Age (in years)	Less than 30	3(5.9)
	30-35	6 (11.8)
	36-40	10(19.6)
	41-45	16 (31.4)
	46-50	10(19.6)
	51-55	4 (7.8)
	56-60	2(3.9)
	61-65	2 (3.9)
Years of experience	Less than 10	7(13.7)
	10-20	30 (58.8)
	21-30	10(19.5)
	31-40	4 (7.8)
Other area(s) of experience	Hospital	16 (31.4)
	Industry/pharmaceutical distribution	9 (17.6)
	None	26 (51.0)
Highest level of education	B.Pharm	35 (68.6)
	M.Pharm	4 (7.8)
	FPCPharm	9 (17.6)
	Pharm.D	3 (5.9)
Ownership of premises	Pharmacists	30 (58.8)
	Non-Pharmacists	21 (41.2)
Available Length of Hours by pharmacists per day	Less than 5	7 (17.7)
	5-12	38 (74.4)
	More than 12	4 (7.8)
Estimated distance from an existing Health facility in kilometer	Less than 2	18 (35.3)
	2.0-3.9	16 (31.3)
	4.0-5.9	9 (17.6)
	6.0-7.9	2 (3.9)
	8.0-9.9	4 (7.8)
Number of prescriptions filled per week	Less than 20	31 (60.6)
	20-40	5 (9.8)
	41-60	2 (3.9)
	61-80	4 (7.8)
	81-100	3 (5.7)
	Above 100	6 (11.7)

Table 2 shows the Pharmacists perception on the residents' inappropriate use of NSAIDs by the residents. About 51% of respondents perceived the level of prescribed NSAIDs to be very high and among individual NSAIDs with Ibuprofen having the highest percentage of NSAID with high level of usage. In addition, more than half of the respondents perceived the use of diclofenac, and piroxicam to be high. It also shows the Pharmacists' response on frequency of receipt of prescription containing NSAIDs in their community Pharmacy settings. Close to half of the respondents there are very frequent receipts of prescriptions containing NSAIDs. While another 45% also agreed that prescription containing NSAIDs are also frequent.

Table 2: Frequency of prescriptions with NSAIDs received and Pharmacists perception on the residents' inappropriate use of NSAIDs by the residents

Variables	Options	Frequency (%) n= 51
Perceived level of prescribed NSAIDs	Very high	26 (51.0)
	High	14 (27.5)
	Low	5 (9.8)
	Very Low	3 (5.9)
Frequency of receipt of prescriptions containing NSAIDs	Undecided	3 (5.9)
	Very frequent	25 (49.0)
	Frequent	23 (45.1)
	Occasional	2 (3.9)
Perceived level of inappropriate use of individual NSAIDs by the residents	Rare	1 (2)
	Very high	20 (39.2)
	High	29 (56.9)
	Low	2 (3.9)
Diclofenac	Very high	14 (27.5)
	High	29 (56.9)
	Low	8 (15.7)
Piroxicam	Very high	14 (27.5)
	High	29 (56.9)
	Low	8 (15.7)
Aceclofenac	Very high	0 (0)
	High	4 (7.8)
	Low	39 (76.5)
Aspirin	Very high	3 (5.9)
	High	7 (13.7)
	Low	42 (80.4)
Ibuprofen	Very high	24 (47.1)
	High	23 (45.1)
	Low	4 (7.8)
Ketoprofen	Very high	0 (0)
	High	0 (0)
	Low	47 (92.2)
Celecoxib	Very high	0 (0)
	High	0 (0)
	Low	49 (96.1)
Meloxicam	Very high	0 (0)
	High	7 (13.7)
	Low	28 (74.5)
Naproxen	Very high	2(3.9)
	High	2(3.9)
	Low	44(86.3)
Indomethacin	Very high	2(3.9)
	High	4(7.8)
	Low	45(88.2)

Table 3 summarized the Pharmacist perception of Public attitude to Pharmacists. About 62.7% of the respondents said that Public believes the Pharmacist are more accessible than other health care practitioners.

