



Provision of Pharmaceutical Care Services by Community and Hospital Pharmacists in Oyo State, Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

Abstract

Background: Pharmacy practice has evolved as a caring profession and the focus of that caring has shifted from the drug product to the patient. Albeit, patients' expectations of standard of care are premised on effective and affordable medication.

Objectives: This study assesses the adoption of services based on pharmaceutical care concept by community and hospital pharmacists.

Methods: A cross sectional study among registered hospital and community pharmacists in Oyo State was conducted for twelve consecutively weeks. Data were obtained using pretested and validated questionnaire. A total of 96 pharmacists participated in the research using Israel (1992) sample size formular. Socio-demographic information of participants and other information related to core pharmaceutical care services were obtained. Descriptive statistics was used to summarize data obtained while test of association between categorical and ranked variables was analyzed by Chi-square and Man-Whitney U tests, respectively, at $p < 0.05$.

Results: Ninety percent (90%) response rate was recovered. Twelve (27.9%) hospital and 22 (50.0%) community pharmacists were in the age category of (21-30) while eighteen (41.9 %) hospital and fifteen (34.1%) community pharmacists were in age category (31-40). Forty-one (95.3%) hospital pharmacists and 42 (95.5%) community pharmacists have adopted pharmaceutical care services in their professional practice.

Conclusion: This study shows that both hospital and community pharmacists have embraced pharmaceutical care services in professional practice.

Keywords: Polypharmacy, Medication, therapy, Pharmaceutical care, Pharmacists.

INTRODUCTION

Pharmacy profession has come of age worldwide over the past five decades and being a very dynamic profession, pharmacist's role is broadening over time with the expansion in scope of pharmacy services and the introduction of new specialty areas (Unhurian *et al.*, 2018). The pharmacist's role has changed from that of "drug compounder" and dispenser to one of "drug therapy manager" (Snoswell *et al.*, 2022). These entail responsibility in ensuring that wherever and whenever medicines

are provided and used, quality products are selected, procured, stored, distributed, dispensed and administered so that they do not harm, but contribute to, the health of patients. Thus, the evolutionary trend in the profession has transformed pharmacy practitioner from being medication dispensers to outcome-oriented and patient-focused care providers. This model of pharmacy practice is ingrained in the principles of pharmaceutical care

(PC) approach to patient management (Holdford, 2021).

There are several definitions of PC. Albeit a simpler, succinct and comprehensive definition of PC is given by American Pharmacists Association. It stated that “pharmaceutical care is a process of drug therapy management that requires a change in the orientation of traditional professional attitudes and re-engineering of the traditional pharmacy environment” (APhA, 2019).

Given this development, the scope of pharmacy practice now includes patient-centred care with all the cognitive functions of counseling, drug information provision and drug therapy monitoring as well as the technical aspects of pharmaceutical services including medicines supply management on the premise of evidence-based medicine (EBM), which is a precursor of PC (Ng *et al.*, 2021). However, the role of modern-day pharmacists needs to be expanded to include PC concepts; that is, making the pharmacist a health care professional rather than a medicine dispenser in a commercial enterprise (Al-Quteimat and Amer, 2016).

The implementation of PC by Nigerian pharmacists in healthcare delivery sector of the country is non-negotiable in the 21st century given the cost burden that preventable medication errors could cause in terms of human capital to the country’s economy. Medication errors’ impact on patients, their relatives, and healthcare organization is enormous financially, physiologically and psychologically (Al-Harbi *et al.*, 2016).

Fortune *et al.* (2018) asserted that an occurrence of preventable medical errors, particularly medication-

MATERIALS AND METHODS

The study was conducted in Ibadan city, the capital of Oyo State, southwestern Nigeria. It is the most populated city in Oyo State and Nigeria (after Lagos and Kano). It is a highly commercial city, about 100 miles from Atlantic coast, harboring many business sectors including community pharmacies.

