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Original Research

Adequacy of Community Pharmacies for Doctor of Pharmacy and Internship Training in Nigeria

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ABSTRACT

Background: The Doctor of Pharmacy (PharmD) programme, which is the minimum degree for Pharmacy in Nigeria, includes a mandatory exposure of students to community pharmacy experience. Only community pharmacies accredited for the training of pharmacy interns are qualified to participate in the PharmD programme. There is a need to ensure the adequacy of community pharmacies accredited for internship training to achieve standard training of PharmD students. Objectives: To assess the adequacy of the community pharmacies for PharmD and internship programmes in Nigeria.

Methods: Publications, file records and website of Pharmacists Council of Nigeria were reviewed. Licensed community pharmacies and those accredited for internship training programme across the States and geographical zones of the federation were identified. The average number of graduates per State and the preceptor: intern ratios were also identified.

Results: Out of the 36 States of the federation and the Federal Capital Territory, only 17 States (45.95%) have Faculties of Pharmacy, out of which only Lagos State (6.7%) met the standard for preceptor: student ratio. There was inadequacy in the number of accredited community pharmacies for the PharmD training with the preceptor: interneer ratio ranging from 1: 6 in Oyo State to 1:94 in Kaduna State as against the stipulated ratio of 1:4, with many States having no training centre.

Conclusion: Accredited community pharmacies for the training of PharmD students and internship programme are grossly inadequate in Nigeria. There is an urgent need to increase the number of community pharmacies for PharmD training through strategic advocacy and capacity building.

Keywords: PharmD, Internship, Adequacy, Community Pharmacies

INTRODUCTION

The profession and practice of pharmacy in Nigeria did not start as a well-defined health care area of specialisation as it is today. Instead, pharmaceutical training was borne from the necessity to assist expatriate medical officers. Pharmacists went from the galenical era to the more product era of scientific pharmacy.¹ Today, the professional role of the pharmacist in hospitals and community pharmacies is changing from a focus on preparation, dispensing and sale of medications to one in which pharmacists assist the public to get the best possible results from medicines, through patient education, physician consultation, and patient monitoring.² The path for the continuous growth of the pharmacy profession requires expansion, resurfacing and modernisation. This justifies the need for new pharmacy programme and curriculum that can produce the workforce needed for the new roles such as the Doctor of Pharmacy (PharmD) programme.² The curriculum includes several experiential elements which are completed in the community and hospital settings.^{3,4}

In the exercise of its statutory responsibility to determine standards for training for pharmacists, the Pharmacists' Council of Nigeria (PCN) advocated that the National Universities Commission (NUC) should introduce a six-year Doctor of Pharmacy programme. This new programme would replace the five-year Bachelor of Pharmacy

programme in Nigerian universities. Consequently, the NUC approved the PharmD programme, as the minimum degree for Pharmacy, to take effect from the 2016/2017 academic session, with the Faculty of Pharmacy, University of Benin, as the pioneer faculty. Nigeria is the eighth African country to adopt the programme formally.⁵ About three years after the introduction of PharmD degree in the country; only five out of the twenty faculties of pharmacy in Nigeria have been accredited by the National Universities Commission to run the programme. The schools are University of Benin, Edo State; Bayero University, Kano; University of Nigeria, Nsukka; University of Jos; and the University of Ilorin. Reference.⁵

Pharmacy school is one of the professional courses that have an internship program, and it is currently being practised in Nigeria. Pharmacy graduates, after induction/ oath-taking, are statutorily required to undergo a compulsory one-year continuous internship training, under registered pharmacists (preceptors), in centres approved by the Pharmacists Council of Nigeria. Registration as a pharmacist is granted to a person only after the successful completion of the internship training programme. The intern is expected to, through a coordinated rotation, observe and participate in the practical aspects of all areas of practice including but not limited to Hospital, Industrial, Community, Academic and Administrative Pharmacy.⁴ A healthcare preceptor is an

experienced practitioner who provides supervision during clinical practice and facilitates the application of theory to practice for student and staff learners.⁶ In Nigeria, the Internee preceptor, in addition to other roles, provides professional/moral guidance to the intern and continuously assesses the Internee by filing relevant sections of the logbook as well as processing a certificate of experience at the end of the training programme from the Pharmacists Council of Nigeria.⁴

Document review at the Pharmacists Council of Nigeria indicated that the PharmD programme includes a mandatory exposure of students to the community pharmacy experience and that only community pharmacies accredited for the training of pharmacy interns are qualified to participate in the PharmD students' community pharmacy exposure. This fosters the need to ensure the adequacy of community pharmacies accredited for internship training, to achieve standard training for PharmD students and absorb students and fresh graduates from the increasing numbers of pharmacy schools. This study aims to assess and provide information on the nationwide adequacy of the community pharmacies that would offer the community pharmacy component of the PharmD training as well as internship training in Nigeria.

