

**PATTERN OF COMMUNITY PHARMACISTS' SERVICES IN PORT HARCOURT
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ABSTRACT

Provision of quality health care services is a primary feature in the promotion and maintenance of the health status of any nation. Accessibility of the community pharmacies to the public places them on a very good platform for provision of services such as health promotion, disease prevention, lifestyle management, smoking cessation, screening of and monitoring of chronic diseases such as diabetes, hypertension. A prospective cross-sectional survey was carried out in Port Harcourt metropolis to evaluate the type of health services rendered by community pharmacists using a self-administered questionnaire. Information collected include demography of the participants and types of services with special emphasis on HIV management, smoking cessation and vaccination services. The study revealed that a high percentage of community pharmacists render a wide spectrum of health services but only 33.5%, 25.3% and 23.1% provide services in smoking cessation, HIV management and vaccination services respectively. Additional qualification and years of practice were found to significantly affect the type of services rendered. Our findings reveal that provision of blood glucose measurement, lifestyle management, health promotion and disease prevention, education on medication were lower among participants with BPharm only and in those with years of practice less than 10 years. Findings of the study highlight the need for increased involvement of community pharmacists in the management of HIV, smoking cessation and vaccination services in the metropolis.

KEYWORDS: Community pharmacists, HIV, smoking, vaccination, services.**INTRODUCTION**

The community pharmacists have always been and continue to be an integral part of the health care services provided to the communities where they operate. The accessibility of community pharmacies to the public makes them a very good setting for provision of public health services. Such services include health promotion, disease prevention, lifestyle management, smoking cessation, screening of and monitoring of chronic diseases such as diabetes, hypertension.^[1] The health indices of any nation are dependent to a great extent on the provision of these services as well as the health infrastructure.

Since the inception of pharmaceutical care as established by Hepler and Strand, the role of the pharmacists has expanded beyond the basic duty of dispensing of drugs to that of a health professional who is active in general health promotion and education with a patient-orientated approach.^[2,3] In the bid to meet up with this need, pharmacy schools have made many changes in the curriculum, expanding the knowledge with increased

emphasis on clinical skills and pharmaceutical care. This has propelled many pharmacists to acquire additional qualification and necessary skills in order to meet up with current demand and be able to provide the required services. Pharmaceutical care as established by Hepler and Strand is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improves a patient's quality of life.^[2] The policy involves the cooperation of a pharmacist with the patient and other health care professionals in designing, implementing, and monitoring a therapeutic plan that will produce specific therapeutic outcomes for the patient, hence the goal is to optimize patient's health-related quality of life.^[4]

Being part of the global community, Nigeria is not left out in efforts towards achieving this universal goal of delivery of adequate pharmaceutical care by pharmacists. In this wise, the Pharmacists Council of Nigeria (PCN), established a new set of practice standards to ensure delivery of pharmaceutical care, which includes among other things screening for chronic diseases, health

promotion, smoking cessation, HIV/AIDS and sexually transmitted diseases (STDS) control, family planning and immunization campaign in order ensure delivery of pharmaceutical care.^[5]

The direct patient care that community pharmacists provide has favourable effects for patients. It builds a relationship with the community pharmacists and facilitates counselling which in turn may improve patient adherence to treatments and clinical outcomes. Some favourable therapeutic outcomes of direct patient care by pharmacists' as established by a meta-analyses study include blood pressure control, Haemoglobin A1c and low-density lipoprotein cholesterol control as well as medication adherence and improved patients' quality of life.^[6]

Optimizing the use of medicines which is the heart of the pharmacist's role in the community, includes among other things supply of medicines, advice about safe and effective use of medicines and promotion of healthy lifestyle where appropriate. This is particularly relevant among patients presenting prescriptions for the treatment of chronic diseases such as diabetes, hypertension, heart diseases, and asthma. The accessibility of community pharmacists and long hours of opening in addition to their background in pharmacology and use of drugs, level of trust of the public provide a very good platform for establishing ongoing relationship with patients.

Community pharmacists in Port Harcourt Metropolis have always played important role of health care delivery with provision of basket of services to the residents of the Metropolis within the allowed limit of their professional standards of practice. To this end, this study seeks to evaluate the spectrum of services provided by community pharmacists across Port Harcourt metropolis and to establish the relationship if any between acquisition of additional qualification, duration of years of practice and services rendered.

