



Do career aspirations change during Medical School in Nigeria? Findings from a prospective cohort study in a Medical School in Lagos

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ABSTRACT

Background: Career aspirations of medical students have been thought to evolve over the span of their training and may be a factor in determining their career path and future practice of medicine. The study objective was to compare career aspirations of medical students at entry and in the final year of medical school.

Methods: This study was descriptive and prospective in design with a cohort of medical students of the Lagos State University College of Medicine studied at 200 and 600 levels of study in the institution. The study population was the total class (68). Data was collected in 2015 and 2019 using a structured self-administered questionnaire adapted from previous studies. Ethical clearance was obtained prior to study conduct.

Results: The preferred specialty remained as Surgery (50% and 55%), followed by obstetrics (21% and 12%) and Community medicine (15% and 9%). Similar proportions of students at entry and exit (78% and 71%) wanted to continue in the practice of medicine and there was significantly fair agreement at both levels ($p=0.021$). Fewer (13%) however wanted to practice in Nigeria at exit when compared to entry (27%). Work in the public sector remained the dominant choice of the students at entry and exit, with a significant reason change from service to humanity (51%) to money (38%).

Conclusion: Efforts to guide career aspirations in medical school and provide adequate human resources for the health system will help ensure chosen specialties are tailored towards health sector needs and retain doctors trained in Nigeria.

INTRODUCTION

The backbone of any functional health system is the human resource. Medical education in Nigeria has produced 72,000 medical doctors, however only about 35,000 (less than half) are practicing in Nigeria.[1] As doctors graduate from medical schools, a good number are expected by society to train as specialists who will provide the much-needed specialist care in the Nigerian health system. Career aspirations of medical students have often been found to be a major factor in determining their career path and future involvement in medical practice. Reasons for such aspirations help medical educators focus on factors that help to serve as motivation for these students to practice medicine post-graduation.[2] In 2014, there were 28,139 doctors licensed to practise in Nigeria, only 8.1% had specialist training in surgery, Obstetrics and Gynaecology (O & G), anaesthesia and orthopaedics.[3] World bank statistics showed there are 3.81 doctors per 10,000 population in Nigeria,[4] far less than the World Health Organization

minimum recommendation of 10 doctors per 10,000 (1 per 1000) population.

Previously stated reasons for career choices of medical students at entry into medical school in Lagos have been found to include love for the speciality, self-fulfilment, provision of a humanitarian service, parental influence and job satisfaction.[5,6] A cross-sectional study conducted in the United Kingdom among entry and exit level medical students revealed that differences in career aspirations were associated with the medical school, some student's characteristics and a consideration of work-life balance.[7]

A study in Kenya among final year students revealed that Kenya like Nigeria has also been affected by the reduction in the number of practicing doctors in the country as a result of migration of doctors, this is a common practice in Sub-Saharan Africa.[8] However, a majority (88%) of the final year students surveyed in the Kenyan study intended to practice in the country,[8] which is clearly different from the finding in a study conducted in Ebonyi where 61.1% of final

year students wanted to practice abroad, leaving only 38.9% with the intention to practice in Nigeria.[9] This recent study conducted in 2020 among clinical medical students in Ebonyi State University in the South east region of Nigeria reported that almost all the students wanted to specialize (93.3%) while about three-quarters (74.4%) planned to emigrate to other countries in their bid to specialize with the most favoured speciality choices being surgery, paediatrics and O & G.[9]

A study conducted among final year students in the South -Eastern region of Nigeria expressed the need for career guidance for final year medical students in order to streamline the production of specialists for the health system to the actual needs of the health system, as over half (51%) of the respondents (who were final year medical students) took the decision on career specialization in the final year of medical school.[10] However, several studies have documented that in the early stages of medical school (entry level), students frequently have pre-selected specialties they would want to take up after graduation.[5-7,11-12] Questions about whether these career choices remain the same in the final year of medical school exist. This study was conducted to fill this gap in knowledge with the aim to compare the career aspirations of medical students on entry, when majority expressed the desire to specialize (83.1%), 35.2% aspired to practice in Nigeria and surgery was the preferred specialty for 47.3% and see if these would change in their final year of medical school.[5]

