Assessment of Health Information Use and Medication Safety Practice among Pharmacists in Public Secondary Hospitals in Southwest, Nigeria.

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Abstract

Medication safety is fundamental in the delivery of quality care anywhere in the world. Unsafe medication practice may result in patient harm or life-threatening situations. Pharmacist's knowledge of current medication management is important in preventing medication errors and ensuring patient well-being. This study examined the influence of health information use on medication safety practice in public secondary hospitals in South-West Nigeria. It is a survey, and structured questionnaire was used to collect quantitative data from 32 pharmacists across 10 secondary hospitals in Southwest, Nigeria. Descriptive statistics and regression analysis were used to quantify the results. Results show that medication safety practice among pharmacists was high with a mean of 3.2. Health information use by pharmacists was moderate with a mean of 2.18 and on a scale of 4 respectively. Pharmacists who practice pharmaco-vigilance always, 46.9%, only 12.5% always use barcode to verify genuine medication and 37.5% always monitor the administration of classified and high alert and toxic medications to patient. The indicators of health information use (sources and purpose) jointly influence medication safety practice significantly. Health information use, drug pharmaco-vigilance, verification of genuine drugs; and monitoring the administration of highly toxic drugs practices are found to be inadequate. The study recommended that pharmacists need keep abreast of current information on medication safety practice. There is a need for government to deploy computers with internet access and subscription to information resources in public hospitals pharmacies.

Keywords: *Medication safety practice, Health information use, Drug safety, Drug pharmaco-vigilance, Medication safety*

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Background to the Study

Medication safety is a fundamental and major predictor of quality of healthcare. Patient harm attributed to medication related adverse events are common incidents in hospitals and have serious quality of life implications. The role of pharmacists in disease and drug therapy management, including is crucial. Unsafe medication practice is considered a leading factor in the harm and death of millions of patients annually in the hospital around the world. Medication errors can occur at any point of prescribing, dispensing, administration, or monitoring of drugs given to patient therapy in hospitals. Unsafe medication practice may result in low-to-moderate harm; or result in life-threatening situations such as adverse drug reactions and organ failures due to drug poisoning. Evidence from the literature has associated medication errors to a high morbidity and mortality of patients in hospitals (Assiri, Grant, Aljadhey, & Sheikh, 2016). Every four out of ten patients harmed during healthcare are due to errors related to treatment, prescription and the use of medicines (WHO, 2019). An estimated that 1.5 million patients are harmed and thousands are killed every year in the United States due to medication safety issues in hospitals (Moody-williams, 2019). Medication errors have cause 12,000 deaths per year in the UK. Mekonnen, Alhawassi, McLachlan, Brien (2018) in a study conducted in hospitals in 9 African countries, reported a total of 11.2% medication errors and adverse drug events. Ogunleye, Oreagba, Falade, Isahe, Enwere, and Olayemi (2016) reported a 47% prevalence of self-reported medication errors among healthcare professionals in Nigeria. Iloh, Chuku, and Amadi, (2017) found a 42.8% prevalence of medication error among healthcare professionals in eastern Nigeria. Brian, (2016) revealed prescription and poor knowledge of therapeutics as major causes of medication errors in Nigerian hospitals in eastern Nigeria. Ogunleye etal (2016) opined that unsafe medication practices are indicators of failures in the treatment process with the potential to cause harm to patients. A significant percent of all medication errors are preventable (Alreshidi, 2016). This is because pharmacist's adequate knowledge of drugs and therapeutic management is fundamental in ensuring safe medication practice among pharmacists.