MATERIALS AND METHODS

Study area

Study was carried out in Port Harcourt Metropolis, the capital of Rivers State, Nigeria. Port Harcourt has an estimated population of 2, 873,000 as at the time of the study 2020^[7]. Metropolis of Port Harcourt is positioned from Lat4⁰45'N –Lat 4⁰ 55' N, and Long 6⁰ 55' E – Long 7⁰ 05' E as shown in Figure 1. The Atlantic Ocean is found at an approximate distance of 25km from it. In-between the Bonny River, Dockyard and Amadi creeks is found this metropolis. The four local governments which the metropolis extends into are the Obio-Akpor, Eleme, Oyigbo, Okrika, and Port Harcourt LGAs. (Fig.1).

Study Design and Data collection

A prospective cross sectional survey was carried out to evaluate the services rendered by community pharmacists in the metropolis of Port Harcourt.

Community pharmacies in Port Harcourt metropolis are grouped into 13 Zones with each zone consisting of about 8-34 Pharmacies^[8]. As at the time of the study, there were about 485 community pharmacies. A sample size of 219 was calculated as the minimum number of pharmacies to be sampled. From each zone, convenient sampling was done and 221 community pharmacies were sampled within the study area. The study was carried out between March and April, 2020.

Information on the services rendered was derived from a self-administered, well-structured questionnaire and oral interview with the community pharmacists working in the various pharmacies. Information obtained include demography and years of practice as pharmacists, additional qualifications, location of pharmacy, ownership of pharmacy and types of services rendered. Special emphasis was laid on 'peculiar services' of interest which in the present study include HIV management, smoking cessation and vaccinations/immunization. The respondents willing agreed to participate in the study.

Community pharmacist in this study was defined as a pharmacist practising in a community pharmacy outlet with the minimum BPharm degree or its equivalent as approved by the Pharmacists Council of Nigeria. Some of the pharmacists functioned both as superintendent pharmacists and Directors of the pharmacies (Pharmacy owner) while others were simply superintendent pharmacists.

Data obtained was entered into Excel sheet while SPSS version 21 was used for analysis. Chi square was used to test for any association between qualifications of the pharmacists and services rendered, as well as the years of practice and its relationship to rendered services. Results were presented as percentages and pie charts.

Permission to do the study was obtained from the Chairman of Association of Community Pharmacists in Port Harcourt metropolis prior to commencing the study.

RESULTS

Community pharmacies in the study area were classified as urban (71.9%), semi-urban (24.4%) and rural (3.7%). Ownership of pharmacies shows a distribution of 199 (90%) vs 22 (10%) of pharmacists-owned and non-pharmacists-owned. Participating pharmacists were made up of 120 (54.3%) males and 101 (45.7%) females, with a mean age = 34.96 ±9.65 years. Demographic characteristics of the participating pharmacists are shown on Table 1.

Table 1: Demographic statistics of pharmacists.

Characteristics	n (%)
Qualification	
Bachelor of Pharmacy (BPharm)	172 (77.8)

Master of Pharmacy (MSc/MPharm)	19 (8.6)
Doctor of Pharmacy (PharmD)	18 (8.2)
Fellowship (FPCPharm)	12 (5.4)
Total	221 (100)
Years of practice	
1- 9 years	147 (666.5)
10-19 years	43 (19.5)
20-29 years	14 (6.3)
> 30 years	17 (7.7)
Total	221 (100)

Item analysis of the services rendered is shown on Table 2. Services rendered by the community pharmacists

range from the traditional roles of dispensing and filling of prescriptions to screening for chronic diseases like diabetes, hypertension, measurement and monitoring blood pressure and blood glucose. Others include laboratory investigations, lifestyle management, wound care, nutritional services, family planning services, vaccination services, smoking cessation etc. (Table 2). The vaccination services rendered include administration of vaccines, sale and storage of vaccines as reported by. Family planning services offered include sale of condoms, oral contraceptive pills while a very few (6 out of all the people that offer contraceptive services) also offer injectable modes of contraception.

