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Knowledge, Attitude and Bioethical Dilemmas in Community and Hospital Pharmacy Practice in Port Harcourt, Nigeria

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Abstract

Background: As a community, hospital, or clinical pharmacist, a pharmacist's job is to provide medication-related healthcare services. There have been more ethical challenges as pharmacy practice has shifted from being product-focused to patient-oriented, however, the pharmacist must follow applicable laws or good pharmacy practices. Generally speaking, community and hospital pharmacists must constantly strike a balance between patient autonomy rights guaranteed by law and interventions meant to enhance patient outcomes. This study aims to investigate bioethical worries and ethical dilemmas among community and hospital pharmacists in Port Harcourt, Nigeria. Considering these moral conundrums will undoubtedly aid in addressing the difficulties pharmacists encounter in their line of work.

Methods: The data was gathered using a questionnaire. The participants were those who attended the Mandatory Continuous Professional Development (MCPD) training that was held in 2019 by the Pharmacists Council of Nigeria and the Faculty of Pharmaceutical Sciences, University of Port Harcourt. For inferential analysis, statistical techniques like *Chi square* analysis, cross tabulations and Cronbach's reliability tests were applied. Modes, frequency and percentages were used for descriptive analysis.

Findings: Participants were made up of males and females (52.4% and 47.6% respectively, $p>0.05$) and the majority of them practiced community pharmacy (70.7%, $p<0.05$) and had B.Pharm degrees as highest level of education (69.5%, $p<0.05$). Most had between 11 years and 20 years of experience (38.46%, $p<0.05$). Even though they generally had a positive attitude toward bioethics and promoted good bioethical practices (93.02%, $p<0.05$), the study showed that they frequently encountered ethical issues in their practice (48.84%, $p<0.05$). Additionally, it was noted that community pharmacists deal with more ethical challenges than hospital pharmacists ($p<0.05$).

Conclusion: This study reveals the gaps in Port Harcourt's pharmacy practice, particularly with regard to bioethics in pharmacy practice and offers recommendations for how to make it healthier, especially for community and hospital-based pharmacy practice.

Keywords: Bioethical dilemma; Ethical dilemma; Pharmacy practice; Community pharmacy; Hospital pharmacy; Pharmacist; Health care

Introduction

Pharmacists habitually provide integrated, accessible, accountable healthcare services in a variety of practice settings such as community and hospital and clinical [1,2], in dissimilar operational areas in different countries [3,4]. Pharmacy profession is practiced in three main areas of pharmacy practice: Community, clinical and hospital; though other practice areas abound. Every place (including community pharmacy) where medication is used for the prevention, diagnosis and treatment of any clinical condition, that is considered to be the interface of pharmacist and patient, should be recognized as the pharmacist's clinic [5].

Community pharmacists are the most accessible healthcare professionals [6,7], the third largest healthcare professional group in the world after physicians and nurses [8] with multifaceted pharmaceutical services and multidisciplinary responsibilities in a complex healthcare system. As pharmacy practice is transiting from product-oriented to patient-oriented health care services, the community pharmacists are inundated with myriads of roles. Community pharmacist diverse role includes medication reviews, minor/common ailment management, pharmacist prescribing for existing prescriptions, smoking cessation counseling and administration of injectable drugs and vaccinations [9], patient-oriented medication counseling activities [10]; medication of veterinary patients [11]. Others may include emergency medication refills, renewals/extensions of prescriptions, changes to doses or formulations, therapeutic substitution, prescribing for minor ailments, initiation of prescription drug therapy, ordering and interpreting laboratory tests and administering drugs by injection [12]. Community pharmacists assess the appropriateness of prescriptions, educate patients about the medications and disease states prior to releasing the prescriptions, monitor the effectiveness and safety of prescription medications and encourage patients to engage in self-management with non-pharmacologic strategies. A systematic review of community pharmacist's healthcare roles includes playing a major role in the health outcomes of patients by their interventions in medication

adherence and quality use of medicines [13,14]. In public health, the community pharmacists evaluate the effectiveness, accessibility and the quality of personal and population-based health services [15,16]. They are capable of developing and sustaining partnership with patients and other providers with increased emphasis on collaborative and patient-centered care [1,4].

These responsibilities of community and hospital pharmacists revolves round pharmaceutical care, the main practice, in which the pharmacists are held accountable for drug therapy, achievement of optimal health outcome and maximizing quality of life of the patients [17]. The paradigm shift in roles of community pharmacist from product-oriented to patient-centered services is challenged by ethical issues [18]. Therefore the pharmacist is expected to adhere to national regulation or good pharmacy practice. This is the basis of ethical guidance in health governance [19]. Professional ethics are necessary as it is based on sound moral principle [20,21]. The dynamic force controlling ethical behavior for a pharmacist is professionalism [22,23]. Every health jurisdiction has its own code of ethics that guide the practice of pharmacy [24]. This protects the profession and individual from misconduct and offer standard for professional judgment against misconduct [25,26].

The patient-centered approach imposes a professional duty of care on the pharmacists to identify patients' concerns and needs and collaborate closely with other health professionals to ensure effective and safe use of medicines to optimize the health of patients [27]. Pharmacists are compelled to be responsible for helping patients to achieve definite health outcomes [28]. How many health system pharmacists recognize that the health and wellbeing of the consumer of their services should be prioritized; that they should utilize the pharmaceutical knowledge to provide compassionate care in an appropriate and professional manner? That they should assist in ensuring that medicines are administered in the safest and most effective way possible?

However, because earnings are made from selling pharmaceuticals, the profession, particularly community pharmacy, sits at the crossroads of health and business in their professional relationship with their client. Moreover health professionals' authority to act in the best interests of society and the individual patient is challenged by economic and legal restraints, as well as demanding patients [29,30]. Besides, pharmacists are challenged with stringent regulations, financial pressure and increased competition [31]. At the same time, the demand for health services is growing as a result of population ageing, more chronic illnesses and increased healthcare consumerism [32,33]. This creates a slew of ethical issues, as well as a pressing need for decision-making rules based on moral commitments and virtues [34].

