

Attitudes of Fresh Foreign Trained Pharmacy Graduates to Pharmacy Practice in Nigeria

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Abstract:

Introduction: Pharmacists are the experts on drug therapy and the primary health professionals who optimize the use of medication for patient's benefit. The most common pharmacist position is that of the community pharmacist or that of a hospital pharmacist and their roles in these positions is to instruct and counsel on the proper use and adverse effects of medicines. The study was aimed at assessing the attitudes of fresh foreign trained pharmacy graduates to the practice of pharmacy in Nigeria.

Methods: Questionnaires were administered to the participants that registered for 2019 Foreign Graduate Orientation Programme in Abuja. Data was analyzed using Statistical Package for Social Science software.

Results: A total of 83 respondents participated out of which 53.0% were females, the dominant age group was 21-25years (66.3%), majority of the respondents studied in Asia, and 73% of them had BPharm degree. 27% of the respondents chose hospital pharmacy as the area of practice that they could best fit while 23% chose community pharmacy. 43% of the respondents felt clinical pharmacy was the aspect of their training most relevant for employment. 29.1% of the respondents were of the opinion that their curriculum moderately prepared them for pharmacy practice in Nigeria.

Conclusion: The study revealed that many of the respondents are interested in either community or hospital practice. Those interested in academic and industrial pharmacy were relatively few.

Keywords: Pharmacy, Practice, Pharmacist, foreign trained, Respondents.

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I. Introduction

Pharmacy is regarded as a health profession that links health sciences with pharmaceutical sciences and aims to ensure the safe, effective, and affordable use of drugs. Pharmacists are the experts on drug therapy and the primary health professionals who optimize the use of medication for patient's benefit. As the drug expert, pharmacists undergo university-level education to understand the biochemical mechanisms and actions of drugs, drug uses, therapeutic roles, side effects, potential drug interactions, monitoring parameters, drug formulation, drug discovery, drug development and so on. All these are further connected to physiology, anatomy, and pathophysiology, to enable the pharmacist interpret and communicate this specialized knowledge of drugs to patients, physicians, and other health care providers. It has been reported that the most common pharmacist positions are as community and hospital pharmacists where they instruct and counsel on the proper use and adverse effects of medicines^{1,2}. In addition to this, pharmacists may prescribe (as pharmacist prescriber) and administer vaccines to patients in some countries. Pharmacists can also practice in many other settings including wholesaling, research, academia, consultancy administration and industry. In the hospital and community areas of practice, the fundamental role of the pharmacist was to check and dispense medications prescribed by doctors to the patient. In more recent times, pharmacists advise patients and health care providers on the selection, dosages, interactions, and side effect of medication and also act as learned intermediaries between the prescriber and the patient. Pharmacists are often the first point for patients with health inquiries and the most accessible health care provider and patients are generally satisfied with the services rendered by pharmacists in hospital setting^{3,4}. One of the most important roles that pharmacists are currently taking on is pharmaceutical care which involves taking direct responsibility for patients' disease states and medication management so as to improve outcomes⁵. Alminana *et al.*⁶ have reported that the overall goal of clinical pharmacy activities is to promote the rational and appropriate use of medicinal products and devices.

The undergraduate pharmacy curriculum is designed to expose pharmacy students to all the areas of pharmacy practice which will enable them fit into any area of interest on graduation. Previous studies in other countries have showed that majority of pharmacy graduates prefer to practice either in community or hospital setting^{7,8}. A literature search revealed that there are no reports of studies to assess the attitudes of either Nigeria

trained or foreign trained Nigerian pharmacy graduates to the practice of pharmacy in Nigeria. This study is therefore aimed at assessing the attitudes of fresh foreign trained pharmacy graduates to the practice of pharmacy in Nigeria.