The population for this study consists of community pharmacists registered with the Pharmacists’ Council of Nigeria (PCN), Oyo State Chapter and hospital pharmacists drawn from the nominal rolls of Oyo State Ministry of Health and University College Hospital (UCH), Ibadan. The study was conducted through questionnaire administration to registered pharmacists community pharmacists as well as hospital pharmacists of Adeoyo Ring Road State Specialist Hospital and University of Ibadan Teaching Hospital. The two hospitals were chosen for the study because they provide highly specialized clinical services, research and training.

Considering time and cost factors, a minimum required sample size was determined for this research. The sample size was calculated following

related errors, can compromise the achievement of Goal 3 of the Sustainable Development Goals (SDG). The aim of SGD Goal 3, which is to “ensure healthy lives and promote well-being for all at all ages”, applies a much more expansive view of health services (Fortune *et al.*, 2018). This is underscored by the fact that the direct or indirect links of health to all 17 SDGs highlight both the complex role and the importance of health promotion in achieving equity, empowering communities and people and protecting human rights (Fortune *et al.*, 2018). Thus, any medical principle such as PC, which could contribute to the promotion of cost-effective therapy, becomes indispensable to a developing country like Nigeria. Therefore, this study attempted answering the following research questions:

Are there community and hospital pharmacists who have adopted PC?

What is the extent of PC services engaged in by both categories of pharmacists?

Is there any difference between both categories of pharmacists in terms of PC services provision?

Objective of the Study

The general objective of this study is to assess the adoption of core PC services in patients’ management by community and hospital pharmacists in Oyo State. Specifically, this study is to:

assess PC adoption among community and hospital pharmacists in the study area;

examine PC services engaged in by both categories of pharmacists;

determine the difference between PC practices of both categories of pharmacists.

Israel (1992). Assuming 95% confidence interval (5% error margin) and 10% non-response rate, 96 pharmacists were sampled for this study while 83 data sets (90% response rate) were found useful.

A cross sectional survey was carried out amongst community and hospital pharmacists for twelve consecutive weeks. Participants with at least one year post graduation experience in hospital or community pharmacy were included while pre-registered pharmacists (intern) were excluded.

Simple random sampling technique was used to select the pharmacists (community and hospital) in their various facilities. After due explanation of the study rationale, the participants voluntarily signed an informed consent form. Consequently, the research instrument (a semi-structured, pre-tested questionnaire) was self-administered by the respondent pharmacists. It took about 20-25 minutes to complete each questionnaire (see appendix). All the completed questionnaires of the consented pharmacists were used for data analysis and no compensation was offered for participation.

The instrument comprises of five sections: A (respondent's socio-demographic characteristics and adoption of pharmaceutical care), B (pharmaceutical care services by respondents), C (adopted pharmaceutical care process), D (respondent's attitude to pharmaceutical care), and E (identification of barriers to pharmaceutical care adoption).

Face validity of the instrument's content was established by subject matter experts who are senior colleagues with experiences in similar studies. Suitable modifications were made to the instrument, before the commencement of the (main) study, after a pilot survey among pharmacists at University of

Ibadan Health Centre. The pharmacists involved in the pretesting were excluded from the main research recruitment procedure.

Data processing and management was executed with Statistical Package for Social Sciences (SPSS). Descriptive statistics (frequency, percentage and mean) were used to summarize the data. Chi-square and Mann-Whitney-U test statistics were respectively utilized to evaluate categorical and ranked variables at $p \leq 0.05$ statistical significance level.

RESULTS AND DISCUSSION

More of respondents were in the age category (21-30) and (31-40). Twelve (27.9%) hospital and 22 (50.0%) community pharmacists were in this age category of (21-30) while eighteen (41.9%) hospital and fifteen (34.1%) community pharmacists were in age category (31-40). All age brackets significantly ($p < 0.05$) had more hospital pharmacists than community pharmacists except that of 21-30 and above 51 years age category. There was a significant

difference between the two categories of pharmacists in terms of sex ($p < 0.05$). Twenty-eight (65.1%) females were in hospital pharmacy while 18 (40.9%) were in community pharmacy. Also, 12 (27.9%) hospital pharmacists had higher qualifications while 4 (9.1%) community pharmacists had higher qualifications ($p < 0.05$). Details are presented in Table 1.