MATERIALS AND METHODS

Background of the Research Site

The Lagos State University College of Medicine (LASUCOM) was established on the 9th of February 1999, with a pioneer 200 -level medical students' population of 52.[13] The number of students over the years has increased to a total student population of 931 students across various levels and disciplines. LASUCOM was founded with the goal of producing doctors in such numbers as are required to meet the health care needs of Lagos State and the nation at the primary, secondary and tertiary levels of health care who are world-class graduates of high quality.[13] The course terminates with the award of the Bachelor of Medicine; Bachelor of Surgery (MBBS) degree.

The study was designed as a descriptive and prospective study among a cohort of medical students, in LASUCOM who participated in the 200 level and 600 level phases of the study. The study instrument was a structured self- administered questionnaire administered to the same students at 200 level (entry into medical school) and in their final year (600 level), which was at both phases of the study. Total sampling of the students was carried out (68) and consent was obtained from 65 and 45 of the students at 200 and 600 level respectively with 20 students lost to attrition as they were no longer part of the class in the final year.

Eligibility

Inclusion and exclusion criteria: Only 600 level students who filled and returned the questionnaires in 200 level received the questionnaires again. Students who did not give consent were excluded from the study.

Survey instruments and methods of data collection

A structured self- administered questionnaire adapted from previous studies, modified was used for data collection.[6,14] The questionnaire had been pre-tested among medical students from the University of Lagos prior to first use among the students at entry and then reviewed by researchers to ensure content and face validity. Reliability testing using Cronbach's alpha was not done as the questionnaire did not have multiple items measuring the same underlying construct. The questionnaire consisted of sections A to H eliciting information about socio-demographic details, career choice, career aspirations, reason for specialization, choice of medical school, reason for non-specialization and career plans of medical students. The questionnaire included both open and closed-ended questions.

Data collection was carried out after the students' resumption into 200 level class, and was also carried out during their 600 level (final) year. The questionnaires were distributed to the students in class after a lecture once written informed consent was obtained and collected back after allowing for sufficient time for proper filling of the questionnaire. Total study duration was about 4 years, 200 level data was collected in February 2015, while 600 level data was collected in April 2019.

Data analysis

Analysis was done using Statistical Package for Social Sciences (SPSS) version 23. Analysis was done to determine associations between variables and tests of significance were performed using a 95% confidence interval with the level of significance set at $p < 0.05$. Data was summarized and key variables described. Outcome measures included changes in choice of specialty, reasons for the changes if any and changes in future type of work desired at entry and final year of medical school. Cohen's kappa was used to determine if there was agreement between career choices, reasons for choices and preferred place of practice at 200 and 600 levels. Cohen's kappa was used as it is a measure of inter-rater agreement for categorical scales and would measure the strength of the agreement.

Ethical considerations

Ethical clearance was obtained from the Health Research Ethics Committee (HREC) of the Lagos State University Teaching Hospital with Reference number LREC/06/10/1164. Permission was also obtained from the Provost of LASUCOM and respondents were assured of confidentiality of the data collected and provided the option of withdrawal at any point during the survey. Informed written consent was obtained from each respondent prior to data collection with the aid of a consent form.

RESULTS

The 45 respondents in final year were still largely single 38 (84.4%), with slightly over half 23 (51.1%) being female and a majority 31 (68.9%) were Christians, which was comparable to findings at entry except for mean age which had increased over the years to 26.5 ± 6 years.

Similar proportions of students at entry and final year (78% and 71%) wanted to continue in the practice of medicine

and there was significantly fair agreement at both levels ($p=0.021$). Fewer (6, 13%) however wanted to practice in Nigeria at 600 level when compared to 200 level (12, 27%), with little or no agreement at both levels. Similar proportions (76% and 73%) intended to specialize at entry and exit evaluations, although the kappa statistic showed little agreement. The preferred specialty remained as Surgery (50% and 55%), followed by O & G (21% and 12%) and Community medicine (15% and 9%). (Table 1) There was significantly fair agreement between the choices and Surgery remained the choice for 15 of the students, $\kappa = 0.274$ (95% CI, 0.087 to 0.458), $p = 0.003$.