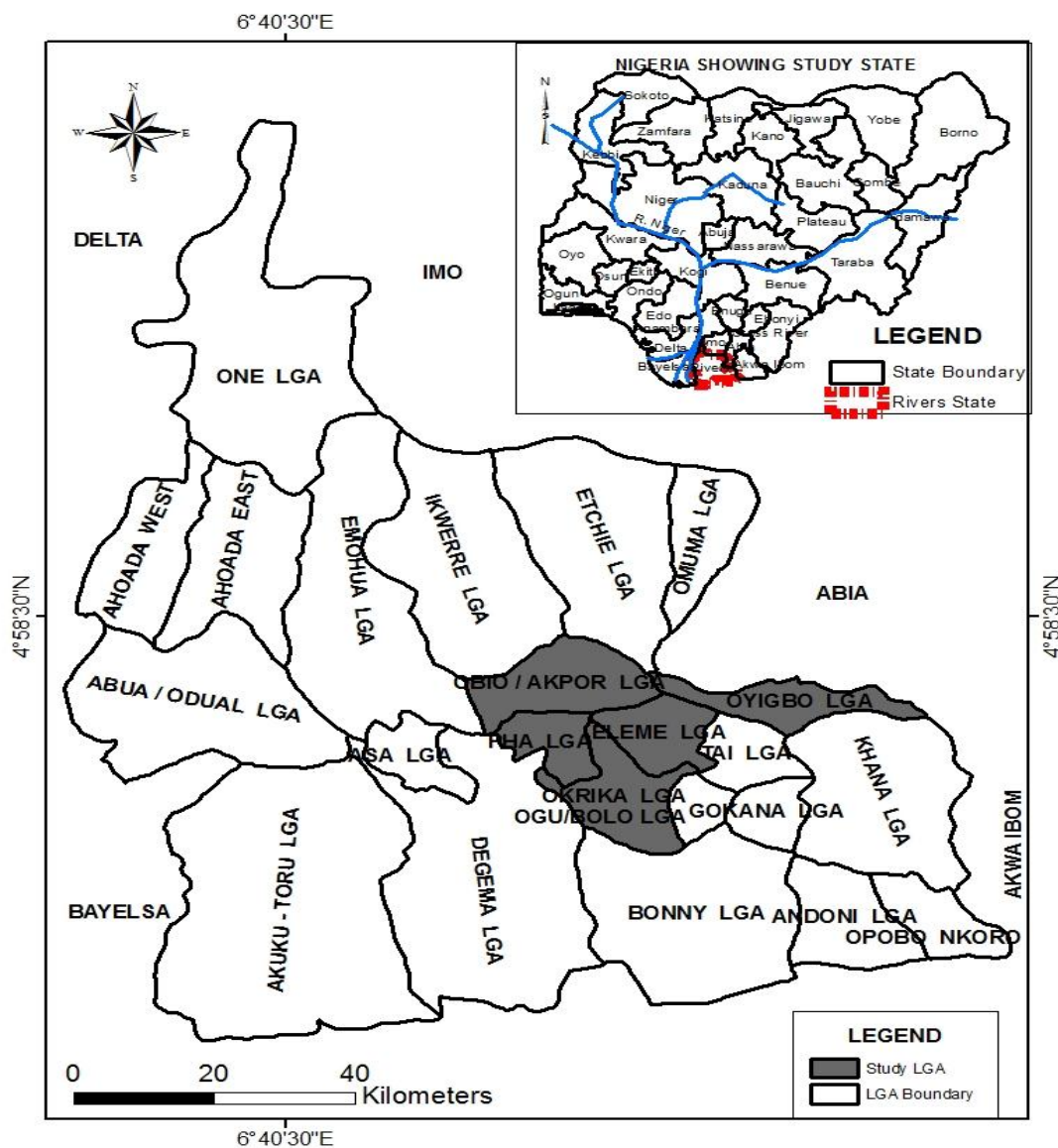


Figure 1: Rivers state showing port harcourt metropolis.

Table 2: Distribution of services rendered.

Services rendered	Frequency	Percentage
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BP measurement / monitoring	217	98.20%
Counselling of Patients	216	97.70%
Dispensing Medicines	211	95.50%
Referral to a Physician	191	86.40%
Blood Glucose measurement	190	86.00%
Education on Medication	189	85.50%
Wound Care	174	78.70%
Lifestyle Management	167	75.60%
Health Promotion and Disease Prevention	151	68.30%
Injections	142	64.30%
Nutritional Services	103	46.60%
Lab Investigations	90	40.70%
Smoking Cessation	74	33.50%
Family planning	63	28.50%
HIV management of devolved patients	56	25.30%
Vaccinations /Immunization services	51	23.10%