The efficient use of drug information is an important skill for all pharmacists in order to ensure safe medication practice. Pharmacists should be conversant with what drug information resources are available to use when confronted with uncertainty in medical practice. Pharmacists need information in different forms on drug prognosis, compositions, interactions and counter-indications, and dosage. In order to make proper decisions that can ensure safe medication, pharmacists need timely, relevant, reliable, trustworthy and current information to improve their knowledge. In addition to information preserved in their memories as tacit knowledge, pharmacists need seek information to update their professional knowledge and align their medication practice with contemporary methods and procedures. Errors in medication safety practice can be greatly reduced or eliminated with adequate use of health information by pharmacists. Pharmacist's ability to access reliable to improve medication safety practice is very germane. Pharmacists need to be familiar with the current sources of information on drugs to be able to support patients in interpreting the information safely for patient use. Primary sources are the most up-to-date available resource and consist of journal articles reporting original research, new ideas, or opinions that can inform

knowledge on contemporary. Pharmacist also need tertiary sources such as textbooks, handbooks, reviews, and compendia that condense and summarize data from the primary literature, written by experts in the field and are peer reviewed. Expectedly, pharmacists should have the skill to evaluate the credibility, validity, and reliability of the information before used to manage patient medication (Kier & Goldwire, 2018). The internet provides rapid access to extensive drug information sources, however, the pharmacists must be proficient in search terms and techniques structure and terminology of these databases to search effectively Pharmacist use of health information in clinical medication practice remain understudied in Nigeria. Hence, this study assess medical safety practice estimate the prevalence of self-reported medication errors among pharmacists and examine their health information use in promoting safe medication practice.

Objectives of the Study
The broad objective of this study is to examine the influence of health information use on medication safety practice in public secondary hospitals in South-West, Nigeria.

The specific objectives are:
    i.   Assess medication safety practice in public secondary in South-West, Nigeria hospitals;
   ii.   Examine health information sources used by pharmacists in public secondary hospitals in South-West, Nigeria.

Research Questions
    i.   What are the medication safety practices in public secondary hospitals in South-West, Nigeria?
   ii.   What are the sources of health information used by pharmacists in secondary hospitals in South-West, Nigeria?

Hypotheses
  H_0:   There is no significant relationship between health information used and medication safety practice in public secondary hospitals in South-West, Nigeria

Literature Review
Health Information Use
The field of medical science is complex and changes rapidly in terms of knowledge and skills required to provide quality and safe healthcare delivery. Physicians, pharmacists and nurses need timely, relevant, reliable and current health information to boast their knowledge in providing efficient care to patients. Health information provide healthcare professionals with facts and ideas related to a patient medical symptoms, diagnoses, procedures, treatment methods, medication options and possible outcomes. Unequivocally, the depth of quality and safety of care received by a patient may be determined by the depth of knowledge and skills possessed by caregivers. According to Hansen and Wood (2011), successful delivery of medical practice requires the use of health information to improve medication safety among

other issues. Inevitably, pharmacists cannot practice successfully without regularly updating their knowledge on issues bordering on current and emerging medication management. Furthermore, pharmacists encounter numerous questions from patients on how to manage their health conditions and as such need current information to respond to such questions. Ultimately, healthcare professionals need health information frequently to increase their professional knowledge base and to satisfy enormous and complex healthcare demands from patients.

Udezi, Oparah, and Enyi, (2007) in a study to investigate drug information needs of Nigerian Pharmacists reported that therapy-specific information constitutes the drug information needs of the respondents. Textbooks and pocket reference books were the most-used sources of drug information. Komolafe-Opadeji, (2009) in a study on developing library collections for pharmacists, reported that in Nigeria, pharmacists' health information needs are related to new medicines and administration of drugs. Generally, pharmacists consider useful health information on new drugs, its efficacy, safety, side effects, interaction and contra-indication with other products. Abbas, Abubakar, Omeiza and Minoza, (2013) in a survey conducted among health workers in a teaching hospital in Nigeria discovered that printed materials remained the preferred source of medical information among healthcare professionals. Andualem, Kebede and Kumie (2013) reported that healthcare professionals prefer hard copies of health information sources and asking senior colleagues for health information to meet their health information needs. Crow, Broussard, Dong, Finn, Wiley, and Geisler (2012) reported from a study conducted that many healthcare professionals could not afford to subscribe to online health information resources due to financial constraints. Therefore, healthcare professionals lack access to relevant and up-to-date health information for patient care. Consequently, senior colleagues of pharmacists remained as sources of information for junior pharmacists, Adisa, and Fakeye, (2006) found that most of the community pharmacists did not possess adequate knowledge of potential interaction profiles and side effects of the herbal drugs in their outlets and recommended an urgent need to improve knowledge through information. Osemene and Erhun (2016) in a study identified mobile phones, and the internet as predominant technologies used by pharmacists in decision-making. They further suggested the use of advanced technologies by community pharmacists in order to improve the quality of care and be able to cope with the ever expanding roles of the pharmacy profession.

