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Exploring the emigration intentions of Nigerian medical and nursing students: factors driving migration and implications for Nigeria's healthcare system



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Abstract

Background The emigration of healthcare professionals significantly contributes to brain drain within Nigeria's healthcare sector, exacerbating existing workforce shortages. This study investigates the emigration intentions of Nigerian medical and nursing students, focusing on preferred destinations, key motivating factors, and the potential long-term consequences for the nation's healthcare system.

Methods A cross-sectional study was conducted among undergraduate medical and nursing students from six universities, purposefully selected to represent Nigeria's geopolitical zones. A total of 2,152 students (Medicine and Surgery = 1254; Nursing = 898) participated in the study. Data were collected using a structured, self-administered online questionnaire and analysed with IBM SPSS version 27. Descriptive statistics, chi-square tests, and binary logistic regression were applied, with statistical significance set at p < 0.05.

Results 72.9% of students expressed intentions to practice abroad, primarily seeking specialist training within the first five years post-graduation (97.7%). Alarmingly, 32.7% had no intention of ever returning to Nigeria, while only 11.7% of those intending to stay intend to leave after completing specialist training. The top three emigration destinations were the United States (28.5%), the United Kingdom (24.6%), and Canada (23.1%). The main drivers of emigration included better training opportunities (75.2%), access to advanced equipment (61.1%), and improved career prospects (56.7%). Respondents predicted negative impacts on Nigeria's healthcare system, including increased mortality rates and potential system collapse.

Conclusion The findings reveal a high propensity for emigration among Nigerian medical and nursing students, with significant implications for the country's healthcare system. The study underscores the urgent need for policy interventions that address systemic challenges such as inadequate resources, poor working conditions, remuneration

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and career development opportunities. Strengthening local training conditions and offering competitive incentives may help mitigate the brain drain and ensure a sustainable healthcare workforce in Nigeria.

Keywords Healthcare, Medical and nursing students, Emigration intentions, Emigration destinations, Brain drain, Emigration impacts

Introduction

Effective healthcare delivery relies heavily on a robust and well-staffed workforce [1]. In Nigeria, this critical infrastructure faces unprecedented challenges, as evidenced by stark workforce density statistics. The World Health Organisation (WHO) recommends a doctorpatient ratio of 1:600; however, Nigeria currently experiences a dramatically disproportionate ratio of 1:9083 [2]. With a population exceeding 200 million [3], this disparity underscores the profound healthcare workforce deficiencies confronting Africa's most populous nation.

The healthcare personnel landscape in Nigeria is characterised by systemic workforce constraints. The WHO reports a nursing and midwifery personnel density of approximately 16.5 per 10,000 people [4], positioning Nigeria perilously close to failing even the most modest benchmark of 2.5 doctors, nurses, and midwives per 1,000 population [5].

The massive and consistent exodus of skilled healthcare professionals represents a primary catalyst for these severe manpower shortages. Annually, Nigerian healthcare workers migrate to more developed countries, seeking enhanced professional and personal opportunities. Notably, a pivotal study conducted at the University College Hospital Ibadan revealed that 57.4% of resident doctors expressed emigration intentions, with 34.8% having already undertaken concrete steps towards international relocation [6]. Corroborating this trend, data from the UK's Nursing and Midwifery Council demonstrated a striking 68.4% increase in Nigerian-trained nurses registering between March 2021 and March 2022 [7].

Professional migration among healthcare workers is nuanced, driven by a complex interplay of compelling pull and push factors. The prospect of emigration offers substantial advantages, including equitable financial compensation, superior occupational environments, meaningful professional development opportunities, manageable workloads, enhanced quality of life metrics, and exposure to diverse professional landscapes [5].

Conversely, the systemic push factors propelling healthcare professionals towards resettlement are multifaceted and profound. These include significant occupational stressors, inadequate remuneration structures, suboptimal working conditions, infrastructural deficiencies in medical service provision, limited health insurance coverage, recurring industrial actions, systemic governance challenges, pervasive institutional corruption, regional security instabilities, and persistent political volatility [8–11].

Medical and nursing students represent a pivotal demographic in this narrative, serving as critical indicators of the healthcare system's future trajectory. A substantive study among medical students in Ebonyi State revealed that 74% preferred international training and specialisation, with merely 12% expressing willingness to specialise or practice within Nigeria or its rural regions [12].

This study comprehensively explores the perceptions of medical and nursing students across various Nigerian medical institutions towards domestic healthcare practice. By examining students' evolving perspectives through their academic progression and investigating the multifaceted factors influencing their career decisions, we aim to forecast potential impacts on Nigeria's healthcare system and illuminate the emerging trajectory of health professional emigration. Ultimately, this investigation seeks to generate nuanced insights that might inform strategic interventions addressing the currently unfavourable conditions governing medical and nursing practice in Nigeria.

Methods and materials

Study design

This research utilised a descriptive cross-sectional study design to evaluate the perspectives of undergraduate medical and nursing students on factors influencing their career decisions.

Study setting and participants

The study was conducted in six Colleges of Medicine located across the six geopolitical zones of Nigeria. These universities are University of Ibadan (South West), University of Nigeria, Nsukka (South East), University of Benin (South South), Ahmadu Bello University, Zaria (North West), University of Maiduguri (North East), University of Ilorin (North Central). These schools were purposively selected owing to their prominence in these regions based on student population, research output and University rankings.