Table 1: Distribution of Pharmacists' Relevant Characteristics (n = 87)

Variable	Hospital Pharmacist (n=42)	Community Pharmacist (n=43)	p-value
Age (Years)			
21-30	12 (27.9)	22 (50.0)	0.013 ^a
31-40	18 (41.9)	15 (34.1)	
41-50	10 (23.3)	2 (4.5)	
≥51	3 (6.9)	5(11.4)	
Sex			
Female	28 (65.1)	18 (40.9)	0.032 ^a
Male	15 (34.9)	26 (50.1)	
Marital status			
Married	32 (57.1)	24 (54.5)	0.073
Single	11 (35.5)	20 (45.5)	
Education status			
Higher education	12 (27.9)	4 (9.1)	0.029 ^a
Basic education	31 (72.1)	40 (90.9)	
Experience (Years)			
≤10	27 (62.8)	31 (70.5)	0.175
10-20	14 (32.6)	8 (18.2)	
21-30	2 (4.7)	2 (4.5)	
31-40	0 (0.0)	3 (6.8)	
ICT use			
No	1 (2.35)	7 (15.9)	0.058
Yes	42 (97.7)	37 (84.1)	
Adoption of pharmaceutical care			
No	2 (4.7)	2 (4.5)	0.999
Yes	41 (95.3)	42 (95.5)	

Values in parenthesis are percentages, ^a $p < 0.05$ (exact significance 2-sided)

Thirty-one (37.3%) and 32 (38.6%) of participants who were adopters of PC concept were between 21 and 30, and 31 and 40 years of age respectively. Also, 43 (51.8%) of the participants who have adopted the concept of pharmaceutical care in practice were female. Details are presented in Table 2.

More pharmacists claiming to have adopted PC suggests that pharmacists might have begun

embracing modern pharmacy practice; although, more community than hospital pharmacists have adopted the concept. This agreed with previous studies that Nigerian hospital and community pharmacists have good perceptions of PC and are increasingly getting engaged in emerging roles (Aje and Davies, 2017). Thus, evolving trends made PC a highly essential and necessary element in the Nigerian healthcare system.

Table 2: Respondents' Characteristics and Pharmaceutical Care Adoption (n = 87)

Characteristic	Adoption of PC	
	No	Yes
Age		
21-30	3 (75.0)	31 (37.3)
31-40	1 (25.0)	32 (38.6)
41-50	0 (0.0)	12 (14.5)
≥51	0 (0.0)	8 (6.0)
Sex		
Female	3 (75.0)	43 (51.8)
Male	1 (25.0)	40 (48.2)
Education		
BSc/BPharm	4 (100.0)	66 (79.5)
PharmD	0 (0.0)	2 (2.4)
MSc/MPharm	0 (0.0)	1 (1.2)
PhD	0 (0.0)	1 (1.2)
BSc/BPharm & PharmD	0 (0.0)	1 (1.2)
PharmD & MSc/MPharm	0 (0.0)	12 (14.5)
Experience		
≤10	4 (100.0)	54 (65.1)
10-20	0 (0.0)	22 (26.5)
21-30	0 (0.0)	4 (4.8)
31-40	0 (0.0)	3 (3.6)

Values in parenthesis are percentages

Majority among PC concept's adopter respondents were not older than 40 years. However, individual differences (in terms of adoption extent), existed within each age group. This agreed with findings of previous studies (such as Umuo *et al.*, 2014) and also that pharmacists were predominantly younger adults and middle-aged individuals (Agbo *et al.*, 2019). Older adults could tend to be slower than young adults in adopting new innovations; may be because, according to human capital models, primary adopters and beneficiaries of new innovations will be younger adults (Weinberg, 2004).