Rains and Ruppel (2013) expounded a lack of awareness of certain health information sources as limiting information used by healthcare professionals. Hu, Sun and Li (2013), emphasized the need to equip health professionals with knowledge of health information resources. In a study conducted to evaluate knowledge of community pharmacists in Southwest. Kostagiolas, Bairaktaris, and Niakas, (2010) stated that pharmacist's role can be greatly enhanced through constant updating of knowledge on drugs related health information to improve their clinical role in ensuring safe use of drugs, wellness and good health of patients. Pharmacists in hospitals are to ensure that safe and effective therapeutic plans are adopted by physicians for optimum results when treating patients. Adequate training will help pharmacists identify genuine and counterfeit drugs and manage complications linked to drug adverse reactions. These actions are prevention of adverse drug reactions resulting in situations such as disability

or death of patients. Oqua, Agu, Isah, Onoh, Iyaji, Wutoh et al. (2013) in a study reported the provision of access to patients' clinical information in all pharmacies as a paradigm shift for pharmacist's practice of individual counseling on medication use to patients at pre-intervention compared to 73.2% at post-intervention; and 11.7% of pharmacies had evidence of monitoring and reporting of suspected adverse drug reaction at pre-intervention compared to 73.3% at post-intervention. They observed that individual counseling of patient on medication use has contributed in diverse ways to better monitoring of patients on pharmacotherapy by pharmacists anti-retroviral management in Nigeria.

Medication Safety Practice
Ogunleye, Oreagba, Falade, Isahe, Enwere, and Olayemi et al. (2016) in a national survey among pharmacists reported a high prevalence of medication errors among health care professionals in Nigeria. They identified knowledge gaps and practice deficiencies requiring interventions necessary to boast medication safety practice. Udi and Ezenduka, (2018) in a study, reported a 90.5% of pharmacists being involved in medication errors and the common reasons for not reporting medication errors was a concern of being blamed or fear of reprimanded by the hospital management if something happens to the patient due to the error. Ogunnowo, Olufunlayo and Sule, (2015) opined that incidences of wrong drug labeling, incorrect dosage, inaccurate dispensing and drug mix-up in public hospitals are all consequences of poor medication safety culture. Iloh, Chuku and Amadi (2017), in a study on medical errors among medical practitioners in Abia State, Nigeria, medication prescription errors is highly common in hospitals due to inadequate information related to drug management.

According to Ojerinde, and Adejumo, (2014), a study conducted on medication safety reveal that 52.5% of the pharmacists commit medication errors such as wrong labeling of patient name (23.7%), followed by dosing errors (17%) in the last ten years. Other causes of MEs cited by respondents include poor labeling and packaging, illegible doctors" prescription, distraction, misinterpretation of prescription, confusion between two similar drug names and poor knowledge of drugs. The study revealed incomplete prescription information, poor knowledge of therapeutics and prescription writing poor working conditions. Anyika and Omosebi (2016) found high error ratings in the dimensions of committing dispensing errors, reporting, clarification of prescriptions, supervising staff, inter-professional relations, availability of information and structural/environmental effects. Use of technologies, high work pressure and staff inadequacy for the existing workload were rated low, all of which have implications for aggravating prescribing errors.