Participants were undergraduate students enrolled in the Medicine and Surgery (M.B; B.S) and Nursing (BNSc) degree programmes. Medicine and Surgery is a six-year programme in Nigeria, structured into three phases. The first year known as the preliminary year serves as a foundational year where students take courses in the sciences. This is followed by a preclinical phase encompassing second and third years during which students take courses in the basic medical science. Then the clinical phase spanning fourth to sixth years during which students gain clinical exposure in the hospital. Similarly, Nursing is a five-year program comprising a preliminary first year, second and third years in preclinical, and fourth and fifth years in clinical.

Sample size

Participants were recruited through a quota sampling technique to ensure proportional representation from each class and department across schools. The Slovin's formula was used to calculate the sample size for each university:

$$n = N/(1 + Ne^2)$$

Where:

n = sample size

N = population size for each group

e = margin of error set at 5%

The sample size calculation was done per institution using the total number of medical and nursing students. For instance, in the University of Ibadan with an estimated number of 1080 medical students and 240 nursing students. The expected sample size for medical students and nursing students was 292 and 150 respectively. Using this approach, we calculated for all the schools and the total sample size was 2,592. A total of 2,152 responses were obtained, yielding a response rate of 83%. The total sample size per school for each department was shared uniformly across the classes.

Study instrument and data collection

Data were collected using a self-administered, structured questionnaire adapted from previous work by Ossai et al. [12] and reviewed by professionals in the field of public health. The questionnaire, which was prepared in English and hosted on Google Forms, was administered to participants between January and March 2024. Before the full-scale data collection, a pilot test was conducted among medical and dental students in non-participating schools to assess the clarity and relevance of the questions. Based on feedback from the pilot test, minor revisions were made to improve the wording and flow of the questionnaire.

The questionnaire was divided into several key sections. The first section gathered sociodemographic information, including participants' age, gender, religion, academic level, department and university attended. The second section focused on career intentions and included questions about the participants' future plans which includes intention to practice, whether participants intended to practice medicine or nursing after graduation; intention to specialise, whether they planned to pursue specialist training; intention to travel abroad, whether participants intended to seek specialist training or employment outside of Nigeria, which sheds light on the migration trends among Nigerian medical and nursing students; intention to return to Nigeria, for those planning to train or work abroad, offering critical insights into the potential impact of emigration on the country's healthcare workforce.

The final section of the questionnaire explored factors influencing the decision to practice in Nigeria or emigrate abroad. This section aimed to identify both the push and pull factors influencing participants' career decisions such as poor working conditions, low remuneration, lack of advanced training opportunities, better career prospects, improved quality of life, access to advanced medical equipment, and enhanced professional development opportunities abroad. Additionally, the questionnaire explored the reasons for staying in Nigeria, including factors like family ties, financial constraint and a sense of patriotism among others.

Data analysis

The collected data were analysed using the IBM SPSS version 27. Descriptive statistics including mean, frequencies and percentages, were employed to summarise participants' sociodemographic characteristics, career intentions, and factors influencing the decision to practice and specialise and factors influencing decision to practice in Nigeria or emigrate abroad. Chi-square test was performed to assess associations between sociodemographic variables and key dependent variables such as career intentions and choice of location to practice, with statistical significance set at p < 0.05. Binary logistic regression was conducted to identify predictors of key career decisions.

Ethical considerations

Ethical approval was obtained from the University of Ibadan / University College Hospital (UI/UCH) Ibadan Ethics Committee with ethical approval number 23/0028. Informed consent to participate was obtained from all participants prior to their inclusion in the study. This process adhered to ethical principles outlined in the Declaration of Helsinki.

Result

Sociodemographic characteristics

The sociodemographic characteristics of participants have been presented in Table 1. The study included a total of 2,152 participants, with a majority (58.3%) from the MBBS department and the remaining 41.7% from the Nursing department. The participants' ages ranged widely, with an overall mean age of 22.21 years

Sociodemographic variable	MBBS		Nursing	Total	
	Frequency	%	Frequency	%	Frequency (%)
Department	1254	58.3	898	41.7	2152 (100)
Age					
15–19 years	278	22.2	152	16.9	430 (20.1)
20–24 years	749	59.7	545	60.7	1294 (60.1)
25–29 years	211	16.8	152	16.9	363 (16.9)
≥30 years	16	1.2	49	5.5	65 (3)
Sex					
Female	504	40.2	694	77.3	1198 (55.7)
Male	750	59.8	204	22.7	954 (44.3)
Academic Level					
First year	230	18.3	160	17.8	390 (18.1)
Second year	245	19.5	160	17.8	405 (18.8)
Third year	200	15.9	218	24.3	418 (19.4)
Fourth year	249	19.9	178	19.8	427 (19.8)
Fifth year	205	16.3	182	20.2	387 (18.0)
Sixth year	125	10.0			125 (5.8)
University					
ABU	183	14.6	298	33.2	481 (22.4)
UNIBEN	224	17.9	174	19.4	398 (18.5)
UNIBADAN	270	21.5	121	13.5	391 (18.2)
UNILORIN	217	17.3	170	18.9	387 (18.0)
UNIMAID	169	13.5	99	11.0	268 (12.5)
UNN	191	15.2	36	4.0	227 (10.5)
Religion					
Christianity	842	67.1	494	55.0	1336 (62.1)
Islam	400	31.9	400	44.5	800 (37.2)
NA	12	1	4	0.4	16 (0.7)
Ethnicity					
Yoruba					721 (33.5)
Igbo					376 (17.5)
Hausa					385 (17.9)
Others					670 (31.1)