II. Methods

2.1 Data Collection Procedure

The respondents were participants in the 2019 Foreign Pharmacy Graduate Orientation Programme (FPGOP). Questionnaire was used to collect socio demographic characteristics data including age, continent of study, gender and qualification obtained. Other data collected include practice capacity, and area of practice. Confidentiality of the respondents was maintained throughout the data collection process. Respondents received questionnaires after explaining to them the purpose of the study. Instructions on how to complete the questionnaire were given, and questionnaires were then collected immediately after completion. Likert type scale of 1 to 5 was adopted, the practice capacity response includes Very high level = 5, High level =4, Moderate =3, Low level =2, and Very low level =1.

2.2 Data Analysis

The data was analyzed with Statistical Package for Social Science (SPSS) software. Frequency and percent were computed and results were represented in bar charts and tables. Chi square test was used to determine the association between the respondent's response and their socio demographic characteristics.

III. Results

3.1 Response Rate and Socio Demography

A total of 97 questionnaires were administered and 83 persons responded, which gave a response rate of 85.57%. The 83 respondents were made up of 47% of males, persons ≤ 20 years were few (1.2%), 21.75% of them studied in Africa, and majority of them had BPharm degree. See details in table 1 below.

Table 1: Socio Demographic Characteristics of the Respondents

Variables n=83	N (%)
Gender	
Male	39(47.0)
Female	44(53.0)
Age	
≤ 20	1(1.2)
21-25	55(66.3)
26-30	23(27.7)
>30	4(4.8)
Continent of Study	
Africa	18(21.7)
Asia	31(37.3)
Europe	10(12.0)
South America	1(1.2)
Missing data	23(27.7)
Qualification	
BPharm	61(73.5)
PharmD	13(15.7)
MPharm	6(7.2)
Others	2(2.4)
Missing data	1(1.2)

3.2 Areas of Practice

Pharmacists, no doubt can practice in different settings, and the result obtained from the respondents reflected this. The industrial setting was the most commonly mentioned area where a pharmacist can practice. See details in figure 1 below.

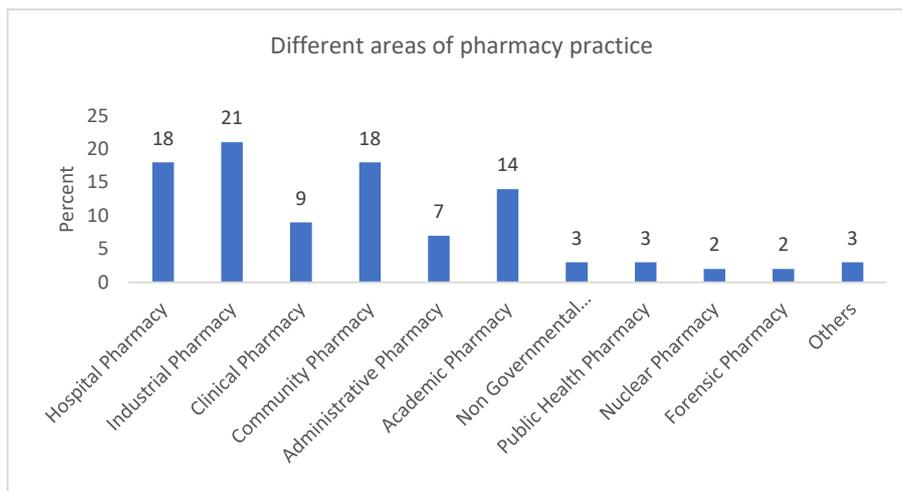


Figure 1: Areas of Pharmacy and Health Practice for a Pharmacist

Figure 2 below shows the areas of practice that the respondents believe they can comfortably fit into. The hospital and community practices dominated the responses, with 50% of the respondents choosing either one of them. Other choices are as in figure 2 below.