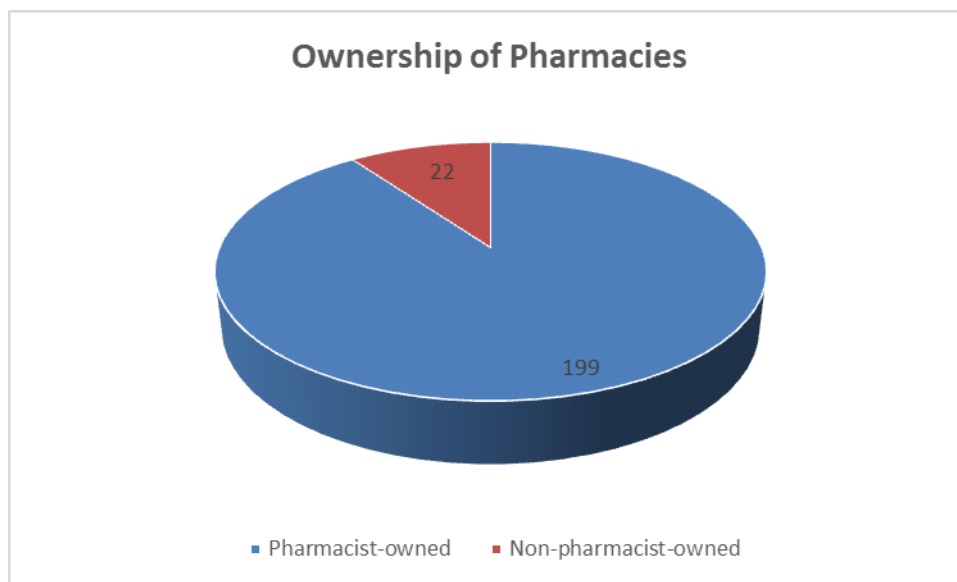


Figure 2: Ownership trend of community pharmacy across the study area.

Analysis carried out in the study area it showed that only 22% of pharmacies that were part of the study are not owned by pharmacists as shown in Figure 2.

Result of test for analysis between qualifications and services rendered revealed that the distribution of blood glucose measurement, lifestyle management, wound care and health promotion was significantly lower among

participants with BPharm only. Furthermore, the distribution of education on medication, referral to physician and giving injections was also significantly lower among participants with BPharm only. However, the distribution of other services in reference to qualifications were not found to be statistically significant (Table 3).

Table 3: Distribution of services by qualification.

Services offered	BPharm n (%)	FPCPharm n (%)	MPharm / MSc n (%)	PharmD n (%)	Chi-square (p-value)
BP measurement / monitoring					
Yes	171(97.2)	8(100)	19(100)	18(100)	
No	5(2.8)	0(0)	0(0)	0(0)	1.30 (0.727)
Blood Glucose measurement					
Yes	145(82.4)	8(100)	19(100)	18(100)	
No	31(17.6)	0(0)	0(0)	0(0)	9.21 (0.027)*
Dispensing Medicines					
Yes	166(94.3)	8(100)	19(100)	18(100)	
No	10(5.7)	0(0)	0(0)	0(0)	2.67 (0.444)

Counselling of Patients					
Yes	170(96.6)	8(100)	19(100)	18(100)	
No	6(3.4)	0(0)	0(0)	0(0)	1.57 (0.665)
Lab Investigations					
Yes	68(38.6)	5(62.5)	7(36.8)	108(600)	
No	108(61.4)	3(37.5)	12(63.2)	3(16.7)	3.64 (0.302)
Nutritional Services					
Yes	78(44.3)	5(62.5)	8(42.1)	12(66.7)	
No	98(55.7)	3(37.5)	11(57.9)	6(33.3)	4.24 (0.236)
Vaccinations /Immunization					
Yes	43(24.4)	1(12.5)	3(15.8)	4(22.2)	
No	133(75.6)	7(87.5)	16(84.2)	14(77.8)	1.26 (0.738)
HIV management of devolved patients					
Yes	45(25.6)	1(12.5)	4(21.1)	6(33.3)	
No	131(74.4)	7(87.5)	15(78.9)	12(66.7)	1.49 (0.684)
Lifestyle Management					
Yes	124(70.5)	8(100)	19(100)	16(88.9)	
No	52(29.5)	0(0)	0(0)	2(11.1)	12.95 (0.005)*
Wound Care					
Yes	129(73.3)	8(100)	19(100)	18(100)	
No	47(26.7)	0(0)	0(0)	0(0)	15.26 (0.002)*
Health Promotion and Disease Prevention					
Yes	111(63.1)	8(100)	18(94.7)	14(77.8)	12.82 (0.005)*
No	65(36.9)	0(0)	1(5.3)	4(22.2)	
Smoking Cessation					
Yes	55(31.3)	4(50)	5(26.3)	9(50)	4.02 (0.259)
No	121(68.8)	4(50)	14(73.7)	9(50)	
Education on Medication					
Yes	144(81.8)	8(100)	19(100)	18(100)	9.56 (0.023)*
No	32(18.2)	0(0)	0(0)	0(0)	
Referral to a Physician					
Yes	146(83)	8(100)	19(100)	18(100)	8.87 (0.031)*
No	30(17)	0(0)	0(0)	0(0)	
Injections					
Yes	103(58.5)	7(87.5)	18(94.7)	14(77.8)	13.51 (0.004)*
No	73(41.5)	1(12.5)	1(5.3)	4(22.2)	
Family planning					
Yes	49(27.8)	2(25.0)	4(21.1)	7(38.9)	1.54 (0.671)
No	127(72.2)	6(75.0)	15(78.9)	11(61.1)	

*statistically significant ($p < 0.05$)

The distribution of blood glucose measurement, laboratory investigations, nutritional services, lifestyle management, wound care and health promotion and disease prevention as well as education on medication, referral to a physician, giving injection and family

planning were significantly lower among participants with 1 – 9 years of experience. The distribution of other services in relation to the years of practice were not found to be statistically significant (Table 4).