In either the community or hospital practice setting, pharmacists are frequently confronted with moral dilemmas [32,35,36] arising from conflicting personal, professional, institutional or societal values of the different parties involved [27,37,38]. An "ethical dilemma" is operationalized as a "situation in which there is a choice between at least two courses of action, neither of which is morally correct" [7,33]; in general, community and hospital pharmacists constantly face dilemmas in balancing the patients' legal rights to autonomy against making interventions toward quality health outcomes [32].

Evaluating these moral dilemmas will no doubt help to address the challenges pharmacists face in their professional role [39-42]. There have been few international studies of the moral dilemmas experienced by community and hospital pharmacists and existing studies vary widely in aim, method and presentation of results [7,43,44]. Hospital pharmacists work in a hospital environment, represent a significant sector of practicing pharmacists and the hospital pharmacist can be defined by his/her competences and tasks. Hospital pharmacists and especially clinical pharmacists are in direct contact with medical doctors and their tasks concern mainly hospitalised patients. Differences between hospital and community pharmacists are to be expected in several areas of practice such as patient care and pharmaceutical technology. Community pharmacists are in direct contact with patients and are councillors of ambulatory patients; treatment is frequently symptomatic, based on prescriptions and discussions with the patient and concerns chronic illness. "The overarching goal of hospital pharmacists is to optimize patient outcomes through the judicious, safe, efficacious, appropriate and cost effective use of medicines" and "the 'five rights' (the right patient, right medicine, right dose, right route and right time)" [45]. Hospital pharmacist roles include participating in medication management, which encompasses the entire way in which medicines are selected, procured, delivered, prescribed, administered and monitored [46,47].

Community pharmacy unlike hospital pharmacy practice varies in different countries; it is frequently confronted with diverse complex ethical dilemmas which challenge ethical pharmacy governance. The commodification of medicines has led to community pharmacy encountering lots of conflicts.

Considering the enormous transition in practice and the challenges pharmaceutical services delivery in a milieu of ever burgeoning pharmacist's responsibilities, ethical conflicts from moral dilemmas are bound to abound. In Nigeria, most especially in Port Harcourt, Rivers state, Nigeria no reports to our knowledge exist evaluating bioethical issues confronting pharmacists. Therefore the aim of this study is to investigate bioethical issues and ethical dilemmas among community and hospital pharmacists practicing in Port Harcourt, Nigeria.

Materials and Methods

Study setting, design and period

Qualified registered practicing pharmacists, comprising of community pharmacist and hospital pharmacist attending Mandatory Continuous Professional Development (MCPD) training organized by the Faculty of Pharmaceutical Sciences, University of Port Harcourt in conjunction with the Pharmacists Council of Nigeria at the University of Port Harcourt Teaching Hospital in January 2019 were recruited for the study.

Inclusion and exclusion criteria

Only pharmacists that gave their consent and are practicing in community pharmacy or in the hospital pharmacy were included

in the study. The academic and industrial pharmacists that participated in the 2019 MCPD programme in the University of Port Harcourt were excluded because the ethical issues they face in practice is different from that covered in this study.

Sampling

The questioner was distributed to all the MCPD 2019 participants that worked either in the community pharmacy or hospital pharmacy without sampling. Only the correctly filled questionners were used for the analysis.

Data collection procedure

A qualitative research method was used with the aid of structured closed end, multiple choice questionnaires that were used to interview the subjects. The participants were pharmacists practicing in community and hospital pharmacy in Port Harcourt, Rivers State, Nigeria. The population size was 86. The work places of some of the participants were visited who were unable to submit the filled questionnaire at the venue of MCPD in order to retrieve the filled questionnaire.

The questionnaire was divided into 3 sections-A,B,C which contained questions to demonstrate the demography of the study population, attitude of the pharmacists and the frequency of occurrence of bioethical dilemmas in their practices respectively. Section A was made up of 5 questions and asked questions on the gender, area of practice, highest educational status and years of practice. Section B consisted of 11 questions in a table using the dichotomous response of 'yes' and 'no' demonstrating the attitude of the participants to bioethics. Section C consisted of 10 questions in a table using 7 point-Likert scale as the responses, the response options includes: 'I don't know/not available', 'never', 'hardly ever', 'every few months', 'once or twice a month', ''once or twice a week' and ' at least once a day'.

Variables of the study

The demographic factors-gender, area of practice, highest educational qualification and years of practice were the independent varibles while attitude and the frequency of occurrence of bioethical issues were the dependent variables.

Reliability testing

Section B and C were tested for reliability using the Cronbach's alpha reliability test, where a score of more than 0.7 was considered as reliable and indicated that the questions asked were relevant to demonstrate the variable of interest.

Data entry, statistical analysis and interpretation

Ms-excel LTSC 2019 was used for data entry. The SPSS version 23 was the statistical software utilized in the analyses of the responses. The mode, frequency and percentage of frequencies were all computed. Cross tabulations and *chi-square* (χ^2) analyses were used to analyse the responses from the questionnaire where a p-value less than <0.05 was considered significant. Pie charts and bar charts were utilized to show frequency.

Results

The result presented here are from 2 areas of practice only-the community pharmacy practice and the hospital pharmacy practice. Areas of practice not covered include-academia and industrial pharmacy practice. Results are presented as the demography of the participants, their attitude towards bioethics in pharmacy practice and the frequency of occurrence of the Bioethical Dilemma (BD)/issues during their practices. Cross tabulation and *Chi-square* analyses were used to test if the attitude to bioethical issues were dependent on the demographical factors. Also, using the *Chi square* test, this study further determined if there was a significant difference in the occurrence of bioethical dillemas in the two (2) areas of pharmacy practice (community and hospital) **(Table 1)**.

