Assessing the Impact of the Current Pharmacy Education in the Attitudes of Early Career Pharmacists towards Leadership and Professional Identity in Nigeria

Abstract:

Background:

The WHO nine-star pharmacist model as well as the Centre for the advancement of pharmacy Education (CAPE) Educational outcomes have recognised the concept of leadership as a crucial attribute for pharmacist.Thus, this emphasizes the need for pharmacy education to meet up with the goals, need, objectives and requirements of the profession.

Objectives:

Accordingly, the objective of our study was to investigate the impact of the current pharmacy education in the early career pharmacists towards leadership and professional identity in Nigeria.

Methods:

This was a cross-sectional survey of early-career pharmacists across the six geopolitical zones in Nigeria. In this study, early-career pharmacists were referred to licensed pharmacists with five or less years of practice.

Results:

580 early career pharmacists participated in the study. From the study, a good percentage of respondents noted that the pharmacy education prepared them effectively for leadership [well, 42.3% and very well, 23.3%] and professional identity [effectively, 56% and effective, 23.3%].The result of this study may be due to the improved curriculum in pharmacy education in Nigeria and also a deviation towards pharmaceutical care and PharmD program which highlights leadership, direct responsibility, clinical-oriented care and managerial skills as core values. The two major barriers that prevent early career pharmacists in

pursing leadership roles in this study are limited mentorship program and work load/time constraints.From this study, majority of our correspondence [480, 82.8%] suggest that the pharmacy education curriculum need adjustment to better prepare students for leadership roles. This may be due to the shift in paradigm from pharmacist being product-oriented to becoming patient-oriented and also with the rapid advancement in cutting-edge information technology and artificial intelligence (AI), the nature of pharmacist work has changed and thus job security is likely affected.

Conclusion:

The findings of our study showed that leadership has been moderately incorporated into the current pharmacy education in Nigeria but there is need to improve the curriculum by introducing early mentorship program, entrepreneurship and innovation, clinical and practical experiences as well as adopting an active teaching approach in leadership as this will enable effective leadership and professional identity demonstration across all levels and fields of pharmacy practice in Nigeria.

Keywords:Current Pharmacy Education, Impact, Early-Career, Pharmacists, Leadership, Professional Identity, Nigeria.

INTRODUCTION:

The WHOnine-star pharmacist model as well as the Centre for the advancement of pharmacy Education (CAPE) Educational outcomes have recognised the concept of leadership as a crucial attribute for pharmacist. [1,2]. To showcase the significance of Leadership across all levels and domain of pharmacy practice globally, the US Accreditation Council for Pharmacy Education (ACPE) Standards has emphasized on the importance of leadership acquisition and thus highlighted the need to imbibe leadership and managerial skills among all pharmacystudents[3,4]. With the official approval and incorporation of Bachelor of Pharmacy (B. Pharm) programme into Joint Admission and Matriculation Board (JAMB) brochure of 1984 in Nigeria, two approaches were being adopted to train and educate pharmacists, the first approach emphasises the need to train pharmacist as a professional while the second approach emphasises the need to train pharmacist as a professional and scientist thus laying more emphasis on the science-based pharmacy training. These approaches formed the basis for the nomenclatures and the core courses offered by the various pharmacy schools in Nigeria;thus, this gave rise to the names of