Table 1	Sociodemographic characteristics or	^f participants
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(SD = 3.461). MBBS students tended to be slightly younger, with an average age of 21.92 years (SD = 3.109), compared to Nursing students, whose average age was 22.61 years (SD = 3.866). The most common age range for both groups was between 20 and 24 years, making up approximately 60% of the participants. A small but notable proportion of Nursing students (5.5%) were aged 30 years or older, compared to only 1.2% of MBBS students in this age bracket.

Gender distribution also revealed significant differences between the two departments. While males dominated the MBBS group, comprising 59.8%, the Nursing group was predominantly female (77.3%). The participants were spread across various levels of study. The distribution was relatively balanced, with each level (from 100 to 500) contributing roughly 18–20% of the total. In terms of institutional representation, students came from six major universities across the geopolitical zones of the country. The University of Ibadan (UNIBADAN) contributed the largest share of MBBS students (21.5%), while Ahmadu Bello University (ABU) contributed the highest proportion of Nursing students (33.2%).

Regarding religious affiliation, Christianity was the dominant religion across both departments, with 62.1% of participants identifying as Christians. However, there was a higher proportion of Muslim participants in the Nursing group (44.5%) compared to the MBBS group (31.9%). The ethnic distribution was diverse, with Yoruba participants making up the largest proportion (33.5%), followed by Hausa (17.9%), and Igbo (17.5%). Participants from other ethnic groups made up 31.1% of the total.

A significant majority of the participants expressed a desire to practice in their chosen fields, with 95.3% affirming this intention. This sentiment was consistent across both MBBS (95.5%) and Nursing (95.1%) students. Of those who planned to practice, nearly all (96.7%) intended to pursue specialist training. When asked where they intended to specialize, a striking 72.9% indicated

 Table 2
 Practicing and specialising

Item/Question	MBBS		Nursing		Total
	Frequency	%	Frequency	%	Frequency (%)
Do you plan to	practice?				
Yes	1197	95.5	854	95.1	2051 (95.3)
No	57	4.5	44	4.9	101 (4.7)
If YES, do you pl	lan to pursu	e spec	ialist trainin:	g?	
n=1197					
Yes	1160	96.9	824	96.5	1984 (96.7)
No	37	3.1	30	3.5	67 (3.3)
If YES, where?					
<i>n</i> =1160					
Nigeria	310	26.7	227	27.5	537 (27.1)
Abroad	850	73.3	597	72.5	1447 (72.9)

a preference for training abroad, highlighting a trend towards international medical education (Table 2).

For those who opted to pursue specialist training in Nigeria, the overwhelming majority (97%) planned to begin their training within five years after graduation. This decision was influenced by several factors, including family ties (27.4%), financial constraints (27.9%), and the stress associated with international exams (13.6%). A smaller percentage cited patriotism (6.9%) or religious reasons (1.9%) as motivating factors. Notably, 46.7% of those choosing Nigeria planned to stay after their training, 41.5% were unsure about their long-term plans and 11.7% planned to leave after the training (Table 3).

Among those who planned to specialise abroad, nearly half (47.5%) had made this decision before admission to their programmes, suggesting a longstanding desire to seek international opportunities. Another 26.1% made this decision during their preclinical years, and 16.3%

Table 3 Characteristics of participants choosing Nigeria

decided during clinical training. Most participants (97.7%) intended to begin their training within five years of graduation. The United States (28.5%) and the United Kingdom (24.6%) were the most popular destinations for specialization, followed by Canada (23.1%). The primary reasons for choosing abroad included the perception of better quality of training and expertise (75.2%), access to good equipment (61.1%), and a better quality of life (53.2%). Career opportunities (56.7%) and improved remuneration (42.6%) were also significant motivating factors (Table 4).

A small fraction (4.7%) of participants did not plan to pursue specialist training. Among them, 62.7% intended to practice outside Nigeria. The majority (92.9%) planned to leave within five years of graduation. Their reasons for seeking opportunities abroad included better quality of training (59.5%), improved quality of life (57.1%), and enhanced career opportunities (54.8%) among others (Table 5).

Among participants who intended to practice abroad, 67.3% expressed a desire to eventually return to Nigeria. The timeline for return varied, with 59.3% planning to return within 10 years. A smaller proportion intended to return between 11 and 20 years (27.3%) or even later (Table 6).