Table 1: Demographics showing the gender and the area of practice of the participants.

Variable	**Frequency (%)**		**χ^2**	**P-value**
Gender	**Male**	**Female**		
N=84	44 (52.4)	40 (47.6)	0.19	0.663
Area of practice	**Community practice**	**Hospital practice**		
N=82	58 (70.7)	24 (27.9)	14.1	<0.0001

Demographics

The participants were 86 in number. The participants constitute 52.4% males and 47.6% females. The population of the different gender was not significantly different (χ^2= 0.19, p>0.05) but their area of practice which had the community practice (70.7%) having a significant proportion of the population than the hospital practice (27.9%) (χ^2=14.1, p<0.05). This is because within the vicinity of Rivers State, Nigeria, there are more community pharmacy utlets than hospital pharmacies. Most of the participants had B.Pharm/Pharm. D as their highest qualification (69.05%) (χ^2=49.36, p<0.05) and most had 11 years-20 years of pharmacy practice (38.46%) (χ^2=10.41, p<0.05) **(Figure 1)**.

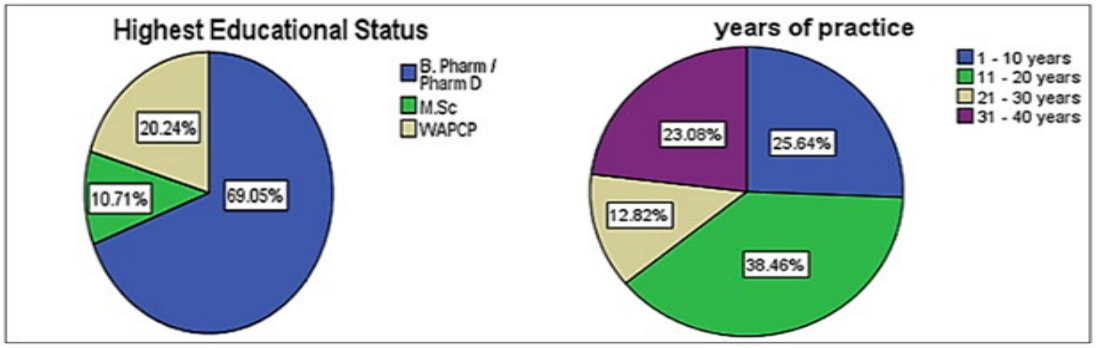

Figure 1: Demographic showing highest educational status and years of practice of the participants. **Note:** B.Pharm/pharm D, M.Sc, WAPCP, 1-10 Years, 11-20 Years, 21-30 Years, 31-40 Years.

Attitude

Section B has questions 1-12 in the questionnaire which evaluated the attitude of the participants to issues concerning bioethical research. To accertain the attitude, respondents were asked if they had knowledge of ethical dilemma, if they were willing to report and document on ethical dilemma, if they were willing to fund and collaborate on research pertaining to bioethics *etc.* **Table 2** shows the questions and the responses, with answers with the highest frequency italicised. The p-values are provided to denote the significant differences between participants who answered yes and no to the various questions.

Table 2: Attitude.

`	Yes	No	χ^2	P-value (*Chi-square* test)
	Frequency (%)	Frequency (%)		
Knowledge of bioethics bordering on ethical dilemma? N=85	36 (42.4)	*49 (57.6)*	1.988	0.159
Interest to willingly document information on ethical dilemma' N=84	*82 (97.6)*	2 (2.4)	76.19	<0.0001
Interest to willingly report information on ethical dilemma' N=84	*84 (100)*	0 (0)	-	-
Willingly available to participate in research collaboration on bioethics' N=82	*77 (93.9)*	5 (6.1)	63.22	<0.0001
Interest to co-author scientific publication on bioethics' N=79	*65 (81.3)*	15 (18.8)	31.25	<0.0001
Readily available to fund bioethics research' N=76	*42 (55.3)*	34 (44.7)	0.842	0.359
Willingly interested to be mentored on bioethics research' N=81	*72(88.9)*	9 (11.1)	49	<0.0001
Willing to be a vanguard of bioethical interest group' N=81	*70 (86.4)*	11 (13.6)	42.975	<0.0001
Willing to be a whistle blower in bioethical issues in my environment' N=80	*71 (88.8)*	9 (11.3)	48.05	<0.0001
Willing to collaborate with other health professionals on bioethics' N=84	*82 (97.6)*	2 (2.4)	76.19	<0.0001
Willing to discuss with policy makers on bioethical issues affecting health institutions' N=83	29 (36.3)	*51 (63.7)*	67.771	<0.0001
Any bioethics unit for reporting ethical issues in your environment' N=80	29 (36.3)	*51 (63.7)*	6.05	0.014
Note: p<0.05 is considered significant. Figures written in italics show the higher values. N= number of participants that answered each question.				

According to **Table 2**, the majority of participants (57.6%) had no knowledge of bioethics bordering on ethical dilemma, though this was not a significant difference (χ^2=1.988, p>0.05) when compared to people with bioethical knowledge (42.4%). This may impart due to large number of respondents (63.7%) who reported that there was no bioethics unit for reporting ethical issues in their environment.

Reliability test

The Cronbach's alpha reliability test was used as a test of reliability to determine if the questions the participants were asked in section B could be a true test of the attitude of the pharmacists to bioethical issues. A score of 0.720 was obtained **(Table 3)** indicating significant reliability. Eleven (11) out of the twelve (12) questions asked were reliable; the question "where to report bioethics issues" was omitted because it does not reflect attitude of the participants.

Table 3: Reliability statistics for attitude to bioethical issues.

Cronbach's alpha	N of items
0.72	11

The participants' responses to the questionnaire were converted to a continuous variable to determine the general attitude of the participants. The conversion indicate that the participant generally had a positive attitude (χ^2=94.698, p<0.05) to the promotion of bioethics as shown in **Figure 2**. In this study, the answer of yes is regarded positive response and the answer of no is regarded as negative response.