More female than male respondents have adopted the concept of PC in practice. This is in agreement with the findings of Aje and Davies (2017) but contrary to some claims that women are slower innovation adopters than men. It has been argued that lack of information about the advantages of the

innovations explains low participation of women in innovation adoption (Ogunlana, 2004). Thus, the female respondents might have adopted PC possibly because of their awareness about the importance of embracing PC application in practice.

Respondents with not more than 20 years of working experience were in the majority among adopters of the PC concept. This agreed with the findings of Umuo *et al.* (2014), which could imply that progress in technology/innovation may be skill-biased and because human capital increases over the lifecycle, technological/innovation changes may favour experienced workers (Weinberg, 2004).

Thirty (11.4%) of the hospital pharmacists always provided general sales services while 16 (6.1%) always provided extemporaneous drug preparation. Furthermore, 43 (15.0%) of the community pharmacists always provided general sales services while 5 (1.7%) always provided extemporaneous

drug preparation. Details are as presented in Table 3 and Table 4.

Community pharmacists were always more involved in general sales of items such as over-the-counter (OTC) drugs and other consumables. Community pharmacists typically provide these services in facilitating clients' access to virtually all healthcare

related needs. This corroborates the findings of previous study by Okwonko and Okwonko (2010). However, hospital pharmacists were always more involved in unit dose dispensing, which is based on norms of hospital setting with greater emphasis on this aspect of patient-centered care practice.

Table 3: Hospital Pharmacists' Drug-related Pharmaceutical Care Services (n = 41)

Service	Not at all	Sometimes	Always
General sales	1 (0.9)	7 (6.3)	30 (11.4)
Prescription drug information & education	0 (0.0)	6 (5.4)	35 (13.3)
Medication counseling	0 (0.0)	6 (5.4)	34 (12.9)
Prescription keeping & refill	6 (5.8)	10 (8.9)	26 (9.8)
Recommendation. on proper use of drugs	2 (1.9)	4 (3.6)	36 (13.6)
Unit dose dispensing	11 (10.6)	12 (12.7)	41 (14.8)
Computerized prescription	25 (24.0)	10 (8.9)	6 (2.3)
Drug information unit	12 (11.5)	14 (12.5)	15 (5.7)
Drug misuse management	8 (7.7)	20 (17.9)	11 (4.2)
Medication counseling by personal interaction	0 (0.0)	7 (6.3)	33 (12.5)
Medication counseling by email & social media	24 (23.1)	10 (8.9)	5 (1.9)
Extemporaneous preparation	15 (14.4)	6 (5.4)	16 (6.1)
*Drug-related services	104 (49.1)	112 (45.2)	264 (48.0)

Values in parenthesis are percentages, *Multiple response

Table 4: Community Pharmacists' Drug-related Pharmaceutical Care Services (n = 42)

Service	Not at all	Sometimes	Always
General sales	0 (0.0)	2 (1.5)	43 (15.0)
Prescription drug information & education	0 (0.0)	13 (9.6)	32 (11.2)
Medication counseling	0 (0.0)	9 (6.6)	36 (12.6)
Prescription keeping & refill	2 (1.9)	20 (14.7)	23 (8.0)
Recommendation. on proper use of drugs	3 (2.8)	2 (1.5)	39 (13.6)
Unit dose dispensing	7 (6.5)	14 (10.3)	0 (0.0)
Computerized prescription	20 (18.5)	15 (11.0)	8 (2.8)
Drug information unit	19 (17.6)	15 (11.0)	11 (3.8)
Drug misuse management	10 (9.3)	17 (12.5)	16 (5.6)
Medication counseling by personal interaction	2 (1.9)	3 (2.2)	40 (14.1)
Medication counseling by email & social media	17 (15.7)	15 (11.0)	9 (3.1)
Extemporaneous preparation	28 (25.9)	11 (8.1)	5 (1.7)
*Drug-related services	108 (50.9)	136 (54.8)	286 (52.0)