Table 2 shows several changes in the students' reasons for their preferred specialty with reductions and increases in proportions whose specialty choices were made based on several reasons. Some had great reductions such as - interest in the specialty (71-31%) and a desire for service to humanity (47-29%) and self-fulfilment (59-36%). Considering bright prospects with specialty (27-16%) and job satisfaction (36-16%) were significantly fairly in agreement at both levels ($p<0.05$). Others were not statistically significant ($p>0.05$).

(Table 2)

Changes were also seen in the students' preferred type of work and sector, significantly less (36%) wanted to own their medical practice at exit than at entry (71%), while more were now undecided at exit (31%) as opposed to 9% at entry who were undecided. (Table 3) Work in the public sector remained the dominant choice of the students at entry and exit, with statistically significant fair agreement between the levels (Kappa=0.254, $p=0.032$ 95% CI=-0.028-0.491). However, the predominant reason for the choice of this sector experienced a statistically significant shift from service to humanity (51%) to money (38%). (Table 3)

Cohen's kappa statistics showed there was none to slight agreement (not statistically significant) between the choices of the students about their desired place of work at entry and exit from medical school, $\kappa = 0.113$ (95% CI, -0.043 to 0.261), $p = 0.097$.

And for reasons responsible for the students' choice of preferred sector, there was no agreement between their reasons at entry and exit from medical school $\kappa = -0.047$ (95% CI, -0.109 to 0.18), $p = 0.263$.

Table 1: Changes in career choices of respondents

Career progression choices at entry into med. School	Career progression choices at exit from med. School (n=45)				Test of statistics
Continue Med practice	Yes	No	Undecided	Total	
Yes	29(85.5)	2(5.9)	5(14.7)	34(75.6)	Kappa=0.270 p=0.021 95% CI=0.036-0.524
Undecided	3(37.5)	3(37.5)	3(37.5)	8(17.8)	
Total	32(71.1)	5(11.1)	8(17.8)	45(100.0)	
Proposed location of practice at entry	Proposed location of practice (n=29)				
	Nig	Outside Nig	Undecided	Total	
Nigeria	4(40.0)	3(30.0)	3(30.0)	10(34.5)	Kappa=0.202 p=0.116 95% CI=-0.074-0.458
Outside Nigeria	0(0.0)	1(7.1)	3(21.4)	14(48.3)	
Undecided	1(20.0)	4(80.0)	0(0.0)	5(17.2)	
Total	5(17.2)	18(62.1)	6(20.7)	29(100.0)	
Intend to specialize at entry	Intend to specialize at exit (n=45)				
	Yes	No	Undecided	Total	
Yes	29(85.3)	1(2.9)	4(11.8)	34(75.6)	Kappa=0.085 p=0.48 95% CI=-0.125-0.310
No	0(0.0)	0(0.0)	1(100.0)	1(2.2)	
Undecided	7(70.0)	2(20.0)	1(10.0)	10(22.2)	
Total	36(80.0)	3(6.7)	6(13.3)	45(100.0)	
Preferred specialty	At entry (n=34)		At exit (n=33)		
Internal medicine	3(8.8)		3(9.1)		Fishers exact =6.579 p=0.343
Community medicine	5(14.7)		3(9.1)		
Surgery	17(50.0)		18(54.5)		
Obs & Gyn.	7(20.6)		4(12.1)		
Others	4(11.8)		8(24.3)		

Table 2: Changes in respondents' reasons for specialization (n=45)