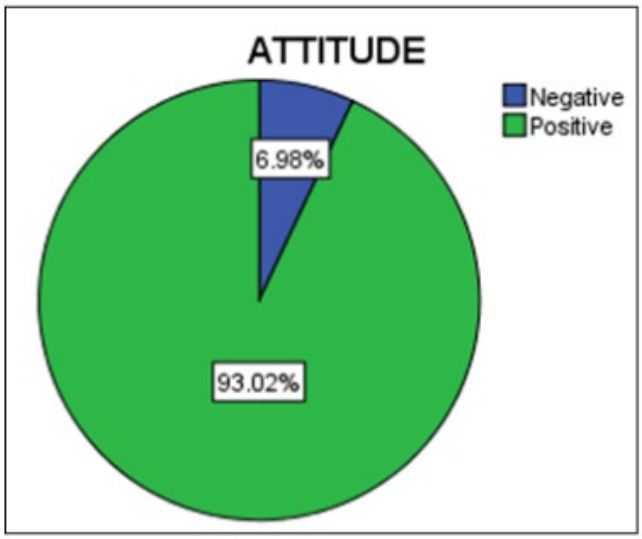

Figure 2: Attitude of the participants to bioethics. **Note:** Negative, Positive.

Frequency of occurrence of Bioethical Dilemma (BD)

Section C, questions 1-10 of the questionnaire dealt with the incidence of bioethical events relating to ethical dilemma. Scenerios were created bordering on ethical dilemmas suggesting to the participants how frequently they experienced such bioethical scenerios. The questions and the responses are shown in **Table 4,** the highest frequency for each answer is written in italics. The result indicate that the frequency of events bordering on Bioethical Dilemma (BD) in both areas of pharmacy practice were significantly high (mostly p<0.05). The responses in the questionnaire were summarized as answers such as; "Not Applicable (NA)" to "at least once a day" to reflect the frequency of events relating to bioethical dilemmas. These show how frequent such events happen.

Table 4: Frequency of occurrence of events bordering on bioethical dilemma.

Questions	NA/I don't know	Never	Hardly ever	Every few months	Once or twice a month	Once or twice a week	At least once a day	χ^2, (p-value)
You are presented with an unsigned prescription for drug mostly written on ordinary plain sheet of paper' N=82	0 (0)	3 (3.7)	7 (8.5)	8 (9.8)	14 (17.1)	24 (29.3)	*26 (31.7)*	32.878 (<0.0001)
A customer demands an opioid antitussive or opioid analgesic without prescription (abuse of drug) N=80	1 (1.3)	12 (15.0)	9 (11.3)	4 (5.0)	12 (15.0)	*29 (36.3)*	13 (16.3)	42.15 (<0.0001)
You are asked to supply emergency hormonal contraceptive over the counter N=81	1 (1.2)	20 (24.7)	5 (6.2)	5 (6.2)	5 (6.2)	18 (22.2)	*27 (33.3)*	51.136 (<0.0001)
A patient hands you a prescription but you could not receive further clarification from the prescriber even though ideally you should N=82	0 (0)	6 (7.3)	13 (15.9)	13 (15.9)	*21 (25.6)*	14 (17.1)	15 (18.3)	8.439 (0.134)

A customer asked for an over-the-counter treatment even though the treatment isn't really needed but the treatment would cause no harm N=81	1 (1.2)	6 (7.4)	8 (9.9)	12 (14.8)	*24 (29.6)*	18 (22.2)	12 (14.8)	30.395 (<0.0001)
A patient returns unused, unopened, in date medication for disposal one day after it has been dispensed N=82	0 (0)	11 (13.4)	*22 (26.8)*	16 (19.5)	20 (24.4)	11 (13.4)	2 (2.4)	19.415 (0.002)
The prescription states a specific brand of drug. You do not have this in stock but you have the generic equivalent brand N=81	0 (0)	1 (1.2)	1 (1.2)	6 (7.4)	9 (11.1)	22 (27.2)	*42 (51.9)*	94.333 (<0.0001)
Patient comes in to purchase his/her medicine for treatment but using an old prescription N=82	1 (1.2)	2 (2.4)	8 (9.8)	20 (24.4)	*26 (31.7)*	20 (24.4)	5 (6.1)	52.024 (<0.0001)
After questioning a patient, she/he reveals she/he is going to use the medication she us asking to buy against guidelines e.g., hydrocortisone cream for the face N=82	0 (0)	9 (11.0)	19 (23.2)	11 (13.4)	*21 (25.6)*	14 (17.1)	8 (9.8)	10.488 (0.063)
A customer asks to buy an over-the-counter medicine you suspect she/he might be abusing. The customer does not want an alternative N=82	1 (1.2)	10 (12.2)	12 (14.6)	14 (17.1)	16 (19.5)	*21 (25.6)*	8 (9.8)	20.61 (0.002)
Note: Values highlighted in italics show highest values.								

Reliability test

The Cronbach's alpha reliability test was used as a test of reliability to determine if the questions the particpants' were asked in section C could be a true test of the frequency of occurrence of Bioethical Dilemma (BD), A score of 0.834 was obtained **(Table 5)** indicating significant reliability. The ten (10) questions asked in section C were relevant.

Table 5: Reliability statistics for frequency of occurrence of bioethical dilemma.

Cronbach's alpha	N of items
0.834	10

The participants' responses in section C was converted to a continuous variable to determine the frequency of occurrence of Bioethical Dilemma (BD) in the 2 different areas of practice (hospital and community). The conversion indicated that the participants had frequent occurrences of BDs in their practices (48.84%) **(Figure 3)**. The differences in answers were significant, (χ^2=14.439, p<0.05). A 7 point Likert scale was used to provide 7 responses as options for them to choose from; the responses were further classified to three (3) groups: "Frequent bioethical dilemma", "occasional bioethical dilemma" and "seldom bioethical dilemma".