Values in parenthesis are percentages, *Multiple response

In addition, hospital pharmacists indicated availability of drug information unit in the hospital setting, which (drug information unit) is a core component of hospital pharmacists' services especially in providing evidence-based information to other healthcare providers. This corroborated the findings of Ma'aji *et al.* (2018). However, due to resource limitation, most community pharmacies in Nigeria may lack the capacity to establish a drug information unit (Ogbonna *et al.*, 2015).

Furthermore, more hospital pharmacists compared to community pharmacists always provided prescription drugs information and education to clients. This corroborated Asieba and Nmadu (2018) findings that community pharmacists have increasingly become business oriented rather than focusing on practiced based aspect of pharmacy. However, for hospital pharmacists, what could be responsible is involvement in regular clinical presentations affording them the opportunity of acquiring additional and updated information on drugs (Ma'aji *et al.*, 2018).

One of the services in use always by community pharmacists and hospital pharmacists was providing medication counseling to patients on prescription and non-prescription drugs. Also, part of the services more commonly used always by both pharmacists' categories was the provision of recommendations to patients on proper use of drugs. However, the service commonly least in use always by both pharmacists was the provision of drug misuse management service as well as counseling services to patient either by personal interaction or through email and social media

platforms. These findings are similar to that of Ogbonna (2015) and Ma'aji *et al.* (2018). Peculiarities of practice area and work environment may have significant influence on the services rendered by both pharmacists' categories.

Prescription keeping and refill was one of the PC services always in use by hospital pharmacists while extemporaneous drug preparation services were least used always by community pharmacists. The nature of the working environment for hospital pharmacists which involve care services to both in- and out-patients could be responsible for the inclination to keep prescription details. Ma'aji *et al.* (2018) also reported that one of the major services provided by hospital pharmacists are extemporaneous preparation and prescription keeping and refill.

Eight (10.3%) of the hospital pharmacists always provided health promotion services while 2 (2.6%) always provided sale and advice on use of cosmetics. Also, 12 (11.7%) of the community pharmacists always provided health promotion services while 10 (9.7%) always provided sale and advice on use of cosmetics.

Furthermore, 2 (1.8%) of the hospital pharmacists always provided home delivery services while 17 (14.9%) always provided services on public awareness and enlightenment on health. However, four (3.7%) of the community pharmacists always provided home delivery services and 8 (7.3%) always provided services on public awareness and enlightenment on health. Details are presented in Table 5, Table 6, Table 7 and Table 8.

Table 5: Hospital Pharmacists' Disease-based Pharmaceutical Care Services (n = 41)

Service	Not at all	Sometimes	Always
Drug information	0 (0.0)	19 (19.6)	22 (28.2)
Health promotion	20 (10.6)	12 (12.4)	8 (10.3)
Chronic disease counseling	2 (1.1)	22 (22.7)	17 (21.8)
Online nutrition counseling	36 (19.1)	3 (3.1)	2 (2.6)
Immunization	28 (14.9)	8 (8.2)	5 (6.4)
Smoking cessation counseling	29 (15.4)	4 (4.1)	6 (7.7)
Preventive care	15 (8.0)	14 (14.4)	11 (14.1)
Methadone supply	27 (14.4)	8 (8.2)	5 (6.4)
Sale & advice on use of cosmetics	31 (16.5)	7 (7.2)	2 (2.6)
*Disease-based services	188 (56.3)	97 (40.8)	78 (43.1)

Values in parenthesis are percentages, *Multiple response

Table 6: Community Pharmacists' Disease-based Pharmaceutical Care Services (n = 42)