Reason for specialization at 200 level	Reason for specialization at 600 level		Test of Statistics
	Yes	No	
Interest for the specialty			
Yes	12(37.5)	20(62.5)	$\kappa=0.157$
No	2(15.4)	11(84.6)	95% CI= -0.037- 0.366
Total	14(31.1)	31(68.9)	p=0.146
Service to humanity			
Yes	9(42.9)	12(57.1)	$\kappa=0.268$
No	4(16.7)	20(83.3)	95% CI= -0.000- 0.530
Total	13(28.9)	32(71.1)	p=0.053
Job satisfaction			
Yes	5(31.3)	11(68.8)	$\kappa=0.279$
No	2(6.9)	27(93.1)	95% CI= -0.002- 0.550
Total	7(15.6)	38(84.4)	p=0.031*
Self-fulfillment			
Yes	9(42.9)	12(57.1)	$\kappa=0.268$
No	4(16.7)	20(83.3)	95% CI= -0.011- 0.524
Total	13(28.9)	32(71.1)	p=0.053
Bright prospects with specialty			
Yes	4(33.3)	8(66.7)	$\kappa=0.279$
No	3(9.1)	30(90.9)	95% CI= -0.066- 0.579
Total	7(15.6)	38(84.4)	p=0.047*
Personal convenience			
Yes	3(33.3)	6(66.7)	$\kappa=0.203$
No	5(13.9)	31(86.1)	95% CI= -0.138- 0.541
Total	8(17.8)	37(82.2)	p=0.172
Prestige			
Yes	0(0.0)	8(100.0)	$\kappa=-0.077$
No	2(5.4)	35(94.6)	95% CI= -0.158- 0.000
Total	2(4.4)	43(95.6)	p=0.501
Better remuneration			
Yes	3(33.3)	6(66.7)	$\kappa=0.203$
No	5(18.9)	31(86.1)	95% CI= -0.140- 0.547
Total	8(17.8)	37(82.2)	p=0.172
Parental influence			
Yes	0(0.0)	2(100.0)	$\kappa=-0.047$
No	2(4.7)	41(95.3)	95% CI= -0.082- 0.000
Total	2(17.8)	43(82.2)	p=0.755
Closeness to doctor			
Yes	0(0.0)	2(100.0)	$\kappa=-0.068$
No	5(11.6)	38(88.4)	95% CI= -0.128- 0.000
Total	5(11.1)	40(88.9)	p=0.609
Flexible working hours			
Yes	3(30.0)	7(70.0)	$\kappa=-0.208$
No	4(11.4)	31(88.6)	95% CI= -0.128- 0.544
Total	7(15.6)	38(84.4)	p=0.153
Employment opportunity			
Yes	3(27.3)	8(72.7)	$\kappa=0.103$
No	6(17.6)	28(82.4)	95% CI= -0.207- 0.404
Total	9(20.0)	36(80.0)	p=0.488
Having a Role model in the specialty			
Yes	0(0.0)	4(100.0)	$\kappa=-0.082$
No	3(7.3)	38(92.7)	95% CI= -0.449- 0.000
Total	3(6.7)	42(93.3)	p=0.575

*statistically significant

Table 3: Future type of work and sector desired by Medical Students

Variables	Respondents at 200 level Freq. (%) n=45		Respondents at 600 level Freq. (%) n=45		Test of statistics
Desired type/place of work					
Own medical practice	32 (71.1)		16 (35.6)		$\chi^2=17.802$ p=0.003
Research in university	5 (11.1)		6 (13.3)		
Private hospital	0 (0.0)				
Employment in hospital not owned by respondent (Teaching Hospital	4 (8.9)		5 (11.1)		
Undecided	4 (8.9)		14 (31.1)		
Preferred sector at entry					
	Preferred sector at exit				
	Private	Public	Undecided	Total	
Private	6(60.0)	4(40.0)	0(0.0)	10(22.2)	Kappa=0.254 p=0.032 95% CI=-0.028-0.491
Public	8(25.8)	21(67.7)	2(6.5)	31(68.9)	
Undecided	1(25.0)	2(50.0)	1(25.0)	4(8.9)	
Total	15(33.3)	27(60.0)	3(6.7)	45(100.0)	
Reason for choice of sector					
	At entry (n=41)		At exit (n=42)		
Own my hospital	2 (4.9)		0 (0.0)		$\chi^2=36.612$ p=0.000
More money	4 (9.8)		5 (11.9)		
More organized	1 (2.4)		16 (38.1)		
More equipped	0 (0.0)		5 (11.9)		
More time	3 (7.3)		5 (11.9)		
Service to humanity	7 (17.1)		6 (14.3)		
Others	21 (51.2)		2 (4.8)		

