

PREFERENCES OF CHOICE OF FUTURE SPECIALTY: INSIGHTS FROM FINAL YEAR MEDICAL STUDENTS IN IBADAN, NIGERIA

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ABSTRACT

Background: The choice of specialty by medical students and early career doctors affects health workforce distribution in any country. In addressing healthcare needs of the populace, appropriate distribution of manpower across board is essential. Several factors come into play in making these choices. This study assessed factors affecting the career choices of final year medical students and how curricular changes may have influenced these.

Methods: This was a cross-sectional study conducted among 236 final year medical students of the University of Ibadan by convenience sampling using self-administered semi-structured questionnaires. Questions were on socio-demographic characteristics, career counselling, preferred future career and factors affecting these choices. Data were analyzed using SPSS version 21 software.

Results: A total of 236 medical students participated in the study. The mean age of participants was 23.6(\pm 1.9) years. Only 112(47.5%) respondents had received any form of career counseling/guidance in the course of their medical training. The commonest first choice specialties were obstetrics and gynecology 54(22.9%), surgery 44(18.6%) and psychiatry 18(7.6%). Personal interest most often (185, 78.4%) influenced career choice overall, showing significance in obstetrics and gynecology ($p=0.02$), family medicine ($p=0.02$) and public health ($p<0.001$).

Conclusion: The predominant choices of future specialty among final year medical students were obstetrics and gynecology, surgery and psychiatry. The change in curriculum for medical students may have affected the pattern of their choices with more interest shown in previously neglected areas.

Keywords: Future specialty, Medical student, Specialty choice, Final year

INTRODUCTION

Medical students have been shown to make critical decisions such as the specialty to pursue further training in, during their medical school years.¹ Although these initial choices may change, the significance of these early stage decisions cannot be undermined, because it is known that medical students tend to eventually specialize in disciplines closely related to these initial choices.^{2,3} These choices affect the distribution of the health workforce, and the health sector in general, of any country.

The most important factor affecting career choice among medical students and early interns, in several studies in the literature⁴⁻⁸ was personal interest. Other factors considered important included career stability, reputation, lifestyle/prestige, career progression, independence and income⁵, potential for high income, perceived benefit to the society⁷ and job satisfaction.⁶ Concerning choice of future specialty, studies carried out in different regions of the country have reported similar trends: surgical specialties⁶⁻⁸ were the most

preferred, when results were analyzed generally without specific attention to gender differences. This was closely followed by obstetrics and gynecology, and pediatrics.⁶⁻⁹ However, some other studies^{10,11} reported obstetrics and gynecology as the most preferred specialty followed by surgery and pediatrics. Whatever the case may be, it is clear that these three specialties are the most desired in our environment. Family medicine^{4,5,12,13} and the basic medical sciences^{5,7} were the least preferred among various medical students studied. This probably highlights the little attention given to these specialties especially family medicine in various medical curricula. Elsewhere in the United Kingdom, specialties like general practice were reported as the most preferred.¹⁴ This may be due to a more functional healthcare system with well-defined roles and career path for general practitioners at the primary level in high income countries.

In Africa, the average physician to population ratio is 0.22/1,000 in urban areas and less than 0.03/1000^{15,16,17}

in rural areas, where more doctors are actually needed. This is not surprising in a continent where medical students have shown significantly lower interest in primary care specialties e.g. community medicine/public health or family medicine^{4,5,12,13}, whereas these specialties drive the health indices of any country.

The College of Medicine, University of Ibadan has since 2010 implemented a revised curriculum based on present and projected societal needs, for her medical students with key components being horizontal and vertical integration across specialties and organ systems, clinically oriented and competency based medical education with increased emphasis on clinical acumen and skills acquisition.¹⁸ This has increased the amount of time devoted to clinical work, including allocating a two-month clinical rotation in primary care specialty of family medicine, as well as extension of clinical clerkships in psychiatry, radiology and radiodiagnosis. It is unknown if this curriculum change will have any impact on the career choices of medical students trained with it. Findings from his study may guide future curricula revisions. This study assessed the preferences of final year medical students of the University of Ibadan as regards choice of future specialty, what factors affect this as well as gender differences. This is the first study to evaluate the effects of the new curriculum on students' career choices since its introduction in 2010.

MATERIALS AND METHODS

Study population, design and Ethical considerations

The study was conducted among final year medical students of the College of Medicine, University of Ibadan. The University of Ibadan is federal government funded and located in Ibadan, the largest city in West Africa. It is Nigeria's premier university with a rich heritage in undergraduate medical training since 1948.