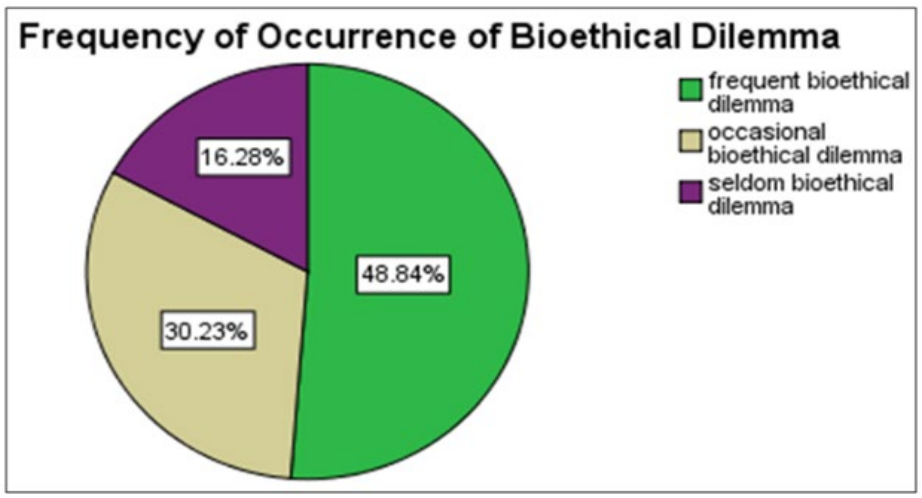

Figure 3: Frequency of occurrence of BD shown in percentages. **Note:** ■ Frequent bioethical dilemma, ■ Occasional bioethical dilemma, ■ Seldom bioethical dilemma

Peasrson correlation was used to examine whether there was any correlation between the continuous variables, the attitude of particpants to bioethics and the occurence of events contiguous on ethical dilemma. Also Spearman's correlation was used to evaluate if there was any correlation between the nominal variables of the attitude of participants' and the frequencies of occurrence of Bioethical Dilemma (BD). The results are displayed on **Table 6**. The result reveal that there is no correlation existing between the attitude of participants' and the frequencies of occurrence of bioethical dilemma ($p>0.05$, correlation <0.01). This indicates that the pharmacist positive attitude to propagating/promoting bioethics does not affect the frequency of occurrence of BD in their practices. However, the scope of this study does not state how the participants handle bioethical dilemmas. For example, it does not state what the pharmacist does when confronted with BD such as when presented with an unsigned drug prescription, worse still, written on an ordinary sheet of paper.

Table 6: Pearson and Spearman's correlations of attitude of the participants and the occurrence of bioethical dilemma in the two areas of practice.

		Occurrence_scale	Occurrence_nominal
Attitude_scale	Pearson correlation	-0.071	
	Sig. (2-tailed)	0.524	
	N	82	
Attitude_nominal	Spearman's rho		-0.059
	Sig. (2-tailed)		0.596
	N		82
Note: N=Population size, sig.=p-value			

Peasrson correlation was used to examine whether there was any correlation between the continuous variables, the attitude of particpants to bioethcs and the occurence of events contiguous on ethical dilemma. Also Spearman's correlation was used to evaluate if there was any correlation between the nominal variables of the attitude of paticipants and the frequencies of occurrence of Bioethical Dilemma (BD). The results are displayed on **Table 6**. The result reveal that there is no correlation existing between the attitude of paticipants and the frequencies of occurrence of bioethical dilemma ($p>0.05$, correlation <0.01). This indicates that the pharmacist positive attitude to propagating/promoting bioethics does not affect the frequency of occurrence of BD in their practices. However, the scope of this study does not state how the participants handle bioethical dilemmas. For example, it does not state what the pharmacist does when confronted with BD such as when presented with an unsigned drug prescription, worse still, written on an ordinary sheet of paper.

Cross tabulations

Results shown in **Table 7** indicate that gender, years of practice, highest educational qualification and area of practice did not influence the attitude of the participants to bioethical issues, $p>0.05$.

Table 7: Cross tabulations of attitude *vs* demographic factors.

		Positive attitude%	Negative attitude%	χ^2	p-value
Years of practice	1-10 years	25.641	0	1.988	0.575
	11-20 years	37.1795	1.2821		
	21-30 years	11.5385	1.2821		
	31-40 years	21.7949	1.2821		
Gender	Male	48.8095	3.5714	2.828	0.093
	Female	47.6191	0		
Area of practice	Community practice	67.0732	3.6585	1.289	0.256
	Hospital practice	29.2683	0		
Highest educational Status	B. Pharm/Pharm D	66.6667	2.381	2.118	0.347
	M.Sc	9.5238	1.1905		
	PhD	0	0		
	WAPCP	20.2381	0		

Table 8 shows that there is a significant difference in the frequency of occurrence of bioethical dilemma in the different areas of practice (community and hospital) (in most cases $p<0.05$). The result revealed that the community practice experiences more issues bordering on bioethical dilemmas than the hospital practice in River State, Nigeria. **Figure 4** collaborates the result obtained in **Table 8**. **Figure 4** indicates that the occurrence of BD is seldom in the hospital pharmacy practice and more frequent in the community pharmacy practice ($\chi^2 = 25.409$, $p<0.0001$).

Table 8: Cross tabulation between area of practice and occurrence of ethical dillemas.