Table 4: Distribution of services by years of practice.

Services offered	1-9 years n (%)	10-19 years n (%)	20-29 years n (%)	≥30 years n (%)	Chi-square (p-value)
BP measurement / monitoring					
Yes	142(96.6)	43(100)	14(100)	17(100)	2.57 (0.462)
No	5(3.4)	0(0)	0(0)	0(0)	
Blood Glucose measurement					
Yes	116(78.9)	43(100)	14(100)	17(100)	18.15(0.0001)*

No	31(21.1)	0(0)	0(0)	0(0)	
Dispensing Medicines					
Yes	137(93.2)	43(100)	14(100)	17(100)	5.27(0.153)
No	10(6.8)	0(0)	0(0)	0(0)	
Counselling of Patients					
Yes	141(95.9)	43(100)	14(100)	17(100)	3.10 (0.376)
No	6(4.1)	0(0)	0(0)	0(0)	
Lab Investigations					
Yes	37(25.2)	22(51.2)	14(100)	17(100)	61.79(0.0001)*
No	110(74.8)	21(48.8)	0(0)	0(0)	
Nutritional Services					
Yes	37(25.2)	35(81.4)	14(100)	17(100)	83.57(0.0001)*
No	110(74.8)	8(18.6)	0(0)	0(0)	
Vaccinations /Immunization					
Yes	37(25.2)	35(20.9)	14(28.6)	17(5.9)	3.54 (0.315)
No	110(74.8)	8(79.1)	0(71.4)	0(94.1)	
HIV management of devolved patients					
Yes	37(25.2)	9(20.9)	4(28.6)	6(35.3)	1.41 (0.703)
No	110(74.8)	34(79.1)	10(71.4)	11(64.7)	
Lifestyle Management					
Yes	93(63.3)	43(100)	14(100)	17(100)	35.97 (0.0001)*
No	54(36.7)	0(0)	0(0)	0(0)	
Wound Care					
Yes	100(68)	43(100)	14(100)	17(100)	30.05 (0.0001)*
No	47(32)	0(0)	0(0)	0(0)	
Health Promotion and Disease Prevention					
Yes	77(52.4)	43(100)	14(100)	17(100)	51.57 (0.0001)*
No	70(47.6)	0(0)	0(0)	0(0)	
Smoking Cessation					
Yes	37(25.2)	9(20.9)	10(71.4)	17(100)	50.75 (0.0001)*
No	110(74.8)	34(79.1)	4(28.6)	0(0)	
Education on Medication					
Yes	115(78.2)	43(100)	14(100)	17(100)	18.83 (0.0001)*
No	32(21.8)	0(0)	0(0)	0(0)	
Referral to a Physician					
Yes	117(79.6)	43(100)	14(100)	17(100)	17.47 (0.001)*
No	30(20.4)	0(0)	0(0)	0(0)	
Injections					
Yes	68(46.3)	43(100)	14(100)	17(100)	61.89 (0.0001)*
No	79(53.7)	0(0)	0(0)	0(0)	
Family planning					
Yes	68(46.3)	43(100)	14(100)	17(100)	61.89 (0.0001)*
No	79(53.7)	0(0)	0(0)	0(0)	

*statistically significant ($p < 0.05$)

DISCUSSION

The expanding role of community pharmacists indicates their position as an integral part of public healthcare provision. Of particular mention is the free medical advice provided to clients without the need of appointment as against difficulty of some persons to reach a physician especially where there is financial constraint. One of the key attributes of community pharmacists in provision of primary healthcare is their accessibility which centres on their long opening hours and the concept of free consultation as against what is obtainable in clinics or hospitals. The uniqueness in

accessibility of community pharmacists places them in a better position for screening, early detection and management of chronic diseases.^[10]

Present day Community pharmacists provide a large expanse of services ranging from the traditional dispensing and filling of prescriptions, health education, life style change, chronic disease management,^[11] medication therapy management,^[12] smoking cessation,^[13] family planning and substance abuse.^[14] The present study has shown that community

pharmacists in Port Harcourt metropolis also provide these services albeit at different levels.