Following ethical approval from the institution's ethics review board (UI/EC/17/0276), a cross-sectional survey of 236 consenting medical students from two consecutive final year classes selected through convenience sampling using a self-administered, semi-structured questionnaire was done. Data was collected between January 2017 and February 2018. It was necessary to use two classes in order to achieve the calculated sample size. The students sampled were the first two sets to be trained with the revised medical curriculum. Only final year students were sampled because they are deemed to have clearer views on the scope of medicine, having gone through all rotations. The principles of ethical conduct of research employed was consistent with the declarations of Helsinki. Sample size was calculated, using the Leslie Kish formula for cross-sectional studies and adjustment was made for

non-response. Prevalence for the most preferred specialty for the calculation was obtained from a similar study by Odusanya *et al.*⁶ The 15-item questionnaire was divided into four sections, comprising the socio-demographic characteristics of respondents, desire to study medicine/previous career counselling, preferred future specialty and factors affecting choice of future specialty. Informed consent was obtained and the respondents were required to rank these specialties in order of their preference and indicate how much each of the factors examined affected their choices. The questionnaire was modified from a study by Nighat *et al.*⁴ They were crosschecked for completeness on each data collection day, before accepting them from the respondents to avoid missing data. The study had a 95% response rate. This study was part of a comprehensive research evaluating career choices and considerations for training in the future among medical students at the University. The study received no external funding.

Data management and analysis

The questionnaires were manually sorted out and checked for errors and omissions at the end of data collection each day. The information obtained was kept confidential. Data collected was divided into categorical and continuous variables. This was entered into a computer and analyzed using the SPSS version 21 software. Continuous variables were summarized using means and standard deviations while categorical variables were summarized using frequencies and proportions. Chi square statistic was used to test for association between categorical variables such as socio-demographic characteristics, choice of specialty and factors affecting choice of specialty. The p value for statistical significance was set at <0.05.

RESULTS

A total of 236 final year medical students with a mean age of 23.6(\pm 1.9) years participated in the study of which 135(57.2%) were males (Appendix Table 1). Only 64(27.1%) received career counselling prior to choosing medicine as a course of study. Among the remaining 171(72.5%) who did not receive any counselling, 85(50.6%) indicated that if they had been counseled on what studying medicine entailed they would have chosen some other career paths. In the course of their training, only 112(47.5%) of the respondents had received career guidance or mentorship. When asked if they felt this was needed as part of medical training in Nigeria, 231(97.9%) responded in the affirmative. A total of 199 (84.3%) respondents wished to practice medicine after undergraduate training, 16(6.8%) will not practice and 21(8.9%) were undecided. Of those who stated that they did not intend to practice medicine after

Table 1: Sociodemographic characteristics of the study participants

Variable	n (%)
Age	
≥ 25	49 (20.8)
< 25	187 (79.2)
Gender	
Male	135 (57.2)
Female	101 (42.8)
Had a doctor in the family before studying medicine	
Yes	93 (39.4)
No	143 (60.6)
Type of relationship to the doctor	
Nuclear	43 (46.2)
Extended	50 (53.8)
Father's level of education	
Tertiary	205 (86.9)
Secondary	22 (9.3)
Primary	6 (2.5)
No formal education	3(1.3)
Mother's level of education	
Tertiary	199 (84.3)
Secondary	27 (11.4)
Primary	8 (3.4)
No formal education	2 (0.9)

undergraduate training, 8(50%) would engage in business/entrepreneurship, other choices made included catering 1(6.2%), information technology 1(6.2%), music 1(6.2%) and other non-medical disciplines.

The three most preferred first choice specialties were obstetrics and gynecology 54(22.9%), surgery 44(18.6%) and psychiatry 18(17.6%). For second choice specialty, surgery 40(16.9%) was most preferred; obstetrics and gynecology 25(10.6%) was second and internal medicine 21(8.9%) was third with psychiatry following closely 20(8.5%). When students were asked to rank their third most preferred specialties, internal medicine 24(10.2%) was most frequent, followed by psychiatry 17(7.2%) and ophthalmology 16(6.8%). Only a few respondents; 10(4.2%) were yet to decide about specialization while 2(0.8%) of respondents felt they would not bother with postgraduate training, Ear, Nose and Throat surgery, pathology and clinical pharmacology were least chosen as first choice specialty. No one indicated interest in the basic sciences (Anatomy, Physiology and Biochemistry) as first choice specialty. Very few, 5(2.1%) were interested in community medicine as first choice. Among the 'others' category, emergency medicine was most frequently

Table 2: Preferred choice of future specialty of the participants (n=236)