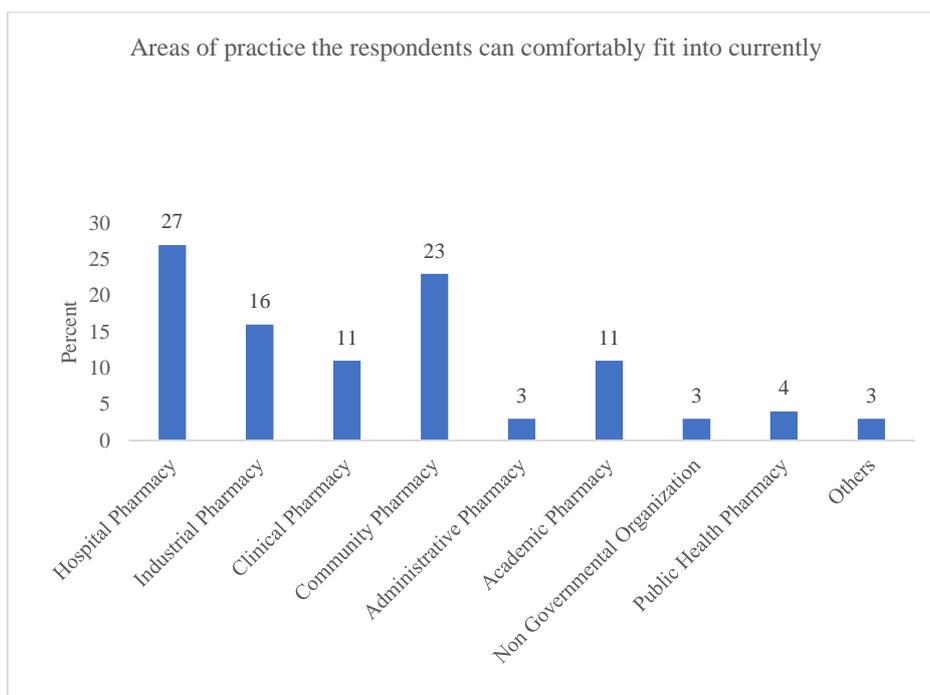


Figure 2: Preferred Areas of Practice of the Respondents

3.3 Practice Capacity

Practice capacity was used to determine the impact that the respondents felt their study had on their preparedness for practice. When asked to rate how well their curriculum prepared them to practice pharmacy in Nigeria many of them were confident that they had been well prepared. Details of the responses are presented in figure 3.1.

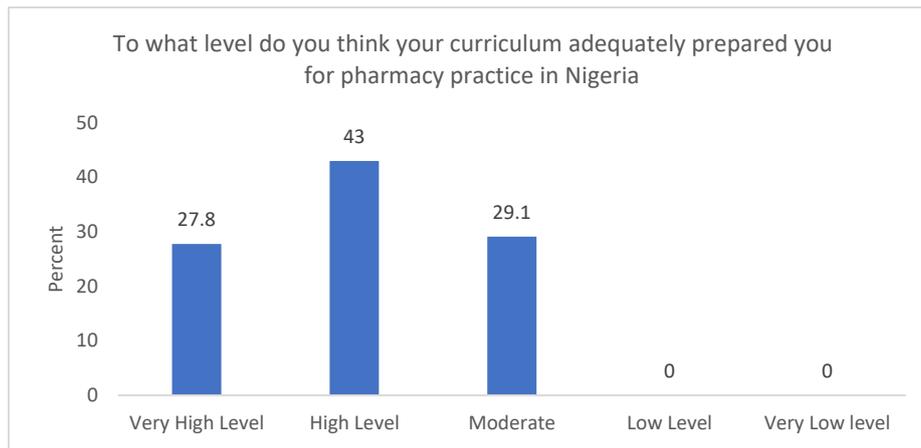


Figure 3.1 Practice Capacity in Nigeria

Figure 3.2 shows the responses to how well the respondents think their curriculum has prepared them to practice pharmacy globally with close to half the respondents indicating that this was to a high level.