the school of pharmacies in Nigeria: faculty of pharmacy or faculty of pharmaceutical sciences depending on the approach that was adopted by the founding fathers of the various pharmacy schools [20]. Since the inception of pharmacy training in Nigeria, the Pharmacy schools in Nigeria have undergone transitions from chemist and druggist diploma as well as diploma in pharmacyto BSc in pharmacy program then to B. Pharmprogram and recently the 6-year doctor of pharmacy (PharmD) program [20].Although the PharmD program has not been fully adopted by the Nigeria University Commission (NUC)and the Pharmacy Council of Nigeria (PCN), (the two statutory bodies responsible for the accreditation of Pharmacy schools in Nigeria) as a unified benchmark curriculum and qualification to train pharmacist in Nigeria [18,19-20].Pharm D program has emphasized the need to shift from science-based pharmacy training to patient-oriented pharmacy training [5-10]. Thus, critical thinking, communication, collaboration, creativity alongside other important skills such as problem-solving, emotional intelligence and leadership are highlighted and emphasized. [1,4]. Leadership has been defined as "a function of knowing yourself, having a vision that is well communicated, building trust among colleagues, and taking effective action to realize your own leadership potential" [11]. A recent study in leadership in pharmacy education defined a leader as a person who promotes change and is envisaged for their leadership roles either through holding a formal leadership position or by receiving a reward [6].Also, similar studies consider every healthcare professional as a leader regardless of their position thus being proactive in their roles [11-12]. Leadership skill is very important in professional identity, socialization and development. Development of professional attributes through classroom study and practice placements is considered an essential part of education of pharmacists.[13]. Professional identity is the process whereby students get to know and learn their professional role and expectations [14]. Professional identity or socialisation is the process wherestudents are trained to become professionals, it goes beyond academic learning thereby enabling an individual to acquire beliefs, values, norms, ethics and core values of their profession [15-16]. Pharmacy education is an integral aspect and component of professional identity since it is being influenced by academic interactions. Thus, this emphasizes the need for pharmacy education to meet up with the goals, need, objectives and requirements of the profession [17]. Also, the incorporation of early practice experience into the education curricula is important considering the fact that practice experience is an essential element of professional socialisation process.Accordingly, the objective of our study was to investigate the impact of the current pharmacy education in the early career pharmacists towards leadership and professional identity in Nigeria. This will provide a basis for curriculum design and

development and its wider application in the global context, particularly in pharmacy education.

METHODOLOGY

Study design and participants

This was a cross-sectional survey of early-career pharmacists across the six geopolitical zones in Nigeria. In this study, early-career pharmacists were referred to licensed pharmacists with five or less years of practice.

Setting

The study was conducted across the six geopolitical zones in Nigeria (states).

Sampling

Participants were randomly sampled from different practice settings, such as hospital pharmacies, community pharmacies, and academic pharmacy practices. Every state has a record of licensed pharmacists, and we used this record to sample the study participants.

Eligibility criteria

The study's inclusion criteria required that a prospective respondent should have graduated from a pharmacy school and either currently undergoing the one-year compulsory internship training or the one-year compulsory national service. Practising pharmacists who were not in any of the programs but who had less than five years of post graduation experience were also included in the study. Eligible respondents who did not provide informed consent were excluded from the study.

Sample size

This was a nationwide study. Thus, the traditional six geopolitical zones in the country were considered in the study population. A total sample size of 580 was representative of the population, assuming a 5% error margin, 95% confidence interval, and 50% response distribution rate. The sample size calculation was conducted using Raosoft's Online Sample Size Calculator. The total sample size was proportionately distributed among participating states. A 100% response rate was realized in the study, primarily because the data collection was shared

among the authors based on regions and perhaps because the respondents were younger adults who had frequent access to internet service. As of 2024, the total number of registered pharmacists in Nigeria, including pharmacist interns, was 21,894.There are no official stratified datasets or estimates that are specific to early-career pharmacists in Nigeria; however, we used the database of licensed pharmacists in Nigeria to identify eligible participants. These records were provided by the registrar of the pharmacist licensing body in Nigeria, also known as the Pharmacy Council of Nigeria (PCN). Assuming an error margin of 5% at a 95% confidence interval with a population size of 21,894, the estimated sample size for this study was 378.

Participant recruitment and data collection

Participant information sheets were sent to all potential participants through emails. If interested, they signed the consent form for the study online. Those who indicated an interest in participating in the study were sent the survey online to be completed and returned within 24 h. All data collection for this study was undertaken between October 8, 2024, and November 26, 2024.

Instruments for data collection and outcomes

Validated questionnaire on Current pharmacy education, professional identity and leadership were adopted from similar study [22] and used to evaluate the impact on professional identity and leadership. The questionnaire was modified to fit into our study design. The questionnaire was partitioned into 5 sections, section 1 comprises of the demographic details, section 2 evaluated the pharmacy education experience, section 3 discussed how the pharmacy education experience contributed to professional identity and leadership abilities, section 4 described professional identity, section 5 comprises of leadership attitudes and the way forward to develop as leaders and improve professional identity.The impact was assessed using the reverse likert scale of 1 to 5, where 1 represents Not at all and 5 stands for very strongly.