Babatunde, Akinbodewa, Akinboye, and Adejumo, (2016) in a study on prescription errors in a Nigerian kidney hospital reported a 75.0% prescription errors of varying forms; 52.2% had an error of illegitimacy, 45.9% had an error of omission, wrong dosing was found in 1.9% prescriptions while error of style was not encountered. Demehin, Babalola, Erhun, (2008) reported in a study that 80% of the pharmacists cited incorrect drug, incorrect strength of drug 70% and wrong dose of drug (0% as the most common dispensing errors. Fifty percent of pharmacists put the estimated frequency of occurrence of these dispensing errors at 1 per 100

prescriptions dispensed. Ekama, David, Musa, Olojo, Herbertson, Oladele (2019) in a study on antiretroviral prescriptions reported medication errors of 57.1% and 78 (42.9%) among doctors and pharmacists respectively. Result showed that errors were majorly for female patients on first line antiretroviral drug regimen, in the age group 41-50 years and according to the NCCMERP index of the error type D. The commonest medication errors were omission errors (36.5%), unsigned prescriptions (33.3%) and omitting prescribed drugs from dispensed drugs (28.2%) ranked highest among pharmacists' errors. Doctors and pharmacists (53.3% and 75% respectively) with < 5years HIV care experience had higher error rates. Medication errors was mostly associated with cotrimoxazole therapy.

Ajemigbitse, Omole, and Erhun (2013) in study on errors in drug prescribing, reported slip, distractions, and inadequate training, the absence of reference materials as responsible for medication errors and recommend training on good clinical practice. In a similarly study, Ajemigbitse, Omole and Erhun (2016) reported that feedback and educational intervention interventions led to modest changes in prescription written and opined that constant feedback and education will ensure reduction in prescription error. Akoria and Isah (2008) in a study on prescription standard in hospitals in Benin, Nigeria concluded that most prescriptions lacked the required details and were not legible. Oshikoya and Ojo (2007) in a study on medication errors at the Paediatric outpatient department of Lagos State University Teaching Hospital and reported several forms of errors to include short medication dosing duration, improper dosing and prescription of drugs, the omission of age dosage and duration of drug use as deviating from WHO standard.

Methodology
Materials and Methods
A hospital-based survey study conducted in 10 public secondary hospitals in South West, Nigeria. Study population consists of 287 pharmacists. Proportionate and convenient sampling technique was used to select a sample size of 32 pharmacists in general outpatient departments (GOPD) of the hospitals. The research instrument was a self-developed questionnaire with thirty-three items divided into three sections. Section A: Socio-demographics consisting of 4 items ranging from age, gender, marital status and educational background. Section B: Medication Safety Practice with 13 items Section C: Sources of Health Information Use consisting of 17 items.

Data Analysis
The data collected were analyzed using SPSS 20. Descriptive statistics including frequencies, percentages, means and standard deviations and regression was used to present the results of the analysis.

Ethical Issues
Ethical approval was obtained from the Babcock University Health Research Ethics and State Ministry of Health and State Health Service.

Results and Discussion
Results
Table 1: Demographic Characteristics of Pharmacists

Variables	Pharmacists n = 32
	Frequency (%)
Age	
18-34yrs	13 (40.6)
36-45yrs	18 (56.3)
46-55yrs	1 (3.1)
>55yrs	-
Gender	
Male	5 (15.6)
Female	27 (84.4)
Marital Status	
Single	6 (18.8)
Married	26 (81.3)
Separated	-
Education level	
B. Pharm	18 (56.3)
MSc/ M. Pharm	8 (25.0)
PhD	-
Fellowship	6 (18.8)
Length of Practice	
1-5yrs	9 (28.1)
6-10yrs	13 (40.6)
11-15yrs	6 (18.8)
16-20yrs	3 (9.4)
>20yrs	1 (3.1)

Source: Survey (2019)

A total number of 32 pharmacists were sampled and included in the analysis, out of which 5(15.6%) are males and 27 (84.6%) are females. The majority, 84.4% of pharmacists are female, while 15.6% are male. The percentage of pharmacists aged 36-45 years (56.3%), 18-34 years (3.1%) and 18-34 years (40.6). Pharmacists who are married are 26 81.3% and (6) 18.8% are single. The pharmacists with the basic B. Pharm qualifications are 56.3%, M. Pharm 25.0% and 18.8% have fellowship degrees. Pharmacists who have worked between 6-11years (40.6%), 11-15years (28.1%), 11-15 years (18.8), 16-20 year (9.4) and >20 years (3.1%). Out of 32 pharmacists, (9) 28.1% are Chief Pharmacists, (6) 18.8% Assistant Chief Pharmacists, (2) 6.3% Deputy Director Pharmacists, (1) 3.1% Director Pharmacist and Consultant Pharmacist, respectively.