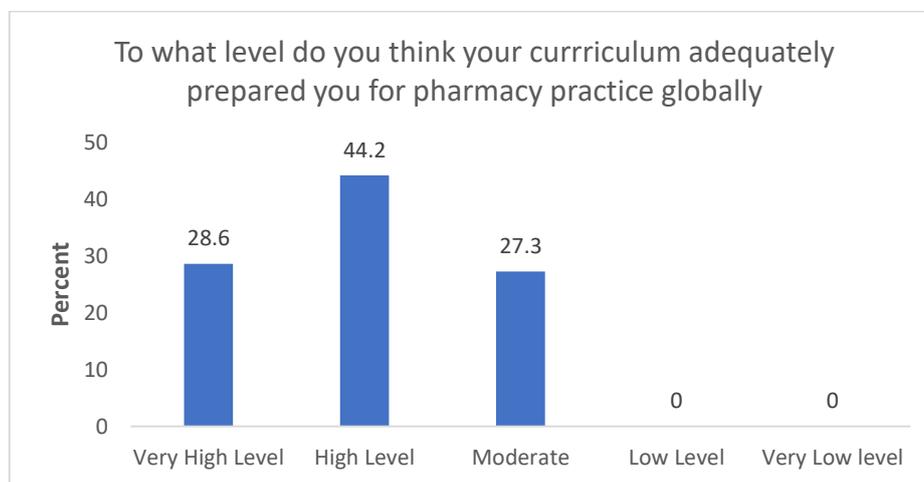


Figure 3.2 Global Practice Capacity

In this era of pharmacy practice, critical thinking skill is very important in the practice of pharmacy. More than one-quarter of the respondents felt that their curriculum provided them with very high level of critical thinking (Fig. 3.3).

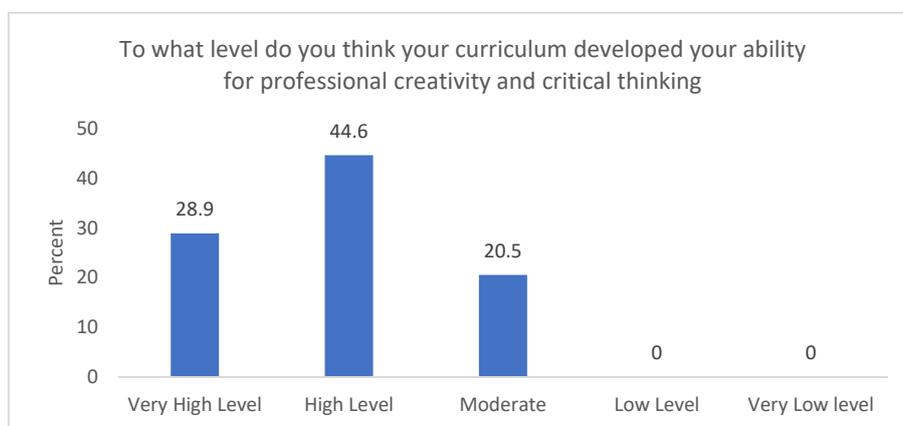


Figure 3.3: Professional Creativity and Critical Thinking

3.4 Aspects of the Curriculum the Respondents Think is Most Relevant for Employment

Majority of the respondents chose clinical pharmacy as the aspect most relevant for employment, while 5% were of the opinion that all aspects were relevant. See details in figure 4 below.