METHODS

Study population

According to the National Bureau of Statistics, Nigeria has a population of about 196 million people with a growth rate of 2.6% annual change.⁷ The country is divided into six geopolitical zones; the North-West, North-East, North-Central, South-West, South-East and South-South. In 2019, 14,877 pharmacists had renewed their annual license according to the PCN December 2019 Register of pharmacists and pharmaceutical premises in Nigeria.⁸ These pharmacists practised in various sectors including administration and regulation, hospital and community pharmacies, wholesale and pharmaceutical manufacturing, distribution, academia, research and development, consultancy and public health. There were 8386 licensed pharmaceutical premises, out of which 4425 were community pharmacies.⁸ A total of 20 faculties of pharmacy were accredited for pharmacy education in Nigeria by December 2019, out of which five had been accredited by the National Universities Commission and Pharmacists Council of Nigeria to run the PharmD programme. The schools are University of Benin, Edo State; Bayero University, Kano; University of Nigeria, Nsukka; University of Jos; and the University of Ilorin, while the accreditation processes are on-going in the other fifteen faculties⁵.

Study design and procedure

This study is a descriptive cross-sectional study conducted to assess the adequacy of community

pharmacies towards their involvement in PharmD and internship training in Nigeria. Publications, file records and website of the Pharmacists Council of Nigeria were reviewed and data collected. Licensed community pharmacies in Nigeria, community pharmacies accredited for internship training by the Pharmacists Council of Nigeria, all faculties of pharmacy in Nigeria, and graduates from accredited schools of pharmacy in Nigeria from 2017 to 2019 were included in the study. The community pharmacies not accredited for internship training by the Pharmacists Council of Nigeria and graduates from accredited schools of pharmacy in Nigeria outside 2017 to 2019 were excluded from the study.

Data Collection and Analysis

The twenty universities accredited to train pharmacists by the PCN were identified according to their respective locations (States of the federation), an average number of graduates inducted into the pharmacy profession within the three years after the approval to commence PharmD training as the minimum degree for pharmacy by the National Universities Commission, the number of community pharmacies licensed and number accredited for internship training by PCN as at December 2019, were determined. The proportion of community pharmacies per State that were accredited for internship training, as well as an actual preceptor: intern ratio per State was also determined. The data collected was then sorted, cleaned and analysed using

Microsoft Excel sheet.

Ethical Approval

The study did not involve the use of private information of the community pharmacies and faculties of pharmacy. Ethical approval was obtained from the Oyo State Research Ethical Review Committee, Ministry of Health, Ibadan, Nigeria.

RESULTS

Out of the 36 States and the Federal Capital Territory, only 17 States (45.95%) have faculties of pharmacy; with Edo, Rivers and Kaduna States having two pharmacy schools each. Of the 1674 average total of pharmacy graduates, River State had 268 (16.01%), Edo State had 214 (12.78%), Enugu State had 181 (10.81%), and Lagos State had 167 (9.98%). States like Kwara had 24 (1.43%) while Sokoto and Akwa Ibom had 52 (3.11%) pharmacy graduates each (Table 1 and Table 2).

The total number of registered community pharmacies were 4425, out of which Lagos State had 1344 (30.37%); Abuja had 596 (13.47%), and Rivers had 310 (7.01%). The States with the least number of community pharmacies were Yobe 1 (0.02%), Jigawa 2 (0.05%) and Zamfara 3 (0.11%). From the 36 States and FCT, only 17 States (45.95%) had community pharmacies registered as internship training centres with Lagos and Oyo having 119 (66.48%) and 12 (6.70%) respectively. In contrast, Osun, Nassarawa, Kwara, Kaduna, Ekiti, and Abia States had 1 (0.55%) each.

For Actual preceptor to intern ratio, Lagos State had 1:1; Oyo State had 1:6 while Kaduna and Edo States had 1:94 and 1:71 respectively. The inadequacy rates are highest in the North West, followed by South-South, while the North East has no internship training centre (Table 2 and Figure 1).