Table 2: Medication safety practices among pharmacists

Variable (n=32)	Always Freq. (%)	Sometimes Freq. (%)	Occasionally Freq. (%)	Rarely Freq. (%)	Mean	SD
I am involved in Pharmacovigilance (drug toxicity and reaction monitoring)	15 (46.9)	6 (18.8)	6 (18.8)	5 (15.6)	2.97	1.150
I label and place classified / high-alert/toxic substances in safe custody away from regular stock	16 (50.0)	10 (31.3)	3 (9.4)	3 (9.4)	3.22	.975
I monitor shelf-life of classified / high-alert / toxic medications	20 (62.5)	6 (18.8)	5 (15.6)	1 (3.1)	3.41	.875
I monitor the administration of classified /high-alert / toxic medications to patients	12 (37.5)	5 (15.6)	7 (21.9)	8 (25.0)	2.66	1.234
I consult safety checklist to dispensing non-routine / unfamiliar dugs	19 (59.4)	8 (25.0)	5 (15.6)	(-)	3.44	.759
I use numbers and barcodes to verify genuine medications before dispensed to patient	4 (12.5)	4 (12.5)	(-)	24 (75.0)	1.63	1.129
I review therapeutic appropriateness of medication prescribed to patient	11 (34.4)	8 (25.0)	10 (31.3)	3 (9.4)	2.84	1.019
I assess patient history of allergies, reactions and contraindications before dispensing drugs to patient	13 40.6	11 (34.4)	7 (21.9)	1 (3.1)	3.12	.871
I check prescription strength, dosage, rate, route and timing of drug administration to patient	24 (75.0)	2 (6.3)	5 (15.6)	1 (3.1)	3.53	.879
I give patient information on medication, usage, dose and side effects	16 (46.9)	17 (53.1)	(-)	(-)	3.47	.507
I label medication with drug name and dosage	32 (100)	(-)	(-)	(-)	4.00	.000
I confirm patient's name, age and sex before handing over drugs to patients	13 (40.6)	16 (50.0)	3 (9.4)	(-)	3.31	.644
I respond to patients questions / clarifications on their drugs	32 (100)	(-)	(-)	(-)	4.00	.000
Average weighted mean					**3.20**	
Average weighted SD						**0.78**

Source: Survey (2019)

According to statistics displayed in table 2, only 46.9% are involved in toxicity and adverse reaction tracking of drugs given to patients. Also, 50% always label classified and toxic drugs stocked. Pharmacists who always monitor shelf-life of classified/high-alert and toxic medications are 62.5%. Only 37.5% of pharmacists always monitor the administration of classified high alert and toxic drugs to patients. A slightly higher average of 59.4% of the pharmacists always consult safety checklist before dispensing non-routine/unfamiliar drugs to patients. A very low percentage, 12.5% of the pharmacists always use standard verification guidelines (number and barcodes) to verify the genuineness of drugs that are dispensed to

patients in these hospitals. Precisely 34.4% of the pharmacists always review therapeutic appropriateness of medication prescribed to patient and 40.6% of respondents always assess patients' history of allergies to certain drugs before dispensing drugs. Pharmacists who confirm the patient's name and sex before handing over drugs to them are 40.6%, and 46.9% always give patient information on usage, dosage and drug side effects. Pharmacists who always consult safety checklist to dispense non-routine or unfamiliar drugs to patients are 59.4%. However, 100% of the pharmacists claim they respond to questions or clarification from patients regarding drug use, 100% of the pharmacists label drugs given to patient's names and dosage and 75% check prescription strength, dosage, rate, route and timing of drug administration to patient. The use of numbers and barcodes to verify genuine medications before dispensed to the patient had the lowest mean score of 1.63 and of SD 1.129. Medication safety practice among pharmacists was moderately high, with an average weighted mean of 3.20.