Questions		Never	Hardly ever	Every few months	Once or twice a month	Once or twice a week	At least once a day	χ^2 (p-value)
1. You are presented with an unsigned prescription for drug mostly written on ordinary plain sheet of paper	Community practice	67%	43%	71%	77%	61%	80%	4.79 (0.44)
	Hospital practice	33%	57%	29%	23%	39%	20%	
2. A customer demands an opioid antitussive or opioid analgesic without prescription (abuse of drug) Community	Community practice	0%	22%	100%	100%	86%	92%	48.7
	Hospital practice	100%	78%	0%	0%	14%	8%	(<0.0001)
3. You are asked to supply emergency hormonal contraceptive over the counter	Community practice	21%	60%	75%	100%	88%	92%	35.4
	Hospital practice	79%	40%	25%	0%	12%	8%	(<0.0001)
4. A patient hands you a prescription but you could not receive further clarification from the prescriber even though ideally you should	Community practice	45%	69%	85%	64%	80%	69%	8.24
	Hospital practice	55%	31%	15%	36%	20%	31%	-0.1
5. A customer asked for an over-the-counter treatment even though the treatment isn't really needed but the treatment would cause no harm	Community practice	0%	38%	64%	83%	82%	92%	24
	Hospital practice	100%	63%	36%	17%	18%	8%	-0
6. A patient returns unused, unopened, in date medication for disposal one day after it has been dispensed	Community practice	60%	77%	73%	74%	50%	50%	3.45
	Hospital practice	40%	23%	27%	26%	50%	50%	-0.6
7. The prescription states a specific brand of drug. You do not have this in stock but you have the generic equivalent brand	Community practice	100%	80%	75%	82%	61%	69%	6.04
	Hospital practice	0%	20%	25%	18%	39%	31%	-0.3
8. Patient comes in to purchase his/her medicine for treatment but using an old prescription.	Community practice	100%	71%	70%	79%	50%	80%	5.77
	Hospital practice	0%	29%	30%	21%	50%	20%	-0.5
9. After questioning a patient, s/he reveals s/he is going to use the medication she is asking to buy against guidelines e.g., hydrocortisone cream for the face.	Community practice	44%	80%	80%	93%	88%	69%	19.1
	Hospital practice	56%	20%	20%	7%	13%	31%	-0
10. A customer asks to buy an over-the-counter medicine you suspect s/he might be abusing. The customer does not want an alternative.	Community practice	11%	58%	62%	93%	86%	88%	25.2
	Hospital practice	89%	42%	38%	7%	14%	13%	(<0.0001)
Note: Comparison is made between the areas of pharmacy practice.								

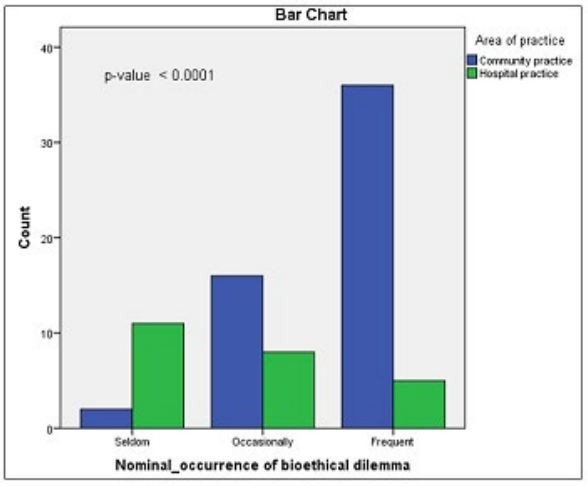

Figure 4: Frequency of occurrence of Bioethical Dilemma (BD) in the two areas of pharmacy practice. Note: ■Community practice, ■Hospital practice.

Discussion

Community pharmacists are confronted with numerous bioethical issues in work environment and are in ethical dilemmas to decide in complex situation [48]. This is complicated with inadequate knowledge in handling ethical dilemmas in their daily activities. It is recently reported that moral dilemmas arose during professional contacts, more frequently when professional autonomy is challenged by the behavior of patients and other healthcare professionals [32]. Most of the time the pharmacists are in dilemma whether to dispense a generic drug or a well-known branded drug. Al-Qudah; Tuza, [24] reported all kind of conflicts, pharmacists encounter in a number of ways in their practice settings including: When deciding whether or not to sell over-the-counter treatments that are not needed; when deciding whether or not to recommend less expensive generic medications; or when deciding whether or not to report a colleague that they feel has acted unethically.

The socio-demographic characteristics reveal that the ratio of male to female respondents who took part in the study was not significant but the number of community to hospital pharmacist that participated was very significant (χ^2=14.1; 0.0001) as shown in **Table 1** community pharmacies are primary healthcare outlets performing numerous healthcare functions and they are quite commonplace than hospital pharmacies who are performing secondary healthcare functions. The educational qualifications of the respondents were B.Pharm/Pharm. D as their highest qualification (69.05%) (χ^2=49.36, p<0.05) and with practice experience averaging 11 years-20 years (38.46%) (χ^2=10.41, p<0.05), as reveal in **Figure 1**.

According to our findings, practicing pharmacists do not have a sufficient understanding of bioethics. This is evidenced by the increased percentage of participants who responded "no" to the question of knowing about bioethics and ethical dilemmas. The investigation revealed that, the level of knowledge of respondents on bioethical issues is 42.4% **(Table 2)**. This is quite below 82.0% [49] and 72.3% [7] reported in similar study in Ethiopia and central Saudi Arabia respectively. The low level of knowledge on bioethical issues may be as a result of dearth of exposure to courses of ethics at the undergraduate level. Pharmacy ethics has traditionally occupied a minor role in pharmaceutical education, limited to a formal discussion and distribution of copies of the code of ethics to new pharmacists prior to their induction [50]. This has caused pharmacists in Nigeria to frequently struggle to define ethical issues and also lack ethical analytical skills as evidenced by their answer to "knowledge of bioethics" in this study. In his report, Okoro, [51] showed that the pharmacy ethics content of the Nigerian pharmacy education curriculum is woefully inadequate and the teaching technique is far too didactic to appropriately train future pharmacists for more challenging patient-centred roles in an ethically complex practice environment. This abysmal lack of knowledge is compounded with the level of education, as 69% of the respondents possess B.Pharm as their highest qualification which might affect professional practicing knowledge on ethical issues.