Table 1. Distribution of Community Pharmacies accredited for internship training and Faculties of Pharmacy across States of Nigeria by December 31, 2019

States in Nigeria	Faculties of Pharmacy per State	Average No. of Pharmacy graduates per State (2017–2019)	Number of Community Pharmacies per State	Number of Community Pharmacies per State that are accredited for internship	% of Community Pharmacies per State that are accredited for internship (%)	Actual preceptor per intern ratio per State (Standard is 1:4)
Abia	-		31	1	3.23	
Adamawa	-		26		0.00	
Akwa Ibom	University of Uyo Nnamdi Azikiwe University,	52	133	2	1.50	1:26
Anambra	Awka	97	145	3	2.07	1:32
Bauchi	-		11		0.00	
Bayelsa	Niger Delta University. Yenegoa	61	11		0.00	
Benue	-		85		0.00	
Borno	University of Maiduguri	61	17		0.00	
Cross River	-		55		0.00	
Delta	Delta State University, Abraka,	79	158	5	3.16	1:16
Ebonyi	-		28		0.00	
Edo	University of Benin Igbinedion University	214	185	3	1.62	1:71
Ekiti	-		21	1	4.76	
Enugu	University of Nigeria Nsukka	181	119	5	4.20	1:36
FCT Abuja	-		596	7	1.17	
Gombe	Gombe State University		7		0.00	
Imo	-		103		0.00	
Jigawa	-		2		0.00	
Kaduna	Ahmadu Bello University, Zaria Kaduna State University	94	94	1	1.06	1:94
Kano	-		47		0.00	
Katsina	-		15		0.00	
Kebbi	-		6		0.00	
Kogi	-		40		0.00	
Kwara	University of Ilorin	24	64	1	1.56	1:24
Lagos	University of Lagos	167	1344	119	8.85	1:1
Nassarawa	-		90	1	1.11	
Niger	-		59		0.00	
Ogun	Olabisi Onabanjo university, Ogun	73	201	7	3.48	1:10
Ondo	-		54		0.00	
Osun	Obafemi Awolowo University Ife	109	83		0.00	
Oyo	University of Ibadan	73	178	12	6.74	1:6
Plateau	University of Jos Madonna University Elele	69	77	2	2.60	1:35
Rivers	University of Port-Harcourt	268	310	8	2.58	1:34
Sokoto	Usman Danfodio Sokoto	52	8		0.00	
Taraba	-		16		0.00	
Yobe	-		1		0.00	
Zamfara	-		5		0.00	
Total		1674	4425	178	13.26	

Table 2. Distribution of Community Pharmacies accredited for internship training and Faculties of Pharmacy across geo-political zones of Nigeria

Geopolitical Zones	Average Number of pharmacy graduates per zone (2017-2019)	Number of Community Pharmacy	Number of Community Pharmacy accredited for internship training per zone	% of Community Pharmacy accredited for internship training per zone(%)	Actual Preceptor: Intern Ratio
North Central	93	1011	11	1.09	1:8
North West	146	177	1	0.56	1:146
North East	61	78	0	0.00	N/A
South West	422	1881	139	7.39	1:3
South South	674	852	18	2.11	1:37
South East	278	426	9	2.11	1:31
Total	1674	4425	178	13.26	

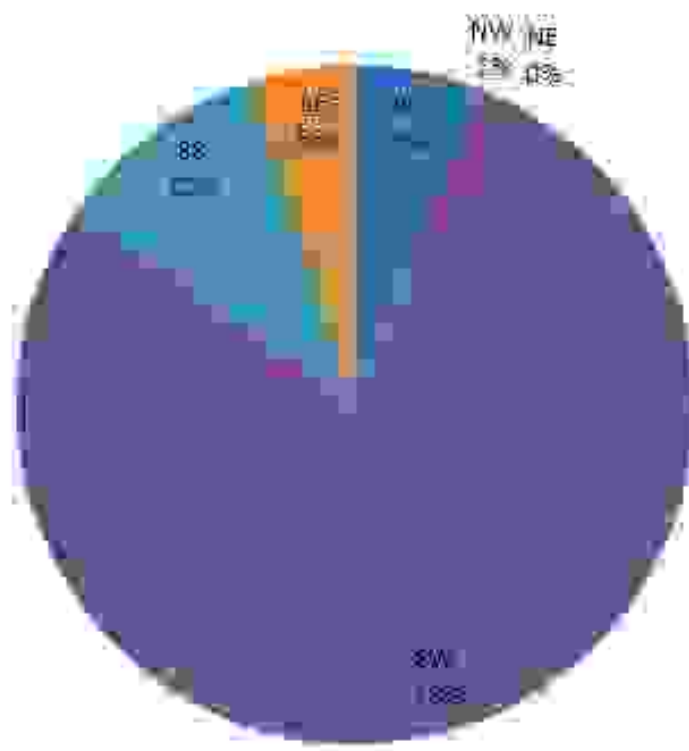


Fig 1: Percentage of all registered community pharmacies that offer internship positions in Nigeria categorised by zones. SW: South West, SE: South East, SS: South-South, NC: North Central, NW: North West, NE: North East.