The high percentage (>95%) of participants involved in dispensing confirms the fact that dispensing remains a primary focus of pharmacists and this goes hand in hand with counselling of patients. This conforms to the need for provision of pharmaceutical care to the community of operation^[15]. Blood glucose and blood pressure monitoring which are very important features in management of diabetes and hypertension in patients were found to be among the major services rendered. This is in consonance with the results of a study in Enugu metropolis.^[11]

The present study reports show that only 25.3% of pharmacists are involved in HIV management. This is a very low level of involvement when compared to the great need of care considering the high prevalence of HIV of 3.4% in the Niger Delta area where Port Harcourt is located compared to the 1.4% national prevalence.^[16] A pilot study on involvement of community pharmacies in HIV management showed a high retention in care of these patients and a very low loss to follow-up with patients preferring the intervention over the hospital based approach.^[17] Part of the challenges of HIV management as established in many studies, is poor access to ARV drugs and financial constraint in the area of transport cost to the health facilities.^[18,19] Out of about 3.4 million infected people in Nigeria, only 22% (740,000) were under treatment as at 2015^[20] Based on the fact that about 95% of HIV delivery services take place in hospitals, the WHO recommends that services and care of HIV persons be initiated in peripheral clinics and community settings.^[21,22] Therefore, this calls for inclusion and adoption of more community pharmacies in order to increase access to HIV services.^[23] Involving more Community pharmacies in the management of HIV will increase the access since many pharmacies are within the neighbourhood and therefore offer more proximity to the patients. The availability of adequate space with a provision of counselling in a private and confidential place with a standby generator in community pharmacies as required by WHO and the Pharmacists Council of Nigeria show their readiness for provision of HIV services.^[24,25]

Smoking tobacco has been associated with increased cancer and death rates. Tobacco accounts for about 7 million deaths per year globally^[26] and smokers die 10 years earlier than non-smokers.^[27] The accessibility of community pharmacists and proximity makes community pharmacy a very good platform to manage and promote smoking cessation. A study has shown that smoking cessation services offered by community pharmacies in the United Kingdom helped 33,000 smokers quit smoking between April and June 2012.^[28] The result of present study is in contrast to the result obtained in Enugu, Eastern Nigeria, and Ethiopian study that obtained 7.5% and 8.5% respectively, and equally

different from an Irish study that established that only 19% of community pharmacists were involved in smoking cessation.^[11,1,29] The 33.5% value obtained in the present study, is quite commendable when compared to the results of the previous studies cited above. Involvement of many more community pharmacists is advocated.

The World Health Organisation, reports that between 2 to 3 million lives of all age groups are saved each year through vaccination^[30,31] The 23.1% vaccination service obtained from the present study is very low compared to what is obtainable in developed countries. This shows that vaccination services is yet to be well-established in community pharmacies in Nigeria. In the United States of America, pharmacists provide vaccination in 86% of community pharmacies.^[32] Vaccine administration has been ongoing for some years in other parts of the world including Europe and some African Countries. In Portugal, the scope of services rendered by community pharmacies includes vaccine administration which is administered either by the pharmacist or a nurse. This is equally applicable in South Africa,^[33] In the United Kingdom, Flu vaccine is freely given in pharmacies and there is no limit to the vaccinations that could be rendered by the community pharmacist provided they are given eligible patients.^[34]

Vaccination/immunization services in community pharmacies is not limited to administration of the vaccines but includes distribution of vaccination leaflet, display of immunization poster services on the windows in community pharmacies, educating the public and other health care professionals on immunization, alerting international travelers and identifying high risk patient groups. Others include provision of cold chain facilities and sales and storage of vaccines and client reminders to take their vaccines.^[33]

There is a potential increase in vaccine uptake with the administration of vaccines in community pharmacies. This is especially so because of the increased convenience of provision of these services without appointment, and not having to wait long hours coupled with the long opening hours as against what is obtained in hospitals.^[35,9] Through the expansion of pharmacists-provided immunization, patient vaccination rate has improved. In the United States of America, the medical community has come to recognition of pharmacists as immunization providers and have promoted community pharmacies as active sites for provision of immunization services.^[36] The offering of vaccinations by community pharmacies complements the health care system by providing more platforms for people to receive vaccines. In the present situation from the study, it is possible that the health status of persons may reveal higher level of vulnerability to preventable diseases in pockets of areas where community pharmacies do not provide vaccination services. A study of to evaluate these parameters may be necessary.

Analysis of the services to establish any relationship with the additional qualifications of the pharmacists showed that majority of the services were significantly lower in participants with BPharm only (Table 3). This implies that additional qualification helps to improve services delivered. Educational training and qualification have been proved to be a means to update knowledge and impact positively on practice.^[37] Educational interventions in the area of training and continuing education will also contribute towards the expansion of the services rendered by community pharmacists.