Interestingly, the study revealed positive attitudes of community and hospital pharmacists in Port Harcourt towards bioethical issues. For example, the willingness of respondents to document ethical dilemmas (97.6%); willingness to report breaches of ethical dilemmas (84%); willingness to collaborate on research on ethical dilemmas (93.9%); interest to co-author scientific publications on ethical dilemmas (81.3%) and willingness to fund bioethics research (45%) and so on **(Figure 2)**. Moreover, interest of respondents on being mentored on bioethics research was significantly high (89%; P<0.0001); willingness to be vanguards of bioethics interest group (86%, P<0.0001), willingness to become bioethics whistle blowers (88%, P<0.0001) and willingness on collaborate with other healthcare professional on bioethics (97%, P<0.0001). Besides, the readiness to engage policy makers on issues relating to bioethics by respondents was very significant (64%; P<0.0001). The attitudes of respondents in the promotion of bioethics evaluated on Cronbach's alpha reliability test yielded a score of 0.720 conoting high reliability of the questions used to

evaluate respondents attitude in this study **(Table 3)**. In addition, on converting responses of respondents in the questionnaire to continuous variables to evaluate general attitude, it was observed that the participants generally had a positive bioethics attitude (χ^2=94.698, p<0.05) to the promotion of bioethics **(Figure 2)**. Our study revealed that pharmacists have a very positive attitude toward promoting bioethics in pharmacy practice, despite the fact that most of them have limited knowledge of bioethics in pharmacy practice and most of them attested to not knowing of any bioethics unit for reporting ethical issues in their environments. The attitude of the participants to bioethics is not influenced by their gender, year of practice *etc.* but it seems to be embedded in the culture of pharmacy practice, notwithstanding the area of practice of the pharmacists. This demonstrates some fundamental obstacles in positive ethical behaviour from practicing pharmacists in Rivers State, Nigeria, as one cannot positively practice what one does not understand and how can they properly record and document bioethical situations if there is no known bioethics unit available?

Evaluating the frequency of occurrence of bioethical dilemma in professional pharmacy practice in Port Harcourt, different scenarios of likely quandary situations were simulated representing incidences of probable bioethical issues confronting community and hospital pharmacy settings **(Table 4)**. The result showed that frequency of occurrence of simulated quandary scenario was significantly high (mostly p<0.05). Scenario one: The respondents were asked if they received prescription of drugs on unsigned piece of paper, denoting dilemma of dispensing or not dispensing an illegal prescription; the frequencies ranged from at least once daily (32%), once or twice a week (29%); once or twice a month (17%) (χ^2=32.88, p<0.05). Scenario two: Respondents were asked if they had dilemmas of patients requesting an opioid antitussive or opioid analgesic without a prescription. The frequencies of occurrence are: At least once daily (16%), once or twice a week (36%); once or twice a month (15%) (χ^2=42.15; p<0.0001). Scenarios three: Respondents were asked if they ever face dilemmas of supplying emergency hormonal contraceptive over the counter. The rate of occurrences of this dilemma varies from at least once daily (33.3%), once or twice a week (22.2%); once or twice a month (6.2%) (χ^2=51.1; p<0.0001). Scenarios four: The community and hospital pharmacists were questioned if they have ever had quandaries of receiving prescriptions requiring further clarification from the prescriber but could not contact him/her? The frequencies of dilemmas occurring varies from at least once daily (18%), once or twice a week (17%); once or twice a month (26%) (χ^2=8.44; P<0.134). Scenarios five: Respondents were asked if they have dilemmas of patients demanding over the counter treatment that were not really needed and if administered will cause no harm to the patients? The frequencies of dilemmas situation occurring varies from at least once daily (16%), once or twice a week (36%); once or twice a month (15%) (χ^2=30.4; p<0.0001). Scenarios six: Pharmacists were asked, if they have ever been confronted with the quandary of patients returning dispensed, unused, in date purchased drugs the next day to the pharmacy? The frequencies of responses to this dilemma varies from at least once daily (2.4%), once or twice a week (13.4%); once or twice a month (24.4%) (χ^2=19.4; p<0.002).

Scenarios seven: Respondent were interviewed if they have been confronted with quandary situation in which prescription of a branded drug was presented that was out of stock but there is a generic equivalent drug available for dispensing? The frequencies of occurrence of this dilemmas situation varies from at least once daily (51.9%), once or twice a week (27.2%); once or twice a month (11.1%) (χ^2=94.3; p<0.0001). Scenario eight: Whether respondents are ever faced with dilemmas of a patient coming to refill their prescription with an old out dated prescription? The frequencies of reports of this dilemmas situation varies from at least once daily (31.7%), once or twice a week (24.4%); once or twice a month (6.1%) (χ^2=52.0; p<0.0001). Scenarios nine: Respondents were questioned if they were ever confronted with the dilemmas of after rigorously questioning the patient; they have awareness that patients are going to use drugs they are purchasing against guidelines? The frequencies of his dilemma occurred varies from at least once daily (25.6%), once or twice a week (17.1%); once or twice a month (9.8%) (χ^2=10.49; p<0.063). Scenarios ten: Pharmacists were asked if they had quandaries of customers requesting for drugs suspected to be likely abused? The frequencies of the responses ranged from at least once daily (19.5%), once or twice a week (25.6%); once or twice a month (9.8%) (χ^2=20.61; p<0.002).

The above scenarios revealed that the dilemmas pharmacists encounter while providing care in a complex setting are with economic and legal constraints. Pharmacists are expected to assist patients to optimise their health outcome and this responsibility requires pharmaceutical care relationship with patients. In consideration of patients wellbeing and mutual trust existing between pharmacist and patients, pharmacists are often confronted with quandaries. Besides, the behaviours of patients are unpredictable and restrain the pharmacist from acting autonomously, hence the frequent exposures of pharmarmacist to bioethical situations during their professional contacts [32,52,53].