Perceptions of the Nigerian healthcare system were largely negative, with 78.3% of participants describing it as "declining." Only 20.6% believed the system was improving, and a mere 1.1% considered it "perfect." When asked about the impact of healthcare professionals leaving Nigeria, 63.3% believed this would lead to a decline in the quality of healthcare, while 25.8% felt it would not have a significant impact. Participants highlighted

Item/Question	MBBS		Nursing	Nursing		
	Frequency	%	Frequency	%	Frequency (%)	
How long after graduation do yo	ou plan to start your spec	ialist training?				
≤5	305	98.4	216	95.2	521 (97%)	
>5	5	1.6	11	4.8	16 (3%)	
Reason for choosing Nigeria						
Family ties	88	28.4	59	26.0	147 (27.4)	
Fear of racism	28	9.0	20	8.8	48 (8.9)	
Stress if international exams	43	13.9	30	13.2	73 (13.6)	
Financial constraints	69	22.3	81	35.7	150 (27.9)	
Patriotism	28	9.0	9	4.0	37 (6.9)	
Preference	34	11.0	16	7.0	50 (9.3)	
Religious reasons	9	2.9	1	0.4	10 (1.9)	
To first become specialist	5	1.6	5	2.2	10 (1.9)	
Undecided	6	1.9	6	2.6	12 (2.2)	
Do you plan to stay after training	g?					
No	26	8.4	37	16.3	63 (11.7)	
Not sure yet	127	41.0	96	42.3	223 (41.5)	
Yes	157	50.6	94	41.4	251 (46.7)	

Table 4 Characteristics of participants choosing abroad

Item/Question	MBBS		Nursing		Total	
	Frequency	%	Frequency	%	Frequency (%)	
When did you make this decision?						
First year	85	10.0	61	10.2	146 (10.1)	
Preclinical	198	23.3	179	30.0	377 (26.1)	
Clinical	128	15.1	108	18.1	236 (16.3)	
Preadmission	439	51.6	249	41.7	688 (47.5)	
How long after graduation do you plan to start training?						
≤5	831	97.8	583	97.7	1414 (97.7)	
>5	19	2.2	14	2.3	33 (2.3)	
Which country do you plan to have the training?						
Australia	48	5.6	23	3.9	71 (4.9)	
Canada	145	17.1	189	31.7	334 (23.1)	
Others	102	12.0	36	6.0	138 (9.5)	
Saudi Arabia	63	7.4	72	12.1	135 (9.3)	
UK	203	23.9	153	25.6	356 (24.6)	
USA	289	34.0	124	20.8	413 (28.5)	
Reason for choosing to emigrate abroad (multiple tick question)						
The hostile training environment of the teaching hospitals in Nigeria	339	40.2%	209	35.5%	548 (38.3)	
Good equipment in Abroad	546	64.8%	328	55.8%	874 (61.1)	
Improved remuneration in Abroad	391	46.4%	219	37.2%	610 (42.6)	
Better quality of life in Abroad	483	57.3%	278	47.3%	761 (53.2)	
Better quality of training and expertise in Abroad	647	76.7%	429	73.0%	1076 (75.2)	
Career opportunities in Abroad	470	55.8%	341	58.0%	811 (56.7)	
Personal reasons	249	29.5%	145	24.7%	394 (27.5)	
No specific reason	11	1.3%	6	1.0%	17 (1.2)	

	CI	C . I		
Table 5	Characteristics	of those not	pursuina	specialist training

Item/Question	MBBS		Nursing		Total	
	Frequency	%	Frequency	%	Frequen- cy (%)	
Do you plan to pra	actice outsid	e Nige	ria?			
Yes	20	54.1	22	73.3	42 (62.7)	
No	17	45.9	8	26.7	25 (37.3)	
If YES, how long a	fter graduati	on do	plan to leave	2		
<5 years	17	85.0	22	100%	39 (92.9)	
5-10years	3	15.0	0	0	3 (7.1)	
Reason for leaving	g (Multiple ti	ck que	estion)			
Good equipment	10	50.0	7	31.8	17 (40.5)	
Improved	9	45.0	9	40.9	18 (42.9)	
remuneration						
Quality of life	12	60.0	12	54.5	24 (57.1)	
Better quality	12	60.0	13	59.1	25 (59.5)	
of training and						
expertise						
Career	11	55.0	12	54.5	23 (54.8)	
opportunities						
Personal reasons	6	30.0	10	45.5	16 (38.1)	

several potential consequences of migration, including increased stress among healthcare professionals (61.9%), poorer quality of healthcare (62.1%), and a higher prevalence of stress-related diseases (49%). The collapse of the healthcare system (57.9%) and an increase in the number **Table 6** Intention to return to Nigeria

Item/Question	MBBS	MBBS		Nursing		
If practicing out- side Nigeria:	Frequency	%	Frequency	%	Frequen- cy (%)	
Do you intend to re	eturn to Nige	ria to j	oractice some	eday?		
Yes	641	71.5	404	61.6	1045 (67.3)	
No	255	28.5	252	38.4	507 (32.7)	
If YES, when do you	u plan to retu	rn to M	ligeria			
1 to 10	344	53.7	276	68.3	620 (59.3)	
11 to 20	215	33.5	70	17.3	285 (27.3)	
21 to 30	31	4.8	18	4.5	49 (4.7)	
> 30	14	2.2	9	2.2	23 (2.2)	
NS	37	5.8	31	7.7	68 (6.5)	

of quack practitioners (56%) were also notable concerns (Table 7).

A chi-square test of association between gender, school and department with key dependent variables have been presented in Table 8.