Service	Not at all	Sometimes	Always
Drug information	1 (0.7)	12 (8.5)	31 (30.1)
Health promotion	6 (4.1)	26 (18.4)	12 (11.7)
Chronic disease counseling	0 (0.0)	22 (15.6)	21 (20.4)
Online nutrition counseling	33 (22.6)	8 (5.7)	2 (1.9)
Immunization	33 (22.6)	7 (5.0)	4 (3.9)
Smoking cessation counseling	22 (15.1)	13 (9.2)	7 (6.8)
Preventive care	9 (6.2)	22 (15.6)	13 (12.1)
Methadone supply	30 (20.5)	10 (7.1)	3 (2.9)
Sale & advice on use of cosmetics	12 (8.2)	21 (14.9)	10 (9.7)
*Disease-based services	146 (43.7)	141 (59.2)	103 (56.9)

Values in parenthesis are percentages, *Multiple response

Table 7: Miscellaneous Pharmaceutical Care Services by Hospital Pharmacists (n = 41)

Service	Not at all	Sometimes	Always
Home delivery	35 (31.8)	3 (3.2)	2 (1.8)
Companies & hospital outsourcing	15 (13.6)	11 (11.7)	11 (9.6)
Partnership promoting effective medication	12 (10.9)	13 (13.8)	15 (13.2)
Health related information	5 (4.5)	17 (18.1)	17 (14.9)
Point-of-care testing	19 (17.3)	12 (12.8)	10 (8.8)
Referrals to other health care facilities	19 (17.3)	12 (12.8)	9 (7.9)
24-hour service	3 (2.7)	5 (5.3)	33 (28.9)
Public awareness & enlightenment on health	2 (1.8)	21 (22.3)	17 (14.9)
Miscellaneous services	110 (52.4)	94 (39.3)	114 (51.1)
PC services (Core)	402 (53.2)	303 (41.8)	456 (47.8)

Values in parenthesis are percentages, *Multiple response

One of the major services rendered by both community and hospital pharmacists was the provision of drug information and health promotion such as screening of triglyceride, blood sugar and cholesterol levels. Also, a major service always provided by hospital and community pharmacists was special counseling and information on some chronic diseases such as asthma, diabetes, blood pressure and cardiovascular diseases. However, one of the services least always rendered by both pharmacists was the provision of online nutrition counseling. These agree with the findings of Ma'aji *et al.* (2018). As a practitioner in high proximity with the grassroots, community pharmacists provide health promotion and related services, which might enable people to have better control over their own health; thereby

promoting adoption of healthy behaviors and self-management of health and wellness.

One of the least, always engaged-in services by both hospital and community pharmacists was the provision of immunization and methadone-supply to opiate-addicted patients as well as provision of smoking cessation service to patients. These are similar to the findings, in Nigeria, of Ma'aji *et al.* (2018). This is because pharmacists are not formally classified as professionals within the public health work force, unlike public health nutritionists, nurses and physicians (APHA, 2019).

Part of the PC services in which, moderately, hospital and community pharmacists were always involved was the provision of preventive care to patients suffering from chronic disease. This is related to the findings of Avong *et al.* (2018). Challenges to the

provision of preventive care such as finance and appropriate measure of outcome (Levine *et al.*, 2019) may be responsible for the disparity in the provision of this service between the two categories of pharmacists. Also, one of the services in which hospital pharmacists do not always render but which community

pharmacists, moderately, always provide was the sale and advisory services on the use of cosmetics. This finding corroborates the claim of Hindi *et al.* (2019) that the community pharmacist will be obliged to provide these services by default being the only healthcare expert at the grassroots.