In respect to the years of practice, the study showed that majority of the services rendered were significantly lower among participants with 1-9 years of practice. This is somewhat surprising, because it is presumed that younger colleagues should be more aware of current trend of service compared to older ones. This was demonstrated in the study among general practitioners which reported that medical practitioners with less than or equal to 5 years qualification were significantly more likely to adopt the treatment protocol compared to those with more years of qualification.^[38]

The high percentage of ownership of pharmacies by the pharmacist is very commendable as it gives greater liberty for the rendering of pharmaceutical care services as required by the regulating body PCN.

CONCLUSION

Community pharmacists in Port Harcourt metropolis offer wide spectrum of services to their various communities. Despite this wide range of services, our findings reveal the great need of increased involvement of pharmacists in HIV management, vaccinations and smoking cessations.

Additional qualifications and longer years of practice were found to significantly and positively influence many of the services rendered. Adequate education and training with the unique positioning of pharmacists will enable expanded services to the various communities where they are located with a consequent improvement of the general health status of the community. It is therefore advocated that strategic measures be taken to increase involvement of more community pharmacists in the delivery of public health services.

Competing interests

The authors declare no competing interest.

REFERENCES

1. Erku DA, Mersha AG Involvement of community pharmacists in public health priorities: A multi-center descriptive survey in Ethiopia. *PLoS ONE*, 2017; 12(7): e0180943.
2. Hepler CD, Strand LM. Opportunities and responsibilities in pharmaceutical care. *Am J Pharm*, 1991; 47: 533-543.

3. Gilbert L. Community pharmacy in South Africa: A changing profession in a society in transition. *Health & Place*, 1998; 4(3): 273-285.
4. Cipolle RJ, Strand LM, Morley PC. *Pharmaceutical Care Practice: The Patient-Centered Approach to Medication Management Services*, 3rd edition. McGraw-Hill Medical, 2012.
5. Nigeria PCo. Four-part compendium of minimum standards of pharmaceutical care in Nigeria. Abuja, Nigeria: Pharmacist Council of Nigeria, 2005.
6. Chisholm-Burns MA, Kim Lee J, Spivey CA, Slack M, Herrier RN, Hall-Lipsy E, Graff Zivin J, Abraham I, Palmer J, Martin JR, Kramer SS, Wunz T (2010). US pharmacists' effect as team members on patient care: systematic review and meta-analyses. *Med Care*, 2010; 48(10): 923-933
7. National Bureau of Statistics (NBS). Federal Republic of Nigeria, Annual Abstract of Statistics, 2010.
8. Chijioke-Nwauche I and Ogoh C. Malaria treatment by community pharmacists in Port Harcourt, Nigeria. *European Journal of Pharmaceutical and Medical Research*, *ejpmr*, 2020; 7(3): 15-20.
9. Fowowe Oluwadamilola and Aina Bolajoko. Immunization Services: Involvement of Community Pharmacies in Lagos State, Nigeria. *British Journal of Pharmaceutical Research*, 2016; 12(6): 1-12.
10. FIP, 2016. An overview of current pharmacy impact on immunization: a global report Offu O, Anetoh M, Okonta M and Ekwunife O. Engaging Nigerian community pharmacists in public health programs: assessment of their knowledge, attitude and practice in Enugu metropolis *Journal of Pharmaceutical Policy and Practice*, 2015; 8: 27.
11. Bunting BA, Smith BH, Sutherland SE. The Ashville Project: clinical and economic outcomes of a community-based long-term medication therapy management program for hypertension and dyslipidemia. *J Am Pharm Assoc*, 2008; 48: 23-31.
12. Patwardhan PD, Chewning BA. Effectiveness of intervention to implement tobacco cessation counseling in community chain pharmacies. *J Am Pharm Assoc*, 2012; 52: 507-14.
13. Agomo CO. The role of community pharmacists in public health: a scoping review of the literature. *J Pharm Health Serv Res*, 2012; 3: 25-33.
14. Christensen DB¹, Farris KB. Pharmaceutical care in community pharmacies: practice and research in the US. *Ann Pharmacother*, 2006; 40(7-8): 1400-6.
15. National Agency for the Control of AIDS (NACA), (2019). Available at <https://naca.gov.ng/nigeria-prevalence-rate/>, 2020; 13.
16. Avong YK, Aliyu GG, Jatau B, Gurumnaan R, Danat N, Kayode GA, et al. Integrating community pharmacy into community based anti-retroviral therapy program: A pilot implementation in Abuja, Nigeria. *PLoS ONE*, 2018; 13(1): e0190286.
17. Nwankwo, U., Nduka V. O., Ildigwe S. E., Emmanuel, Ogbonna Brian E.A., Uzodinma U. S and Okonta J. Matthew Assessment of highly active