Plans to practice

When examining the likelihood of participants planning to practice, the analysis reveals that students from the University of Benin (UNIBEN) are significantly more likely to plan to practice compared to those from the University of Ibadan (UNIBADAN), with an odds ratio (OR)

Table 7 Perception of the Nigeria healthcare system

	MBBS		Nursing		Total	
	Frequency	%	Frequency	%	Frequency (%)	
What do you think of the Nigerian healthcare system?						
declining	1032	82.3	654	72.8	1686 (78.3)	
mproving	212	16.9	231	25.7	443 (20.6)	
perfect	10	0.8	13	1.4	23 (1.1)	
What impact do you think leaving would have on healthcare in Nigeria?						
Healthcare would decline	871	69.5	492	54.8	1363 (63.3)	
Healthcare would improve	109	8.7	125	13.9	234 (10.9)	
Healthcare would not be affected	274	21.9	281	31.3	555 (25.8)	
mpact of Migration (Multiple tick question)						
Delay in accessing healthcare	721	58.9	387	44.4	1108 (52.9)	
ncrease in patronage of traditional healers	468	38.2	272	31.2	740 (35.3)	
Shorter life expectancy	472	38.5	232	26.6	704 (33.6)	
ncreased doctor/nurse to patients ratio	348	28.4	166	19.1	514 (24.5)	
ncreased level of stress amidst healthcare professionals	814	66.4%	483	55.5%	1297 (61.9)	
ncreased prevalence of stress related diseases amidst healthcare professionals	643	52.5%	385	44.2%	1028 (49.0)	
Poor quality of life of healthcare professionals	665	54.3%	409	47.0%	1074 (51.2)	
Poor quality of healthcare	810	66.1%	492	56.5%	1302 (62.1)	
ncreased job opportunities	275	22.4%	184	21.1%	459 (21.9)	
ncreased number of quacks and imposters	686	56.0%	487	55.9%	1173 (56.0)	
Collanse of the healthcare system	750	61.2%	161	53 30%	1214 (579)	

 Table 8
 Association between 'gender', 'department' and 'school'

 with key dependent variables

	<i>p</i> values		
Variables compared	Gender	Department	School
Do you plan to practice?	0.201	0.702	0.027
Do you plan to pursue special- ist training?	0.9	0.596	0.022
Where do you plan to have your specialist training?	0.495	0.684	< 0.001
Do you intend to return to Nigeria someday?	0.199	< 0.001	< 0.001
What do you think of the healthcare system?	0.015	< 0.001	< 0.001
Impact of leaving on the health care system	0.217	< 0.001	0.021

of 2.549 (p = 0.009). This suggests that students from UNIBEN are more than twice as likely to intend to practice after graduation. In contrast, the results for other institutions, such as Ahmadu Bello University (ABU), University of Nigeria (UNN), University of Maiduguri (UNIMAID), and University of Ilorin (UNILORIN), do not show significant differences from UNIBADAN in this regard. Age also plays a role in influencing the intention to practice. Participants aged 15–19 are significantly more likely to plan to practice compared to those aged 20–24, with an odds ratio of 3.041 (p = 0.003). This indicates that younger students, perhaps due to their stage in training, are more committed to the idea of practicing (Table 9).

Plans to pursue specialist training

When considering the intention to pursue specialist training, the choice of institution emerges as a significant predictor. Students from Ahmadu Bello University (ABU) are notably more likely to plan for specialist training compared to those from UNIBADAN, with an odds ratio of 10.270 (p < 0.001). This striking result suggests a strong inclination towards specialization among ABU students. Other institutions, such as UNIBEN, UNN, UNIMAID, and UNILORIN, do not show significant differences compared to UNIBADAN. Interestingly, demographic variables such as age and gender do not appear to significantly influence the intention to pursue specialist training. Although there are slight variations, none of these differences reach statistical significance, indicating that the desire for specialist training is relatively uniform across these groups (Table 9).

Plans to travel abroad for specialist training

The decision to pursue specialist training abroad is influenced by both institutional and demographic factors. Students from ABU are significantly less likely to choose training abroad compared to those from UNIBADAN, with an odds ratio of 0.314 (p < 0.001). Similarly, participants from UNIMAID show a lower likelihood of selecting international training (OR = 0.367, p < 0.001). Also, students from UNIBEN are also less inclined towards international training, though the association is less pronounced (OR = 0.655, p = 0.047). Age significantly impacts this decision as well. Participants aged 25–29 are less