Data analysis

The questionnaire was assessed for completeness and only questionnaires with complete responses were subjected to analysis. The data was analyzed with the aid of SPSS version 23. Descriptive Statistics such as frequencies and Percentages were used to summarize the data. The association between the demographic variables of the respondents and their impact on the current pharmacy education in the early career pharmacists towards leadership and

professional identity were evaluated using the chi-squares test. The level of significance was set at $P<0.05$.

Ethical considerations

The study did not involve the use of human subjects, so an exception was sought and obtained from the Health and Ethics Committee of the University of Nigeria Teaching Hospital [reference number:NHRE/05/012008B-FWA00002458-1RB00002323], issued on December 11, 2024. However, informed consent was obtained from all the participants before participating.

Results:

Table 1: shows theSocio-demographic characteristics of our respondents. Out of the 580 questionnaires shared to our respondents, 580 were filled and included in the study producing a total response rate of 100%. The dominant age group of our respondents was 25-30 (73.3%). Under 25 was 12.1% whereas those that were above 30 consisted of 14.6%. male respondents consisted of 250 (43.1%) whereas female respondents consisted of 330(56.9%). Also, the dominant practice year after graduation was1-3(78.4%), less than I year consisted of 5.2% while 4-5 years and greater than 5 years consisted of 8.6% and 7.8% respectively. Community pharmacy practice consisted of 56.9%, followed by hospital (27.6%), academia (1.7%), pharmaceutical industry (5.2%) and sales and marketing 8.6%. B. Pharm was the dominant highest degree obtained (90.5%), PharmD consisted of 4.3% while MPharm and PhD consisted of 4.3% and 0.9% respectively.

Table 1: socio- demographic characteristics. n=580

		Frequency (f)	Percentage (%)	p-value	X^2
AGE	under 25	70	12.1	0.000	21.995
	25 -30	425	73.3		
	31 - 35	60	10.3		
	over 35	25	4.3		
GENDER	MALE	250	43.1	0.000	65.618
	FEMALE	330	56.9		
Years since graduation	less than 1 year	30	5.2	0.000	25.937
	1-3 years	455	78.4		
	4-5 years	50	8.6		

	greater than 5 years	45	7.8		
Current area of practice	community practice	330	56.9	0.000	91.459
	Hospital pharmacy	160	27.6		
	Academia	10	1.7		
	pharmaceutical industry	30	5.2		
	sales and marketing	50	8.6		
Highest pharmacy degree obtained	B. Pharm	525	90.5	0.000	29.054
	PharmD	25	4.3		
	MPharm	25	4.3		
	PhD	5	0.9		

Everything in the above table was compared with 'Have you ever held a leadership position in the pharmacy profession'

Out of the 580 respondents in this study, 420 (65.5%) noted that the pharmacy education prepared them well for professional responsibilities while 25(4.3%) stated otherwise. 460 (79.3%) of the respondents noted that the pharmacy education contributed effectively towards professional identity ability while 10 (1.7%) noted that the pharmacy education had ineffective impact on them. Leadership skills were incorporated into pharmacy education as 310 (53.5%) agreed that leadership skill was often incorporated into pharmacy education, 260 (44.8%) noted rarely and sometimes while 10 (1.8%) noted that leadership was never incorporated into pharmacy education. 320 (55.2%) of our respondents stated that the pharmacy education was influential to their leadership interest, 195(33.6%) were neutral while 40(6.9%) and 25(4.3%) stated slightly influential and not influential.

Table 2: (n= 580)

To what extent do you feel that your pharmacy education prepared you for the professional responsibilities of a pharmacist			
	Frequency (f)	Percentage (%)	
very well	175	23.3	
Well	245	42.2	
Neutral	135	23.3	
Poorly	25	4.3	

Very poorly	-	-	
How effectively did your pharmacy education help you to develop a sense of professional identity as a pharmacist			
Very effectively	135	23.3	
effectively	325	56.0	
Neutral	110	19.0	
Ineffectively	10	1.7	
Very Ineffectively	-	-	
How often were leadership skills incorporated into your pharmacy education			
Very often	120	20.7	
Often	190	32.8	
Sometimes	180	31.0	
Rarely	80	13.8	
Never	10	1.8	
How influential do you believe your education has been in shaping your interest in leadership roles within the pharmacy profession			
Very influential	95	16.4	
Influential	225	38.8	
Neutral	195	33.6	
Slightly influential	40	6.9	
Not influential	25	4.3	

Table 2: Table two represents the extent to which pharmacy education prepared them for professional responsibilities as pharmacists.