DISCUSSION

This study revealed that medical students at entry and exit from medical school were not only willing to continue to practice medicine but were also interested in specializing, surgery remained the preferred specialty. This finding is similar to findings from a mixed methods study conducted in Uganda where O & G and surgery were the most preferred specialties.[15] However, reasons for the students' specialty choices had changed. Reasons such as interest in the specialty (71-31%), a desire for service to humanity (47-29%) and self-fulfilment (59-36%) had less students at exit than at entry stating them as the reasons behind the choices they made, probably on account of them having realised they were on the verge of fending for themselves in life. The students were inclined towards job satisfaction and bright prospects for the specialty as being reasons at both entry and exit from medical school, similar to reasons such as assurance of a good life as proffered in the mixed methods study from Uganda which is not unusual.[15]

Out of every ten medical students, three wanted to practice in Nigeria at entry to medical school while just one in ten students expressed the same wish at exit highlighting the issue of emigration of doctors from Nigeria. The brain-drain phenomenon has been on the rise in Nigeria with many doctors and other health workers seeking greener pastures outside the shores of Nigeria on account of better wages, working conditions and more equipped health facilities. These are the same reasons why health workers from African countries such as Zimbabwe, Uganda, South Africa, Ghana and Cameroun migrate to other countries.[16] Health workers in Nigeria typically earn about 25% of what they would earn if they were working in North America, Europe or the Middle East although there are large differentials in living costs.[16] This alone is a major reason why many desire to practise outside Nigeria as shown by Medical and Dental

Council of Nigeria (MDCN) data in which about 37,000 out of the 72,000 registered doctors are practicing outside Nigeria.[1]

The brain drain phenomenon is having untoward effects on the already weak health system in Nigeria and results in shortages of specialized and experienced health professionals in the country. Shortages of doctors estimated for 2016-2030 ranged from 31,413 to 50,120, and the figures are likely to increase with the rise in emigration and intention to emigrate displayed by the medical students in this study.[17] The problem is common in Africa as only one in four doctors trained in Africa practice in developing countries.[18] However, the problem is also being experienced by some developed countries.[19] Issues about health system development and strengthening, remuneration and conducive working conditions need to be addressed in order to stem this tide.

A majority of the students at entry and at exit preferred to work in the public sector but there was a shift in their predominant reason for this choice from service to humanity to better remuneration. This is probably on account of the dwindling economic situation in Nigeria and underlines the need for better remuneration and improvements in the economy.

The findings from this study have some implications on the most importance resource for health- manpower. With the finding that only a tenth of our medical graduates intend to practice in Nigeria, plans to avoid shortages and improve staff retention are essential to avoid a collapse of the health system. In conclusion, medical student career preferences for specialty and sector remained largely the same at entry and exit from medical school with a greater intention to emigrate. However, reasons for these choices had undergone significant changes such as better remuneration rather than service to humanity.

Recommendations include the counselling and sensitization of medical students to encourage interest in medical specialties based on health sector needs. There is also a need for more research on career aspirations with more medical schools and the provision of up-to-date equipment and facilities as obtainable elsewhere may help retain Nigerian trained doctors. Health system strengthening, health sector reforms and the provision of both financial and non-financial incentives [16] are also recommended to improve the retention of Nigeria-trained doctors.

Limitations of the study

The students may have wanted to maintain their chosen career aspirations as a result of the awareness that they were being observed (Hawthorne effect). Courtesy bias as the students may have given responses that they think the researchers want to hear. Career aspirations may have been affected by exposures and experiences of the students during medical training which the study was not designed to determine. The sample size was small based on the class size, thus multi- institutional studies may provide more information and be more representative of the Nigerian medical student population.

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