Table 9 Binary logistic regression table

	В	Wald	<i>p</i> value	OR	CI	
					Lower	Upper
		I	Do you plan to practi	ce?		
School						
UNIBADAN *						
UNIBEN	0.936	6.777	0.009	2.549	1.260	5.156
ABU	-0.071	0.038	0.845	0.932	0.459	1.891
UNN	0.492	1.640	0.200	1.636	0.770	3.476
UNIMAID	0.484	1.275	0.259	1.623	0.700	3.761
UNILORIN	0.485	1.964	0.161	1.624	0.824	3.199
Age						
Age 20–24 *						
Age 15–19	1.112	8.582	0.003	3.041	1.445	6.401
Age 25–29	0.465	2.251	0.134	1.593	0.867	2.925
Age≥30	18.522	0.000	0.997	110634018.309	0.000	
Sex						
Male *						
Female	0.351	2.218	0.136	1.420	0.895	2.253
Department MBBS*						
Nursina	-0.303	1,566	0.211	0.739	0.460	1.187
Religion						
Christianity*						
Islam	0.553	3.360	0.067	1.739	0.962	3.142
		Do vou p	lan to pursue special	ist training?		
School				.		
UNIBADAN *						
UNIBEN	-0.125	0.117	0.732	0.883	0.432	1.803
ABU	2.329	13.878	< 0.001	10.270	3.016	34.977
UNN	0.322	0.421	0.517	1.380	0.521	3.656
UNIMAID	0.721	2,261	0.133	2.056	0.804	5.258
UNILORIN	0.533	1.689	0.194	1.703	0.763	3.802
Age						
Age 20–24 *						
Age 15–19	0.060	0.032	0.857	1.062	0.553	2.039
Age 25–29	-0.513	2.374	0.123	0.599	0.312	1.150
Age > 30	0.432	0.172	0.678	1.540	0.201	11.823
Sex						
Male *						
Female	-0.005	0.000	0.988	0.995	0.566	1.751
Department	0.000	0.000	0.500	0.000	0.500	
MBBS*						
Nursina	-0349	1518	0.218	0 705	0.405	1 2 2 9
Religion	0.019	1.510	0.210	0.705	0.105	1.229
Christianity *						
Islam	-0.704	3.816	0.051	0.494	0.244	1 002
1510111	0.704	Travellin	a abroad for speciali	st training?	0.244	1.002
School		nuveiiii	g ubroud for special	st truining.		
UNIRADAN *						
UNIBEN	-0423	3 941	0 047	0.655	0.431	0 995
	-1 150	2.2172	< 0.01	0.31/	0.706	0.478
	-0.004	27.120	0.001	0.014	0.200	1 652
	- 0.004	10 767	< 0.001	0.367	0.000	0.571
	-1.005	0.250	< 0.001 0.550	0.507	0.200	1 2/6
UNILUNIN	-0.129	0.000	0.002	0.0/9	0.373	1.040

Table 9 (continued)

	В	Wald	<i>p</i> value	OR	CI	
					Lower	Upper
Age						
Age 20–24 *						
Age 15–19	0.199	1.673	0.196	1.220	0.903	1.649
Age 25–29	-0.580	16.034	< 0.001	0.560	0.422	0.744
Age≥30	-1.214	18.067	< 0.001	0.297	0.170	0.520
Sex						
Male *						
Female	-0.291	5.454	0.020	0.747	0.585	0.954
Department						
MBBS*						
Nursing	0.480	14.348	< 0.001	1.616	1.261	2.071
Religion						
Christianity*						
Islam	-0.842	30.492	< 0.001	0.431	0.320	0.581
		Do you int	end to return to Nige	eria someday?		
School						
UNIBADAN *						
UNIBEN	0.240	2.021	0.155	1.271	0.913	1.770
ABU	0.872	14.575	< 0.001	2.391	1.528	3.740
UNN	0.043	0.047	0.828	1.044	0.709	1.537
UNIMAID	0.464	3.757	0.053	1.590	0.995	2.542
UNILORIN	0.149	0.731	0.393	1.160	0.825	1.631
Age						
Age 20–24 *						
Age 15–19	-0.141	1.035	0.309	0.869	0.663	1.139
Age 25–29	-0.075	0.191	0.662	0.928	0.662	1.299
Age≥30	0.208	0.262	0.609	1.232	0.555	2.733
Sex						
Male *						
Female	0.144	1.300	0.254	1.155	0.902	1.478
Department						
MBBS*						
Nursing	-0.729	31.770	< 0.001	0.483	0.375	0.622
Religion						
Christianity *						
Islam	0.531	10.583	0.001	1.700	1.235	2.341
* Reference						

likely to pursue training abroad compared to those aged 20–24 (OR=0.560, p < 0.001). This trend is even more pronounced for participants aged 30 and above, who have an odds ratio of 0.297 (p < 0.001), indicating a markedly lower likelihood of opting for international specialization. Gender also plays a role, with female participants being less likely than males to plan for training abroad (OR=0.747, p=0.020). Additionally, department affiliation reveals significant differences. Nursing students are more likely than MBBS students to choose training abroad, with an odds ratio of 1.616 (p < 0.001) (Table 9).

Plans to return to Nigeria

The intention to return to Nigeria after practicing abroad is also shaped by institutional affiliation. Students from ABU are significantly more likely to plan a return compared to those from UNIBADAN, with an odds ratio of 2.391 (p < 0.001). While students from UNIMAID also exhibit a higher likelihood of planning to return (OR = 1.590), this association approaches but does not reach statistical significance (p = 0.053).

Religion is another influential factor. Muslim participants are significantly more likely to express the intention to return to Nigeria compared to their Christian counterparts (OR = 1.700, p = 0.001). On the other hand, department affiliation shows that Nursing students are

Discussion

The term "Japa," a popular Nigerian slang that symbolises the search for greener pastures abroad, has evolved and is rapidly becoming a culture. This phenomenon is particularly concerning as it affects young adults, a crucial demographic for any nation's future. This holds true for this study, as the majority of students fell between 20 and 24 years. With a diverse pool of students from various regions, cultural backgrounds, and exposures, the results are both reliable and compelling, demanding serious attention.