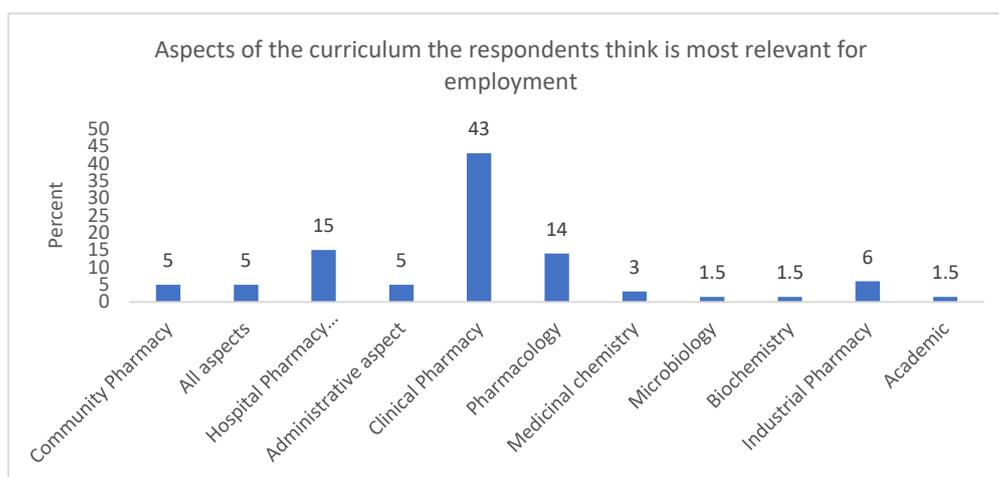


Figure 4: Aspects of the curriculum the respondents think is most relevant for employment

3.5 Cross-Tabulation of Responses with Socio-Demography

The results from cross-tabulation shows that some of the responses were influenced by the socio demographic characteristics of the respondents, as the chi square value was significant for some of the items. Table 2.1 shows the results for cross-tabulation practice capacity items with qualification of the respondents.

Table 2.1: Cross-Tabulation of Practice Capacity with Qualification

SN	Item question		BPharm %	PharmD %	MPharm %	Other %	X ²	DF	P-value
1	To what level do you think your Curriculum adequately prepare you for Pharmacy Practice in Nigeria	Very High Level	77.3	18.2	4.5	-	5.660	6	0.462
		High Level	79.4	11.8	2.9	5.9			
		Moderate	69.6	17.4	13.0	-			
2	To what level do you think your Curriculum adequately prepared you for Pharmacy practice globally	Very High Level	63.6	27.3	9.1	-	9.044	6	0.171
		High Level	82.4	11.8	5.9	-			
		Moderate	76.2	9.5	4.8	9.5			
3	To what level do you think your curriculum provided and built your competencies in professional values in pharmacy	Very High Level	69.0	20.7	10.3	-	8.059	6	0.234
		High Level	78.8	15.2	-	6.1			
		Moderate	80.0	6.7	13.3	-			
4	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to meet the health needs of the public	Very High Level	71.9	21.9	6.3	-	7.152	6	0.307
		High Level	82.1	7.1	3.6	7.1			
		Moderate	68.8	18.8	2.5	-			
5	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to interact with other health care professionals	Very High Level	64.3	21.4	7.1	7.1	7.123	6	0.310
		High Level	80.6	16.1	3.2	-			
		Moderate	83.3	5.6	11.1	-			
6	To what level do you think your curriculum encouraged senior pharmacy students to mentor junior pharmacy students	Very High Level	57.1	32.1	7.1	3.6	12.429	9	0.190
		High Level	88.9	7.4	3.7	-			
		Moderate	78.9	5.3	10.5	5.3			
		Low Level	100	-	-	-			
7	To what level do you think your curriculum developed your ability for professional creativity and critical think	Very High Level	63.6	36.4	-	-	13.277	6	0.039
		High Level	78.4	8.1	8.1	5.4			
		Moderate	82.4	5.9	11.8	-			

X² is significant at P<0.05

The impact of the continent of study on the confidence of respondents to practice pharmacy in Nigeria was assessed. The results showed that those who studied in Africa were least confident of their practice capacity both in Nigeria and globally. Details are shown in table 2.2 below.