DISCUSSION

Internships are field experiences which encompasses a wide variety of academic disciplines and organisational structures. They are characterised by on the job training for specified work hours, may be paid or unpaid, mutually agreed upon by the student, faculty and supervisor, credit is awarded, and the student is supervised by a faculty coordinator or other university representative or a corporate counterpart.⁹ The purpose of the internship is to provide a planned transition from the classroom to the job; a natural bridge between college and the work world.

Pharmacy students, educational institutions and businesses believe that internships complement the student's academic work. An internship gives the students a chance to take on real-life responsibilities while being supervised by a senior colleague or professional.^{10,11} This study shows the gross inadequacy in the number of community pharmacies that would offer the community pharmacy component of the PharmD training as well as internship training in Nigeria. More worrisome is the fact that some geo-political zones and States that have faculties of pharmacy do not have accredited community pharmacies to offer the community pharmacy training component of the PharmD programme. This is in addition to the Faculties of pharmacy that have started the PharmD programme, some of which do not have any community

pharmacy that is accredited for such training. Therefore, unless an urgent step is taken to ensure availability of adequate community pharmacies to train the PharmD students, the fifteen faculties of pharmacy that are currently processing their accreditation for the PharmD training, will also not find accredited community pharmacies to offer community pharmacy exposure to their students. In addition, interns can develop skills only in the sector in which they undertake their training. The limitation of inadequate centres for experiential learning will inhibit the preparation of early career pharmacists in terms of having the early experience of alternative approaches to patient care and exposure to different team care arrangements.¹² A survey of intern and non-intern business alumni of a north-eastern U.S. public university indicated significant early career advantages for undergraduates with internship experience. Benefits included less time to obtain first position, increased monetary compensation, and greater overall job satisfaction.¹³ Also, the PharmD programme provides pharmacists with specialised clinical training that focuses on the development of professional competencies and confidence in the provision of evidence-based, patient-oriented care. Students are given extensive didactic, preclinical/clinical training in different hospitals and community pharmacies. Areas covered include pharmaceutical care, drug information, Adverse Drug Reaction reporting, pharmacovigilance and much

more.¹⁴

Similar to Nigeria, the completion of the internship program, being one of the requirements for a candidate to qualify for the licensing examination is obtainable in the Philippines, where an internship program is currently part of the curriculum in pharmacy education which allows students to experience real practice in community, hospital, manufacturing or industrial pharmacy settings.¹⁵ The inclusion of several experiential elements in the pharmacy training curriculum which are completed in the community and hospital settings in Nigeria is similar to what obtains in the American Pharmacy Education training.³

Recommendations

There is an urgent need for the Pharmacists Council of Nigeria to take proactive steps and institute strategies to drastically increase the number of accredited Community Pharmacies for internship training. This accreditation will enable adequate access to community pharmacy training exposure to PharmD students. This can be achieved through strategic advocacy and mobilisation of available community pharmacists by the Pharmacists Council of Nigeria and Faculties of Pharmacy. Further studies should be carried out to determine whether all accredited community pharmacies are actively involved in the internship training, the willingness of the community pharmacies to participate in the programme and

identify potential challenges to their participation.

Limitations

The study relied on the assumption that most students would undertake the community pharmacy exposure within the States or geopolitical zones where their schools are located. Majority of the information related to the PharmD training in Nigeria have not been published, so the study partly relied on PCN circulars, minutes of meetings, letters and correspondences among the Faculties of Pharmacy, Pharmacists Council of Nigeria and the National Universities Commission.

CONCLUSION

Accredited community pharmacies for the training of PharmD students and internship programme in Nigeria are grossly inadequate. This will make it impossible to achieve the level of training advocated for pharmacy students. The students need to be educated in a way that makes them fit-for-practice, using a suitable framework that matches the current era, noting that the preceptor plays a vital role in the development of intern pharmacists.¹⁶

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Conflict of interest

None

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