Table 3: Sources of health information used by pharmacists

Health Information Sources Used (n=32)	Highly Used Frequency (%)	Fairly Used Frequency (%)	Used Frequency (%)	Not Used Frequency (%)	Mean	SD
Consultant	13 (40.6)	13 (40.6)	3 (9.4)	3 (9.4)	3.12	.942
Professional Colleague	13 (40.6)	13 (40.6)	3 (9.4)	3 (9.4)	3.12	.942
Online network of clinics & experts	7 (21.9)	3 (9.4)	5 (15.6)	17 (53.1)	2.00	1.244
WHO Virtual Biomedical Collection & Archives	5 (15.6)	2 (6.3)	14 (43.8)	11 (34.4)	2.03	1.031
Biomedical Evidence Based Sources	6 (3.1)	8 (12.5)	13 (21.9)	5 (15.6)	2.47	.983
Biomedical Dissertations / Thesis	1 (3.1)	4 (12.5)	7 (21.9)	20 (62.5)	1.56	.840
Hospital Information Systems	1 (3.1)	8 (25.0)	11 (34.4)	12 (37.5)	1.94	.878
Biomedical Peer Review Journals	6 (18.8)	20 (62.5)	6 (18.8)	(-)	2.00	.622
Biomedical Database	2 (6.3)	5 (15.6)	8 (25.0)	17 (53.1)	1.75	.950
Google Scholar	5 (15.6)	9 (28.1)	10 (31.3)	8 (25.0)	2.34	1.035
Biomedical Books	9 (28.1)	12 (37.5)	7 (21.9)	4 (12.5)	2.81	.998
Biomedical Reference Materials	7 (21.9)	13 (40.6)	9 (28.1)	3 (9.4)	2.75	.916
Biomedical Magazines	2 (6.3)	7 (21.9)	13 (40.6)	10 (31.5)	2.03	.897
Biomedical Newsletters	1 (3.1)	7 (21.9)	11 (34.4)	13 (40.6)	1.87	.871
Professional online chat room	6 (18.8)	2 (6.3)	24 (75.0)	(-)	1.44	.801
Search engines	10 (31.3)	6 (18.8)	7 (21.9)	9 (28.1)	2.53	1.218
Biomedical Blogs	1 (3.1)	2 (6.3)	4 (12.5)	25 (78.1)	1.341	.745
Average weighted mean					**2.18**	
Average weighted SD						**0.94**

Source: Survey (2019)

It is implied in table 3, that professional colleagues were highly used by 40.6% of the pharmacists. Online network of clinics & experts was not used by 53.1% of the pharmacists and WHO biomedical virtual collection /archives are fairly used by 43.8% of pharmacists. Biomedical evidence-based sources and biomedical dissertations/thesis are generally used by

29.1% of the pharmacists, respectively. Hospital Information Systems/Electronic Medical Records is generally used by 34.4% and not used by 37.5% of the pharmacists. Biomedical peer review journals are fairly used by 62.5%, and the biomedical database is not used by 53.1% of the pharmacists. Google Scholar is generally used by 31.3% of the pharmacists as sources of information and biomedical books are fairly used by 37.5% pharmacists. A less than average, 40.6% of the pharmacists fairly used biomedical reference materials and 40.6% generally used biomedical magazines. Biomedical newsletters are generally used by 34.4% of the pharmacists, while 75.0% of the pharmacists generally used professional online chat rooms are sources of health information. Search engines are highly used by 31.3% of the pharmacist, while 78.1% do not use biomedical blogs as health information sources.

Hypotheses Testing

The following hypotheses will be tested at 0.05 level of significance:

Hypothesis 1: Health information use does not significantly influence patient safety in public secondary hospitals in Lagos State, Nigeria.