Medicine continues to be one of the most respected professions globally, topping the World Economic Forum's 2019 chart of esteemed careers [13]. It is, therefore, unsurprising that almost all (95.3%) medical students surveyed expressed intentions to practice after graduation. However, unlike in previous years when Nigerian doctors often established private clinics after training and specialised training was not as popular, a significant shift has occurred. Many students (96.7%) now show a marked preference for specialty training. This change is vital as it aligns with the need for holistic and specialised patient care in modern healthcare systems [14].

Moreover, residency training, as research indicates, enhances job satisfaction, analytical skills, clinical acumen, and patient care outcomes [15, 16]. The research component of fellowships also fosters a better understanding of data interpretation and healthcare challenges, sometimes even offering funding opportunities. Furthermore, residency programs benefit institutions by increasing the workforce and alleviating burnout among existing healthcare workers [15].

However, this study paints a bleak picture of where this talent pool is headed. Notably, 72.9% of respondents plan to undergo specialist training abroad within five years of graduation. This underscores the systemic challenges of Nigeria's medical education and residency. These challenges include high workloads, inadequate infrastructure, workplace hostility and emotional exhaustion [15, 17, 18]. Similar studies corroborate these findings, such as reports from Abakaliki and Southeast Nigeria, where 74.4% and 89.5% of students, respectively, intended to pursue residency abroad [12, 19]. While these were localised studies, the current findings provide a broader representation.

Interestingly, even among those who initially plan to remain in Nigeria, financial constraints emerged as the leading reason for staying. This suggests that with adequate financial support, many of these individuals would also seek opportunities abroad. Furthermore, after completing specialist training in Nigeria, only 46.7% are certain about remaining in the country. This implies that systemic inadequacies continue to push even the most committed professionals to consider leaving.

Another key insight is that the desire to study and work abroad often takes root before students gain admission into medical school and solidifies before their final year. This highlights the glaring deficiencies in Nigeria's healthcare system, which are evident even to prospective students. The study also identified the top three preferred destinations for medical training abroad: the USA, UK, and Canada. The primary motivations for choosing these countries include the better quality of training and expertise available, superior equipment and more promising career opportunities. Contrary to popular belief, remuneration ranked lower on the list, with 42.6% citing it as a reason for emigrating.

While remuneration is undoubtedly significant, the study exposes deeper systemic issues that contribute to the brain drain. Nigerians, known for their pursuit of knowledge and excellence, thrive in environments that provide the right tools and opportunities. It is no surprise that they excel in academia and professional circles abroad after emigrating. These nuances should be addressed urgently to change the current narrative. Encouraging professionals to return after gaining external training could also help rebuild the system, ultimately turning the brain drain into a brain gain for Nigeria's healthcare sector.

The study highlights alarming trends in the emigration intentions of Nigerian medical and nursing students. A significant majority of participants who did not plan to pursue specialist training expressed intentions to practice outside Nigeria, with a large proportion aiming to leave within five years of graduation and is consistent with prior research which reported that 57.4% of resident doctors at Nigeria's premier teaching hospital had plans to emigrate [12]. The motivations for emigration were diverse, with better training quality, improved living standards, and greater career advancement opportunities emerging as the primary factors. These findings are consistent with global trends observed in other low- and middle-income countries (LMICs). For example, similar pull factors have been reported in studies of healthcare workers in Egypt, Iran and India [20-23]. Our results also corroborate a systematic review which highlighted key push factors such as inadequate infrastructure, low wages, unsafe working conditions, and limited career prospects, alongside pull factors like competitive salaries, opportunities for professional growth, and safer work environments abroad [24].

Interestingly, while the majority of those planning to practice abroad expressed intentions to return to Nigeria eventually, the timeline varied considerably. This "intent to return" phenomenon has been documented in another study where 58.7% of participants planned to return to Nigeria within 10 years, though actual return rates may eventually fall short of stated intentions [12].

The participants' perception of Nigeria's healthcare system is particularly troubling, with 78.3% describing it as "declining" and only a mere 1.1% rating it as "perfect." The anticipated consequences of continued healthcare worker emigration were dire, with respondents predicting increased stress on the remaining healthcare workforce, a decline in the quality of care, and a potential collapse of the system. These concerns align with findings from other sub-Saharan African countries by the WHO, where the emigration of healthcare workers has contributed to worsening health systems [25]. Nigerian medical doctors are dissatisfied with the nation's healthcare system with a trend of patients bypassing lower tiers of healthcare in Nigeria, often driven by unmet expectations and inadequate infrastructure [26, 27].

Our environment undoubtedly has a profound influence on our decisions, perceptions, and desires. Medical and nursing schools serve as key environments where students form impressions about various topics and interests. It is, therefore, not surprising that the institution of study was statistically significant in shaping their plans to practice (p = 0.027), pursue specialist training (p = 0.022), emigration plans (p < 0.001), and intentions to return to Nigeria eventually (p < 0.001).

A study conducted among resident doctors and internship trainees in Ekiti State, Nigeria, revealed that 74.2% and 79.5%, respectively, intended to practice outside the country, with approximately 70% actively making plans toward these goals [28]. Medical students, who spend considerable time with these doctors [29, 30], are naturally influenced by these interactions. These experiences shape the kind of advice students receive, their perceptions of the Nigerian healthcare system, and, ultimately, their career decisions.