- antiretroviral therapy (HAART) adherence among HIV patients in a tertiary health institution in Nigeria. *African Journal of Pharmacy and Pharmacology*, 2014; 8(47): 1192-1199.
18. Azia, I.N., Mukumbang, F.C., Wyk, B.V., Barriers to adherence to antiretroviral treatment in a regional hospital in Vredenburg, Western Cape, South Africa. *South Afr J HIV Med*, 2016; 17(1): 476.
 19. Ojeme V. 747,000 HIV patients under ART treatment in Nigeria-NACA report. *Vanguard News*, 2015; 13. <https://www.vanguardngr.com/2015/09/747000-hiv-patients-under-art-treatment-in-nigeria-naca/>. Accessed Jan, 2021.
 20. Fhi 360. Community based model of differentiated care for stable patients on antiretroviral therapy to a good start in Nigeria 2016 <http://insidenigeria.org/community-based-model-of-differentiated-care-for-stable-patients-on-antiretroviral-therapy-art-off-to-a-good-start-in-nigeria/>. Accessed Feb 2021.
 21. WHO. HIV/AIDS fact sheet. Updated November, 2015. <http://www.who.int/mediacentre/factsheets/fs360/en/>. Accessed Jan, 2021.
 22. WHO/FIP. Developing pharmacy practice: a focus on patient care. Hague: World Health Organisation and International Pharmaceutical Federation, 2006.
 23. WHO. WHO Standards for quality HIV care: a tool for quality assessment, improvement, and accreditation: Report of a WHO consultation meeting on the accreditation of health service facilities for HIV care, 2004; 10-11. Geneva, Switzerland. Available at http://www.who.int/hiv/pub/prev_care/en/standardsquality.pdf. Accessed 23 Jan 2021.
 24. Pharmacists' Council of Nigeria. Four part compendium of minimum standards of pharmaceutical care in Nigeria, Abuja, 2005.
 25. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2017external icon, Geneva: World Health Organization, 2017; 2021.
 26. Jha P, Ramasundarahettige C, Landsman V, et al. 21st Century Hazards of Smoking and Benefits of Cessation in the United Statesexternal icon. *New England Journal of Medicine*, 2013; 368: 341-50.
 27. Waldron J. PSNC: emphasise stop-smoking successes to new commissioners. Available at: <https://www.chemistanddruggist.co.uk/news/psns-emphasis-stop-smoking-success-new-commissioners>. Accessed Jan, 2021.
 28. Maguire TA, McElnay JC, Drummond A: A randomized controlled trial of a smoking cessation intervention based in community pharmacies. *Addiction* 2001, 96:325±331 <https://doi.org/10.1080/09652140020021062> PMID: 11182878
 29. World Health Organization (WHO). 2013. Global Vaccine Action Plan 2011-2020. WHO Press, Switzerland, 2013. Online access>:http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/ [Accessed 30 Jan, 2021]
 30. World Health Organization (WHO). 2016. Immunization coverage fact sheet, March 2016. Online access: <http://www.who.int/mediacentre/factsheets/fs378/en/> [Accessed 30 Jan, 2021].
 31. Bach A, Goad J. The role of community pharmacy-based vaccination in the USA: current practice and future directions. *Back to Journals » Integrated Pharmacy Research and Practice » Volume 4*, 2015. Vol 4; pages 67-77.
 32. FIP, 2016. An overview of current pharmacy impact on immunization: a global report
 33. Atkins K. et al. Seasonal influenza vaccination delivery through community pharmacists in England: evaluation of the London pilot. *BMJ Open* 2016. Online Access: <http://bmjopen.bmj.com/content/6/2/e009739.full#sec-14>. Accessed 10 Jan, 2021.
 34. Grabenstein JD, Guess HA, Hartzema AG, Koch GG, Konrad TR. Attitudinal factors among adult prescription recipients associated with choice of where to be vaccinated. *J Clin Epidemiol*. 2002;55 (3):279–284.
 35. The American Pharmacists Association. Resources. 2016. Vaccine Administration Record for Adults. Online Access: <http://www.immunize.org/catg.d/p2023.pdf>. Accessed Jan, 2021.
 36. Soni JS, Oparah AC, Usifoh FO, Oseji MA, Aghohuwa MA and Epelle P. The Roles of Pharmacists in Optimizing Care for Hypertensive Patients in Hospital and Community Pharmacies in Edo State, South-South Nigeria. *East and Central African Journal of Pharmaceutical Sciences*, 2020, Vol. 23 28-35.
 37. Ugwu EO, Ifekrigwe ES, Obi SN, Ugwu AO, Agu PU and Okezie OA. Antimalaria prescription in pregnancy among general practitioners in Enugu State, south east Nigeria. *Niger Med J*. 2013; 54(2): 96-99.