Table 4: Regression analysis of influence of health information use on medication safety

Model	Predictor	Unstandardized Coefficients		Standardized Coefficients		t	R	R^2	F	P
		B	SE	B	P					
	(Constant)	9.734	7.894		.227	1.233	0.604	0.365	8.331	0.001
	Sources of Information	.135	.087	.273	.133	1.545				
	Purpose of information	.525	.225	.411	.027	2.328				
	MEDICATION SAFETY PRACTICE									

Predictors: (Constant), Sources of Information (Health Information Used)   Dependent variables: Medication Safety Practice.

Source: Research Output (2019)

In table 4, results above showed the r-value of 0.604 meaning there is a positive and moderately strong relationship between Health information used and medication safety practice at 5% level of significance. The R-square value of 0.365 indicates that only 36.5% of the variability in medication safety practice can be explained by health information used (purpose and sources of information). It also tells that 63.5% of the variability in medication safety practice is accounted for by other variables other than health information used. Based on the results above: Test statistic (F-value) = 8.331, p-value = 0.001, Level of Significance (α) = 0.05. Decision Rule: If P < α (specified level of significance) rejects Ho, if otherwise fail to reject and conclude accordingly. Conclusion: Since p < α, i.e. 0.001 < 0.05, then we reject Ho

and conclude that health information use has a significant influence on medication safety practice. The indicators of health information use (sources and purpose) are potent predictors of medication safety practice (Beta=.273; .411, t = 1.545; 2.328, P<0.01). This implies that if health information use is increased, medication safety will improve.

Discussion
Medication safety practice in this study was found to be high, with an average weighted mean of 3.2. However, findings reveal that pharmacists do not always verify genuine or counterfeit drugs by barcodes when stocking and dispensing drugs to patients. They also do not always monitor the administration of highly toxic drugs on patients in the hospitals, and this could lead to adverse drug events in the patient. Wang, Brummond, and Stevenson (2016) reported that barcode scanning of drugs is superior to visual checking by a pharmacist in detecting dispensing errors in a study conducted to comparing barcode scanning and visual checks for product verification. The study findings reveal that health information use by pharmacists was barely moderate, with an average weighted mean of 2.18. Also, pharmacists highly use their professional colleague as a source of information compared to biomedical scientific sources. This finding is inconsistent with the findings of Kostagiolas, Aggelopoulou, and Niakas, (2011) that reported internet and the National Organization of Medicines as the main information sources of pharmacist when seeking information. The variable and indicators and indicators of health information use (sources and purpose) jointly have a positive effect on medication safety practice.

The multiple regression analysis shows positive relationships between health information use and medication safety practice. By implication, the higher the health information use practice by physicians, pharmacists and nurses, the higher the level of safety practices and patient safety. This finding is in consonance with findings made by Jylhä, Mikkonen, Saranto and Bates (2017) who underscored the effective use of information as a predictor for minimizing the occurrence of adverse events and failures in medication errors that may affect patient safety in hospitals. It further emphasized that information use should be a continuous cycle in hospitals and that hospital information management practices will create conditions for avoiding failures that could lead to adverse events on the patients. The plausible explanation for inadequate use of health information among healthcare professionals in this study may be associated with lack of access to real-time, point-of-care subscriptions to electronic biomedical information resources. As such, colleagues constitute quick information access, this implies that the quality and quantity of information gotten to improve medication management is limited to the tacit knowledge of their colleague. This method of information or knowledge acquisition is a very defective and subjective method of knowledge and skill development and may potent delicate lapses in ensuring safer medication practice.

Conclusion and Recommendation
Health information use among pharmacists in clinical practice is inadequate and their pharmaco-vigilance practice in ensuring verification of genuine drugs and monitoring the administration of highly toxic drugs on patients are also inadequate. Pharmacists need keep abreast of contemporary information on medication safety practices. There is need for

government to deploy computers with internet access and subscription to drug information at dispensing points in hospitals. Government also need to improve efforts and commitments to identifying and promoting capacity development of healthcare professionals in a manner that will aid safety practices and improve patient wellbeing.

Competing Interests
Authors have declared that no competing interests exist.

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