Table 2.2 Cross-Tabulation of Practice Capacity with Continent of Study

SN	Item Question	Response	Africa %	Asia %	Europe %	South America%	X ²	Df	P-value
2	To what level do you think your Curriculum adequately prepare you for Pharmacy Practice in Nigeria	Very High Level	6.7	86.7	-	6.7	15.485	6	0.017
		High Level	42.3	38.5	19.2	-			
		Moderate	31.6	42.1	26.3	-			
2	To what level do you think your curriculum adequately prepared you for Pharmacy practice globally	Very High Level	11.8	58.8	23.5	5.9	14.674	6	0.023
		High Level	20.0	64.0	16.0	-			
		Moderate	62.5	25.0	12.5	-			
3	To what level do you think your curriculum provided and built your competencies in professional values in pharmacy	Very High Level	30.0	50.0	15.0	5.0	2.975	6	0.812
		High Level	26.9	57.7	15.4	-			
		Moderate	33.3	41.7	25.0	-			
4	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to meet the health needs of the public	Very High Level	27	63.6	4.5	4.5	6.200	6	0.401
		High Level	30.4	47.8	21.7	-			
		Moderate	23.1	46.2	30.8	-			
5	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to interact with other health care professionals	Very High Level	33.3	47.6	14.3	4.8	7.201	6	0.303
		High Level	17.4	69.6	13.0	-			
		Moderate	40.0	33.3	26.7	-			
6	To what level do you think your curriculum encouraged senior pharmacy students to mentor junior pharmacy students	Very High Level	31.8	50.0	18.2	-	13.568	6	0.139
		High Level	10.5	78.9	10.5	-			
		Moderate	40.0	33.3	20.0	6.7			
		Low Level	66.7	-	33.3	-			
7	To what level do you think your curriculum developed your ability for professional creativity and critical think	Very High Level	17.6	64.7	11.8	5.9	4.570	6	0.600
		High Level	29.6	51.9	18.5	-			
		Moderate	35.7	42.9	21.4	-			

X² is significant at $P < 0.05$

3.6 Reliability of the Instrument

The factor loading for all the items were between 0.606 to 0.759 and the Cronbach alpha value for the questionnaire was 0.961 (Table 3). This shows that there was internal consistency within the items and thus the result generated by this study can be relied upon. This validates the questionnaire used for the study and is an indication that it can be subsequently used for similar studies.

Table 3: Reliability of the Questionnaire

SN	Item Question	Factor loading	Cronbach Alpha
			0.961
1	To what level do you think your Curriculum adequately prepare you for Pharmacy Practice in Nigeria	0.606	
2	To what level do you think your curriculum adequately prepared you for Pharmacy practice globally	0.629	
3	To what level do you think your curriculum provided and built your competencies in professional values in pharmacy	0.745	
4	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to meet the health needs of the public	0.683	
5	To what level do you think your curriculum built your competence, skills, knowledge, and attitudes to interact with other health care professionals	0.759	
6	To what level do you think your curriculum encouraged senior pharmacy students to mentor junior pharmacy students	0.706	
7	To what level do you think your curriculum developed your ability for professional creativity and critical think	0.732	

IV. Discussion

4.1 Demography

The females were slightly higher in number than the males. This can be attributed to the fact that there are more females than males in the pharmacy profession⁹. And this has been reported to be the case for nearly 50 years in the United States¹⁰, leading to the profession being referred to as female friendly¹¹. Hospital and the community practice are areas that have the widest appeal to women¹². The large number of females in pharmacy practice has been linked to the fact that hospital pharmacy afforded pharmacists the opportunity to provide patient care where feminine attributes like empathy and communication skills are useful. The dominant age group of the respondents was 21 to 25 years, and this is expected as most persons graduate from the university within this age range. The majority of the respondents had BPharm degree. This shows that, like Nigeria, many countries are yet to commence PharmD programme.