In another study among final-year medical students, poor living standards and the desire to escape incessant strike actions emerged as significant push factors for pursuing specialist training abroad, directly tied to their experiences during medical school [31]. Thus, it is crucial for medical institutions in Nigeria to recognize that students' exposure to unfavourable situations often serves as a catalyst for decisions to emigrate or seek training abroad. Creating a more conducive training environment and improving the overall conditions within these institutions is essential for retaining talent and fostering commitment to the local healthcare system.

Young people are often the most motivated demographic; however, motivation tends to decline as they grow older [32]. Among medical students, this trend is evident. First-year students typically exhibit high levels of optimism and interest in prestigious, demanding specialties. However, this enthusiasm often wanes as they approach their final year [14, 33].

Interestingly, this study revealed that medical and nursing students aged 15–19 are three times more likely to express interest in specialty training than their peers aged 20–24, who are usually in higher classes. A notable finding was the comparison between students at the University of Ibadan and Ahmadu Bello University (ABU), Zaria. Students from ABU were found to have a tenfold likelihood of pursuing specialty training after their undergraduate studies. This disparity might stem from the regional context; ABU, located in northern Nigeria, is in a region with fewer specialists, which could serve as a significant motivator.

While medical students showed a higher likelihood of pursuing specialty training than nursing students, the difference was not statistically significant. In Nigeria, the landscape of specialty training differs between the two professions. Medical residency training is wellestablished, whereas specialty training for nurses is less widespread. Historically, nursing was a relatively lucrative profession even without specialization [34]. However, with the increasing recognition and remuneration of nurse specialists, more nurses are becoming motivated to pursue advanced training and specialization.

The intention to emigrate among students in northern schools is significantly lower compared to their southern counterparts, reflecting the socio-economic and cultural differences between the two regions. This trend aligns with earlier findings and underscores the possibility that northern students may place a higher value on staying close to their communities. Similarly, their intention to return to Nigeria was also statistically significant, further supporting this pattern.

Younger medical and nursing students (below 24 years) are more likely to consider emigration, driven by their quest for international exposure, better training opportunities, and improved living conditions. Being at the start of their careers, they typically face fewer familial and financial constraints, making relocation more feasible. In contrast, older students often encounter barriers such as marriage, family responsibilities, or established local roots, which may limit their willingness or ability to move abroad or return [35, 36]. These findings were statistically significant, highlighting the critical role of age in shaping emigration intentions.

Additionally, nursing students demonstrated a significantly higher likelihood of emigration compared to medical students. This difference can be attributed to the comparatively straightforward pathways available to nurses for securing jobs abroad, as opposed to the highly competitive, complex, and costly processes medical students must undergo to enter residency programs or practice internationally. For instance, medical residency applications often involve rigorous exams, extensive documentation, and substantial financial investment, which can deter many aspiring doctors.

This disparity has contributed to a severe brain drain of nurses in Nigeria. A 2024 study corroborates this, showing that nurses are more likely to express emigration intentions than doctors [37]. The global demand for healthcare workers, especially nurses, has made it easier for them to meet international requirements and secure employment in countries facing healthcare shortages [38]. Conversely, our study revealed that doctors are less likely to return to Nigeria, which is understandable; if leaving is challenging, returning may not be an attractive option. This outcome was also highly significant (p < 0.001).

Quota sampling technique was used in this study and could be susceptible to selection bias being a non-probability sampling technique. However, this was done to ensure a feasible sampling method considering the large sample size. All things considered, these findings highlight the urgent need to address the emigration crisis among healthcare professionals in Nigeria, particularly as the healthcare sector continues to face significant challenges in retaining its workforce.

Conclusion

This study highlights the growing emigration intentions among Nigerian medical and nursing students, offering insight into the potential future trajectory of Nigeria's healthcare sector. This study also reveals the systemic issues which contribute to brain drain within Nigeria's healthcare sector. Despite a strong desire to practice medicine, a significant proportion of students are choosing to pursue specialist training abroad, driven by factors such as inadequate resources, poor working conditions and limited career prospects in Nigeria. This brain drain poses a dire threat to the future of Nigeria's healthcare system, as it exacerbates existing shortages and strains the workforce. This underscores the urgent need for structural reforms aimed at making Nigeria's healthcare system more appealing, thereby encouraging medical graduates to practice and pursue specialist training within the country. Addressing these concerns is crucial to reversing the outflow of talent and ensuring the sustainability of healthcare delivery in the country.

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Author contributions

AOO, DMA, and AOF conceptualized and designed this work. All authors contributed to data collection. AAA cleaned and analysed the data. AOO, DMA, and AAA drafted and edited the manuscript. All authors read and approved the final draft for submission.

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Data availability

This will be made available on reasonable request from the corresponding author.

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the University of Ibadan / University College Hospital (UI/UCH) Ibadan Ethics Committee with ethical approval number 23/0028. Informed consent to participate was obtained from all participants prior to their inclusion in the study. This process adhered to ethical principles outlined in the Declaration of Helsinki.

Consent for publication

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Competing interests

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