Table 3: Pharmacists' perception of Public attitude to Pharmacists

Options	Frequency (%) n= 51
Awareness of Pharmacist's role is low	28 (54.9)
Public sees Pharmacist as knowledgeable in drugs	30 (58.8)
Public confused role of Pharmacist with doctor	18 (35.3)
Public lack willingness to pay for extra charges for care provided	20 (39.2)
Pharmacist more accessible than other health care practitioners	32 (62.7)

DISCUSSION

Results of survey conducted on Pharmacists in Ilorin indicated that there were more male pharmacists than female practicing in Community Pharmacy. The age range of the respondents cuts across young, middle age and old Pharmacists. Almost half of them had previous experience in either Hospital or Industrial Pharmacy which indicated their wider scope of experience. Less than two-third of them had post Bachelor of Pharmacy with clinical affiliation related training and this may limit their ability to provide optimal patient oriented services. Majority of the Pharmacists provide adequate number of hours in their premises. This is consistent with a study obtained in Warri where Pharmacists were present in most hours of the day.¹⁶

More than 75% of the Pharmacies were within a distance of 5 kilometer from an existing Health Facility which if effectively utilized, could promote healthcare system integration which make pharmacy part of the patient pathway by

formalizing patient referrals to nominated pharmacies for follow-up, assisting with registration with a chosen pharmacy for advice about new medicines, and offering community-based monitoring and management.¹⁷ Obviously, there was no professional collaboration between the Pharmacies and the Health care facilities as there were minimal prescriptions refilling with over 60% of them receiving less than 20 prescriptions per week. The minimal numbers of prescriptions may however also be attributed to the inflow of patients receiving treatment at the nearby facility. If the health care facility is poorly patronized, then the number of prescription is very likely to be low and vice versa.

In addition, results from this study shows that among the few prescriptions received by the community Pharmacists, almost all the prescription are those containing one NSAIDs or the other. This goes to show that a lot of members of the public have an ailment or the other requiring the use of NSAIDs which may also be the possible cause of the frequent abuse of the drug. Another possible reason for frequent abuse of the drug is the fact that NSAIDs are over the counter medication and therefore obtainable without a prescription.

Pharmacists' perceived level of NSAIDs prescribing and misuse by the public were viewed to be high with ibuprofen, diclofenac and piroxicam leading the most misused NSAIDs while celecoxib, ketoprofen and naproxen were found to be the least misused. The perception of the pharmacists was consistent with the study of Wu and his group , and Hackethal in 2015 where ibuprofen was found to be the most commonly abused NSAID.^{18,19} It could also be noted that the least misused NSAIDs are the more expensive ones which may be the possible cause why patient less frequently abuse them.

On the perception of public attitudes towards them, members of the public view the pharmacists as more accessible than other healthcare providers. This may be because Pharmacies are usually more in numbers than

places like hospitals and they are located very near the homes of the general public. The general public thus, sees the pharmacies as the immediate point of contact where they can get good and affordable healthcare which may also be the reason why about 39.2% of respondents said that public are usually not ready to pay for extra charges of the care given by pharmacists.

About a half of respondents also mentioned that the public awareness of pharmacists' role is low. This is an aspect the Pharmacists need to work on. The role of the Pharmacist should be well spelt out to the public and also distinguished from the role of the medical doctors to counter public confusion of the roles of the two professions as mentioned by some respondents. In addition, the relevance of pharmacists in the healthcare team has in one way or the other been pointed out in this present study as it was similarly obtained by a study carried out in 2014 by Al-Quteimat where evidence had shown improvement in health care provision resulting from pharmacist effective participation.²⁰ The various results obtained above has shown that information related to certain health issues can be obtained to a large extent from the Pharmacists and the information obtained can help a great deal in taking decisions related to the topic in question.

CONCLUSION

Dispensing pattern of NSAIDs by Pharmacists shows that there were minimal prescriptions filling with over 60% of them receiving less than 20 prescriptions in a day although most of the prescription frequently contained NSAIDs. Pharmacists perceived ibuprofen, diclofenac and piroxicam as those NSAIDs with high level of misuse by the Public. It is however, recommended that Pharmacists should enlightens patients who comes to their outlet to purchase NSAIDs on the dangers of misuse of these groups of drugs. This will go a long way to curb the menace. Similar studies can also be conducted in other parts of the country to compare and contrast results obtained and also reveal the pattern of use and misuse across the entire country.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.