4.2 Area of Practice

In pharmacy practice, the community, hospital, and industrial pharmacy sectors are the most popular areas of practice. Although pharmacy is a broad discipline, these three areas were the most commonly chosen by the respondents as the areas of practice that they feel pharmacists could practice. Only few (2%) of all the respondents mentioned nuclear pharmacy as an area that a pharmacist can get involved in. This suggests that majority of the respondents were unaware of nuclear pharmacy as one of the areas of specialization in pharmacy. Nuclear pharmacy (or radio-pharmacy) which focuses on the proper use of radio pharmaceuticals has evolved to become a recognized and valuable specialty in the pharmacy profession over the past decades. It has been predicted that it will remain a strong specialty for several years to come¹³. The low level of awareness of this specialty in this study could be because it was not included in the curriculum in the countries of study of the respondents. While in Nigeria, the curriculum includes compulsory courses in nuclear pharmacy, in the United States, various schools of pharmacy offer a series of undergraduate elective courses to fulfil the didactic requirement for the course. In addition, practice experience is gained from a nuclear pharmacy within the school or through internship programs associated with licensed nuclear pharmacy¹³.

As seen in figure 2, majority of the respondents would want to engage in hospital, community, and industrial pharmacy practice. This is in agreement with previous findings in other countries^{7,8,14}. However, less than one-tenth of the respondents are willing to go into public health pharmacy, which is a source of concern given the many public health challenges faced by the country. The American Public Health Association (APHA) while outlining the roles of the pharmacist in public health, has noted that pharmacists were underutilized in promoting public health¹⁵. The American Association of Colleges of Pharmacy recognized the important roles pharmacists can play in public health by including population-based care and public health in its Centre for Advancement in Pharmaceutical Education (CAPE) outcomes. These outcomes emphasized the role of the pharmacist in health improvement, wellness, and disease prevention and also emphasized the need for pharmacists to be involved in public health so as to ensure the availability of effective, quality health and disease prevention services¹⁶. In addition, pharmacists have specific public health related responsibilities in infections control, substance abuse prevention, education and treatment, immunization, tobacco cessation, and emergency preparedness and response^{17,18,19}. The low interest of the respondents in public health could be due to

a lack of awareness or proper orientation on the role of the pharmacist in public health challenges in the curriculum of the institutions where they studied.

Only one-tenth of the respondents were willing to go into academic pharmacy which includes research. This might be due to lower remuneration in the academic practice as other studies had previously reported^{20,21,22}. This trend poses a challenge to the pharmacy profession, the entire health sector, and the nation at large since research will provide new, safer and more effective drugs especially for the neglected diseases which disproportionately affect Nigerians. In addition, research will provide the data required for informed drug management decisions in the best interest of the patient. It is therefore important to formulate policies that will encourage pharmacists to go into research and development.

4.3 Practice Capacity

Although two third of the respondents indicated “very high level” and “high level” to the question “to what level do you think your curriculum adequately prepared you for pharmacy practice in Nigeria”, a third of the respondents were however of the opinion that their curriculum moderately prepared them for pharmacy practice in Nigeria. This is expected because the pharmacy curriculum of various countries may be tailored to their peculiar health challenges and this should be a source of concern. It has been reported that as academics move to new countries and new pharmacy schools, they may encounter different course and curricula^{23,24}. It is therefore impossible for the respondents who are graduates of foreign pharmacy schools to be fully prepared to practice pharmacy in the Nigeria setting. This is one of the reasons for the FPGOP which is aimed at introducing foreign trained pharmacy graduates to Nigerian practice setting. This pre-registration training also fills the gaps in their training in areas such as the history of pharmacy in Nigeria and the regulatory as well as the legal requirements for pharmacy practice in Nigeria. So therefore, a third of the respondents who believe that their curriculum had not prepared them adequately for the practice of pharmacy in Nigeria would therefore benefit more from the FPGOP. A robust FPGOP curriculum can be developed in order to take care of gaps in the training of foreign pharmacy graduates. The respondents also indicated that their curriculum has adequately prepared them to practice pharmacy globally.