Testing with Cronbach's alpha reliability test whether the questions posited to the respondents in the various dilemmas scenarios above are reliable, whether they reflect the true test of the frequencies of occurrence, the Cronbach's alpha reliability test score of 0.834 was obtained indicating significant reliability **(Table 5)**. On frequency of occurrence of ethical dilemmas in community pharmacies, it was reported by another investigator to occur at least once per week [35].

Besides, converting the participants' responses to the various questions in the various dilemmas situations on the 7-point Likert scale to a continuous variable in three domains **(Figure 3)**: Frequent [at least once a day and once or twice a week], occasional [once or twice a month and every few months] and seldom [Hardly ever, Never and not available/I don't know) bioethical dilemmas; the results reveal revealed significant differences in response, frequent (48.84%); occasional (30.2%) and seldom (16.3%) (χ^2=14.439, p<0.05).

Deploying Pearson correlation test to explore probable correlation between the two continuous variables, the attitude of participants' to bioethics and the frequency of occurrence of events contiguous on ethical dilemma, the results reveal **(Table 6)**

no correlation ($p>0.05$, correlation <0.01). Also no correlation was observed while utilising Spearman's correlation test to evaluate if there was any correlation between the nominal variables of the attitude of participants and the frequencies of occurrence of Bioethical Dilemma (BD). This indicates that the pharmacist positive attitude to propagating/promoting bioethics does not affect the frequency of occurrence of BD in their practices.

To summarize the pharmacist's responses into three domains (frequent, occasional and seldom), the participants' responses provided on a 7-point Likert scale was converted to a continuous variable **(Figure 4)**, in the two different areas of practice, hospital and community. The responses in the three domains: Frequent (at least once a day and once or twice a week), occasional (once or twice a month and every few months) and seldom (Hardly ever, Never and not available/I don't know). The results reveal significant occurrence of BD in Community Pharmacies (CP) than Hospital Pharmacies (HP).

To evaluate the scenarios of BD that were significant, cross tabulation analysis **(Table 8)** was executed between the areas of practice and scenarios of BD, the results reveal scenarios two, three, five, nine and ten were significant for CP practice only but not for HP practice. For example in scenario two in which respondents were asked if they had dilemmas of patients requesting an opioid antitussive or opioid analgesic without a prescription; cross tabulating this BD between HP and CP practice areas reveal that this BD occur significantly more in CP than in HP practice ($\chi^2=48.66$; $p<0.0001$). Similarly, in scenario three in which respondents were asked if they ever faced dilemmas of supplying emergency hormonal contraceptive over the counter. Cross tabulating this BD between the areas of practice, reveal CP practice was significant compared to HP practice ($\chi^2=35.38$; $p<0.0001$). Moreover, cross tabulating dilemmas in scenario five, of patients demanding over the counter treatment that were not really needed and if administered will cause no harm to the patients, to the two practice areas demonstrate CP practice was significant than HP practice ($\chi^2=23.95$; $p<0.001$). Worst still, in scenario nine in which the response to "if they have ever confronted with the dilemma of, upon rigorous questioning, awareness of patients are going to use drugs they are purchasing against guidelines". Cross tabulation of this BD against the areas of practice indicate significant engagement in CP than HP practice ($\chi^2=19.09$; $p<0.002$). Finally in scenario ten in which respondents were asked if they encountered quandary of patients requesting for drugs suspected to be likely abused, the cross tabulation of this dilemma and two areas of practice, reveal significant occurrence in CP than HP practice ($\chi^2=25.15$; $p<0.001$).

Similar result was obtained in London by Deans, et al. [54]. These BD scenarios were not significant in HP practice due to structured and often dogmatic pharmacy practice in the hospital than in the community. Moreover, in the hospital, each practitioner is strictly restricted to their areas of practice with dogmatic watch to prevent any encroachment which is not possible in community pharmacy practice. In other words, pharmacists will be restricted to dispensing of prescribed drugs on prescription from a medic unlike in the community pharmacy practice where the pharmacist is not under keen straight-jacketed interprofessional watch and restriction. Furthermore, the immediate presence of medical physicians in hospitals assures that all drug dispensing regulations are followed appropriately, if not religiously, between the prescribing and the dispensing of such medication. These bioethical difficulties in pharmacy practice are exacerbated by the supermarket model of consumerism that operates within community pharmacies. The consumerist model assumes an informed and self-directed client (patient) is capable of identifying and describing individual desires (including medications) as service options [30]. This can be seen too in the UK where the UK National Health Service has educated the patients to recognize themselves as customers [55]. Hibbert, et al. [29] in their discussion of pharmacy consumers' approaches to the purchase of medicines, they recognized and elaborated on a similar phenomenon, which they summarised as 'permissive' and 'challenging' consumer voices. Challenging customers are wary of being questioned; believing that their prior experience had provided them with sufficient understanding and their emphasis is on purchasing a product rather than receiving professional assistance from the pharmacist. No wonder the significance occurrence of BD in CP than HP practice.

The study was limited to community and hospital pharmacists and it was discovered that community pharmacists face greater ethical difficulties than hospital pharmacists. However, the limitation of this study is that it does not elaborate how the respondents handle bioethical dilemma when confronted with it. The disposition of the pharmacists to the various quandaries scenario were not investigated and reported.

Conclusion

This research though, introductory in nature, it vividly illustrates the critical need for increased knowledge, education and promotion of resources to promote bioethics knowledge in pharmacy practice. A situation in which bioethical difficulties arise frequently but there are no facilities, personnel, or other resources to deal with them begs for intervention in pharmacy practice in Rivers State. There is a pressing need to provide a comprehensive stand-alone pharmacy ethics course in the pharmacy curriculum of our Nigerian Universities. This research needs to be replicated in other parts of Nigeria and it needs to be broadened to include pharmacist behaviours in bioethical challenges.

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