Table 8: Miscellaneous Pharmaceutical Care Services by Community Pharmacists (n = 42)

Service	Not at all	Sometimes	Always
Home delivery	28 (28.0)	12 (8.3)	4 (3.7)
Companies & hospital outsourcing	7 (7.0)	28 (19.3)	7 (6.4)
Partnership promoting effective medication	13 (13.0)	14 (9.7)	17 (15.6)
Health related information	2 (2.0)	19 (13.1)	23 (21.1)
Point-of-care testing	7 (7.0)	22 (15.2)	16 (14.7)
Referrals to other health care facilities	4 (4.0)	20 (13.8)	21 (19.3)
24-hour services	30 (30.0)	2 (1.4)	13 (11.9)
Public awareness & enlightenment on health	9 (9.0)	28 (19.3)	8 (7.3)
Miscellaneous services	100 (47.6)	145 (60.7)	109 (48.9)
PC services (Core)	354 (46.8)	422 (58.2)	498 (52.2)

Values in parenthesis are percentages, *Multiple response

One of the services in which both hospital and community pharmacists were least involved always was the provision of home delivery, outsourcing drugs with hospital and pharmaceutical companies, partnering with various suppliers in promoting effective medication (for example, HIV drugs), health-related information [advice and IEC (information, education and counseling) materials], point-of-care testing (for example for malaria, blood sugar, packed cell volume and HIV services) and originate referrals to other healthcare facility. These are similar to the findings of Avong *et al.* (2018). These could be linked to the peculiarities of practice settings and work environment of the pharmacists.

However, a major service rendered by both hospital and community pharmacists (in which the latter was less involved) was the provision of 24-hour service to patients as well as public awareness and enlightenment on health issues. These findings are in concord with that of Ma'aji *et al.* (2018). Globally, the delivery of healthcare services over a 24-hour period has become integral to patient care. Unfortunately, the pharmacist,

being the only grassroots healthcare expert in the community, lacked the capacity to provide this service.

The level of engagement in drug-based service component of PC services by hospital pharmacists was not significantly different from that of community pharmacists (MW-U = 868.5, $p > 0.05$). The mean score for drug-based service for hospital pharmacists ($\mu = 42.20$) was close to that of the community pharmacists ($\mu = 45.76$).

However, the level of engagement in consultancy services by hospital pharmacists differed significantly from that of community pharmacists (MW-U = 636.5, $p < 0.01$). The mean score for consultancy services for hospital pharmacists ($\mu = 36.80$) was lower than that of the community pharmacists ($\mu = 51.03$). Furthermore, the level of engagement in miscellaneous pharmacy services by hospital pharmacists was not significantly different from that of the community pharmacists (MW-U = 917.5, $p > 0.05$). Details are as presented in Table 9.

Table 9: Distribution of Core Pharmaceutical Care Services by Hospital and Community Pharmacists (n = 87)

Services	Mean Rank		Mann-Whitney-U	p-value
	Hospital Pharmacist	Community Pharmacist		
Drug-related	42.20	45.76	868.500	0.512
Disease-based	36.80	51.03	636.500	0.008 ^a
Miscellaneous	43.34	44.65	917.500	0.810
Pharmaceutical care	40.07	47.84	777.000	0.152

^a*p*<0.05

CONCLUSION

This study showed that both hospital and community pharmacists have largely adopted PC concept in practice except in services such as extemporaneous drug preparation, health promotion, home delivery and public awareness and enlightenment on health. Therefore, to enhance sustainable healthcare delivery system in Nigeria

i. being a grassroots practitioner, community pharmacists should be more involved in extemporaneous service to resolve some therapeutic drug problems that can improve and sustain patient quality of life;

ii. hospital pharmacists should be more involved in the provision of health promotion services;

iii. pharmacists should be more involved in immunization services to neutralize what literature termed “knowledge gap that exist in vaccines handling and management”;

iv. pharmacists should be more involved in the tobacco control efforts of government to contribute to the success of the Nigerian.

ETHICAL CONSIDERATIONS

The study was approved by the Ethics Review Committee of the Department of Planning, Research and Statistics, Oyo State Ministry of Health (Ref. No.

AD 13\479\1147); consequent on compliance with National Code for Health Research Ethics’ guidelines, rules and regulations.

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