On their ability for professional creativity and critical thinking, many of the respondents indicated that their curriculum adequately prepared them while one-fifth of the respondents felt that it moderately prepared them for professional creativity and critical thinking (Figure 3.3). Critical thinking is reported as one of the most desired skills of a pharmacy graduate because pharmacists need to think for themselves, question claims, use good judgment, and make decisions²⁵. Critical thinking provides the platform from which students can learn to apply their clinical-reasoning skills²⁶. Evidence suggests the need for students to be explicitly taught critical thinking in their education to develop critical-thinking skills²⁷. The result implies that majority of the respondents are of the opinion that their curriculum has appropriately prepared them to make the critical life-changing decisions that they might come across in the course of their practice.

4.4 Aspects of the Curriculum the Respondents Think is Most Relevant for Employment

Similar to the results of earlier studies, majority of the respondents indicated that community pharmacy was most relevant for employment^{28,29}. This trend can be attributed to the fact that there are more opportunities such as ease of securing employment and self-employment in community pharmacy practice compared to other areas of practice in Nigeria. Less than one-fifth of the responses indicated hospital pharmacy as relevant for employment. Although there is a fairly large number of pharmacists in hospital practice, but their numbers may be lower than that of community pharmacists.

Although industrial pharmacy is very critical to the growth of the pharmaceutical sector, less than one-tenth of the respondents indicated it as an aspect of the curriculum most relevant for employment which could be attributed to low development of Nigeria pharmaceutical industries. This is the reverse of what would have been obtained in an industrialized country like India where there is a high demand for pharmacists in the industrial sector than any other area of pharmacy practice³⁰. This explains the focus of most Indian universities on industrial pharmacy training³¹.

4.5 Cross-Tabulation of Practice Capacity with Socio-Demography

The *P* value for the item “to what level do you think your curriculum developed your ability for professional creativity and critical thinking” was statistically significant, which shows that there was an association between the qualification obtained by the respondents and their critical thinking skills. The result suggests that those with PharmD qualification were better trained on critical thinking skills as majority of them chose “very high level” than the other groups. This is in agreement with the report of other studies that reported that the PharmD curriculum is more focused on critical thinking skills^{26,32}. The study also indicates that there was an association between the continent of study and how well the curriculum of the respondents prepared them to practice pharmacy both in Nigeria and globally, as both items have a *P* value that was statistically significant. The study further suggests that many of the respondents that studied in Asia were very confident that their curriculum has

prepared them to a very high level to practice pharmacy globally while majority of the respondents who studied in Africa are of the opinion that their curriculum moderately prepared them to practice pharmacy in Nigeria. The reason for this is however not known.

V. Conclusion and Recommendations

The study revealed that more than a quarter of the respondents believed that their curriculum moderately prepared them for pharmacy practice in Nigeria. Many of the respondents are interested in either community or hospital practice. Many of the respondents were of the view that the clinical pharmacy aspect of their training was most relevant for employment. Those interested in academic pharmacy practice (including research) were relatively few. In view of the importance of research and development as a training to the development of the country, it is recommended that policies be put in place to encourage pharmacists go into research and development. The study further showed forensic pharmacy is a distinct area of pharmacy practice and specialization in some countries in other parts of the world but in Nigeria pharmacy schools, forensic pharmacy has not received adequate attention to be regarded as a distinct area of pharmacy practice and specialization. The Pharmacists Council of Nigeria is recommended to review pharmacy curriculum so as to make adequate provision for emerging areas of pharmacy practice such as forensic pharmacy. This will enable pharmacists in Nigeria to be able to practice as well as specialize in these emerging fields. Only very few of the respondents felt that industrial pharmacy was relevant for employment. This is a source of concern, in view of the present dependence on imported medicines by the health sector in Nigeria. It is therefore imperative to improve the curriculum such that it generates interest in industrial pharmacy amongst pharmacy graduates in the country as this is particularly important in nation like Nigeria that is faced with the challenge of medicine security which has led to dependence in the importation of medicines and other pharmaceutical products for Nigerians use.

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