Out of the 580 respondents that filled our questionnaire, 45(7.8%) noted that classroom theory contributed very strongly to their professional identity and leadership, 120(20.7%) noted practical/clinical experience. While 70 (12.1%), 230 (39.7%), 260 (44.8%) and 70 (12.1%) noted mentors/mentorship program, internship/fields of experience, personal development and seminars/conferences/workshops respectively.

Table 3: (n= 580)

	Not at all (1)		2		3		4		Very strongly (5)	
	f	%	F	%	F	%	f	%	f	%
Classroom theory	80	13.8	75	12.9	245	42.2	135	23.3	45	7.8

Practical/ clinical experience	25	4.3	60	10.3	200	34.5	175	30.2	120	20.7
Mentors/ mentorship program	65	11.2	80	13.8	235	40.5	130	22.4	70	12.1
Internships/ fields of experience	15	2.6	50	8.6	90	15.5	195	33.6	230	39.7
Personal development	15	2.6	20	3.4	95	16.4	190	32.8	260	44.8
Through seminars, conferences and workshops	40	6.9	110	19.0	185	31.9	175	30.2	70	12.1

Table3:the extent to which the following aspects of your education contributed to your professional identity and leadership abilities.

Out of the 580 respondents, 574 (98.9%) have good knowledge of professional identity.

Table 4: Knowledge of professional identity. n=580

	Correct answer	
	F	%
What does professional identity imply to you	574	98.9

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510 (87.9%) of our respondents noted that communication/public speaking skill is essential for pharmacists, while 520(89.7%), 505(87.1%), 434(74.8%), 410(70.7%) noted that problem solving, decision making, delegation of duties and human resource management as essential skills for pharmacist respectively. The various barriers encountered in pursuing leadership roles within the field includes; limited leadership training in the curriculum (50.9%), limited mentorship opportunities (62.1%), workload/time constraints (63.6%), inadequate professional recognition (40%), upbringing (18.3%) and personal/personality barriers (36.6%). 70.7%, 56.9%, and 65.8% noted that

entrepreneurship/innovation, human resource management and sales and marketing are additional skills required respectively.

Table 5: n= 580

What leadership skills do you think are essential for pharmacists					
Communication / public speaking	510	87.9			
Problem solving	520	89.7			
Decision making	505	87.1			
Delegation of duties	434	74.8			
Human resource /staffmanagement	410	70.7			
What barriers (if any) do you perceive in pursuing leadership roles within your field					
Limited leadership training in the curriculum	295	50.9			
Limited mentorship opportunities	360	62.1			
Workload/ time constraints	369	63.6			
Inadequate professional recognition	233	40.2			
Upbringing	106	18.3			
Personal/ personality barriers	212	36.6			
Others	10	2.63			
What additional skills or training do you believe would be beneficial for pharmacists to develop as leaders in the health care field					
Communication	405	69.8			

and interpersonal skills					
Team management and visioning	400	70			
Professional mentorship	370	63.8			
Interprofessional collaboration	415	71.6			
Entrepreneurship and innovation	410	70.7			
Human resource management	330	56.9			
Sales and marketing	250	65. 8			
Other					
Do you think the pharmacy education curriculum needs adjustment to better prepare students for leadership roles					
YES	480	82.8			
NO	40	6.9			
MAYBE	60	10.3			

Table 5: comprises of leadership attitudes and the way forward to develop as leaders and improve professional identity

Discussion:

This study evaluated the impacts of the current pharmacy education in the early career pharmacists towards leadership and professional identity in Nigeria. To the best of our knowledge, this is the first of its kind carried out in Nigeria. This study was motivated by the rising need of pharmacists to exhibit excellent leadership skill and ability especially with a shift in paradigm from pharmacist being product-oriented to becoming patient-oriented and also with the rapid advancement in cutting-edge information technology and artificial intelligence (AI), the nature of pharmacist work may change and this may equally affect job security. Leadership-related traits and competencies such as knowledge, skills and capabilities can be improved through education and training [1]. Thus, as early career pharmacists, they serve as a checkpoint between classroom and practice experiences. Thus, assessing their level of leadership and professionalism will help evaluate the impact of the current curriculum of

pharmacy education in Nigeria on professionalism and leadership. From the study, a good percentage of respondents noted that the pharmacy education prepared them effectively for leadership (well, 42.3% and very well, 23.3%)and professional identity (effectively, 56% and effective, 23.3%).Also, a good number of respondentsnoted that leadership were often incorporated into pharmacy education. This study is consistent with the findings of a previous study on developing leadership among pharmacy students in Qatar [6]. The result of this study may be due to the improved curriculum in pharmacy education in Nigeria and also a deviation towards pharmaceutical care and PharmD program which highlights leadership, direct responsibility, clinical-oriented care and managerial skills as core values. There is a crucial ability and trait that pharmacy students must possess to drive desirable changes in their roles as pharmacist. Thus, the development of programmesaimed at enhancing this ability and trait is necessary. From the study, 7.8% of respondents noted that classroom theory influenced their leadership and professional identity abilities while practical/clinical experiences, mentorship programs, internship experience and personal development had (20.7%, 12.1%, 39.7%, 44.8% and 12.1%), respectively, the findings of this study is in line with similar study [21] where mentees reported a greater improvement in their leadership skills as compared to students who only took the course. The respondents in this study noted communication/public speaking(87.9%), problem solving(89.7%), decision making(87.1%), human resource/ staff management(70.7%), entrepreneur(70.7%) and sales and marketing(68.5%)as essential skills for pharmacists. This finding is in line with similar study conducted in Korea to examine Korean pharmacy students' degrees of communication competence, critical thinking disposition, problem-solving ability, leadership, and factors affecting leadership, which are required to align with the needs of professional practice. The results of their study supported the need to pay attention to these abilities and provide an overview of the extent of these skills among students [1]. The study is also in congruence with similar studies by [7,15] which emphasis the need to incorporate entrepreneur and innovative skills as well as early practice exposure and mentorship training among pharmacy students. The two major barriers that prevent early career pharmacists in pursing leadership roles in this study are limited mentorship program and work load/time constraints, the findings of this study align with a similar study conducted in Nigeria, where their finding showed that work load/time constraints as well as limited mentorship program serve as major barriers in displaying professional identity and leadership abilities with regards to pharmacovigilance activities [18].From this study, majority of our correspondence (480, 82.8%) suggest that the pharmacy education curriculum need adjustment to better prepare students

for leadership roles. This may be due to the shift in paradigm from pharmacist being product-oriented to becoming patient-oriented and also with the rapid advancement in cutting-edge information technology and artificial intelligence (AI), the nature of pharmacist work has changed and thus job security is likely affected.

Conclusion

The findings of our study showed that leadership has been moderately incorporated into the current pharmacy education in Nigeria but there is need to improve the curriculum by introducing early mentorship program, entrepreneur and innovation, clinical and practical experiences as well as adopting an active teaching approach in leadership as this will enable effective leadership and professional identity demonstration across all levels and fields of pharmacy practice in Nigeria.

Strength and limitations of the study

The major strength is that it focused on an issue that has not been adequately studied, addressing early-career pharmacists a specific group within the pharmacy workforce in Nigeria. Thus, we believe that the findings of this study will have tremendous and widespread application. The main limitation of this study is that it is a cross-sectional study, so the causality could not be warranted. Secondly, the study was based on a self-reported questionnaire, so personal bias may have affected the results. Also, the sociodemographic of our participants is a bit skewed as majority of our participants are B. Pharm holders.

Consent:

As per international standards or university standard, patient(s) written consent has been collected and preserved by the author(s).

Ethical approval:

As per international standards or university standard, written ethical approval has been collected and preserved by the author(s).

Data availability statement:

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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