Specialty Choices	Rank 1		Rank 2		Rank 3	
	Freq. (n)	Percent (%)	Freq. (n)	Percent (%)	Freq. (n)	Percent (%)
Obstetrics and Gynecology	54	22.9	25	10.6	13	5.5
Surgery	44	18.6	40	16.9	10	4.2
Psychiatry	18	7.6	20	8.5	17	7.2
Pediatrics	14	5.9	18	7.6	13	5.5
Internal Medicine	13	5.5	21	8.9	24	10.2
Family Medicine	10	4.2	13	5.5	12	5.1
Neurosurgery	8	3.4	4	1.7	8	3.4
Anesthesia	7	3.0	5	2.1	11	4.7
Ophthalmology	5	2.1	9	3.8	16	6.8
Radiology	5	2.1	7	3.0	7	3.0
Public Health/Community Medicine	5	2.1	6	2.5	11	4.7
Ear, Nose and Throat	2	0.8	4	1.7	6	2.5
Pathology	2	0.8	2	0.8	5	2.1
Clinical Pharmacology	1	0.4	2	0.8	2	0.8
Basic Medical Sciences	-	-	-	-	3	1.3
Nuclear Medicine	-	-	-	-	2	0.8
Radiotherapy	-	-	-	-	3	1.3
Sports Medicine	-	-	6	2.5	7	3.0
Yet to decide	10	4.2	1	0.4	7	3.0
I don't think I will specialize	2	0.8	1	0.4	2	0.8
Others	6	2.5	6	2.5	6	2.5

Freq. – Frequency

Table 3: Association between factors affecting choice of future specialty and gender

S/N	Factors	Strong n (%)		Moderate n (%)		Nil n (%)		p-value
		Male	Female	Male	Female	Male	Female	
1	Personal interest	103 (43.6)	82 (34.8)	8 (3.4)	8 (3.4)	12 (5.1)	23 (9.7)	0.32
2	A well revered role model	24 (10.2)	20 (8.4)	42 (17.8)	35 (14.8)	88 (37.3)	27 (11.5)	0.78
3	Clinical rotation in the department	51 (21.6)	42 (17.8)	43 (18.2)	35 (14.9)	43 (18.2)	22 (9.3)	0.54
4	Intellectually demanding	32 (13.6)	29 (12.2)	59 (25.0)	42 (17.8)	37 (15.7)	37 (15.7)	0.69
5	Potentially lucrative	53 (22.5)	29 (12.2)	46 (19.5)	40 (16.9)	25 (10.6)	43 (18.3)	0.026*
6	Content of specialty	76 (32.2)	66 (28.0)	27 (11.5)	15 (6.3)	30 (12.7)	22 (9.4)	0.34
7	Desired practice setting	60 (25.4)	50 (21.2)	34 (14.4)	28 (11.9)	38 (16.1)	26 (11.0)	0.71
8	Minimal /predictable work hours	29 (12.2)	28 (12.0)	39 (16.5)	33 (14.0)	66 (28.0)	41 (17.3)	0.41
9	Parental Influence	9 (3.8)	3 (1.3)	24 (10.2)	10 (4.2)	97 (41.1)	93 (39.4)	0.025*
10	Burden of disease in Nigeria	21 (8.9)	20 (8.5)	41 (17.3)	31 (13.2)	70 (29.7)	53 (22.4)	0.31
11	Few specialists in the country	26 (11.0)	14 (5.9)	38 (16.1)	25 (10.6)	65 (27.5)	68 (28.9)	0.078
12	Working with new technology	37 (15.7)	18 (7.6)	38 (16.1)	27 (11.4)	50 (21.2)	66 (28.0)	0.022*
13	Opportunity for research	40 (16.9)	28 (11.9)	36 (15.3)	41 (17.3)	60 (25.5)	31 (13.1)	0.065
14	Shorter training periods	17 (7.2)	12 (5.1)	34 (14.4)	26 (11.0)	82 (34.7)	65 (27.6)	0.093
15	Perceived ease of study/practice	28 (12.0)	20 (8.3)	39 (16.5)	22 (9.3)	62 (26.3)	65 (27.6)	0.064
16	Prestige of specialty	37 (15.7)	17 (7.2)	51 (21.6)	34 (14.4)	27 (11.4)	46 (19.5)	0.002*
17	Inspiration and guidance from God	34 (14.4)	41 (17.4)	36 (15.3)	27 (11.4)	69 (29.2)	29 (12.3)	0.024*

Freq. – Frequency

**statistically significant*

indicated. The other specialties here included: biotechnology, biomedical engineering, hospice and palliative care and medical genetics.

On bivariate associations between gender and career choice, we found that a total of 11(5.1%) females compared to 3(1.4%) males selected pediatrics as their most preferred specialty ($p=0.041$); 35(16.4%) males compared to 9(4.2%) females selected surgery as most desired ($p<0.001$); 8(3.7%) females compared to 2 (0.9%) males selected family medicine as most desired ($p=0.012$); and 7 (3.2%) males compared to 1 (0.4%) female selected neurosurgery as most preferred specialty ($p=0.011$). More females preferred pediatrics and family medicine, while the males preferred surgery and neurosurgery. Overall, among the male participants, the most preferred choice was surgery 35 (16.4%), followed by obstetrics and gynecology 30 (14.0%) and then internal medicine 7 (3.2%). For the females, it was obstetrics and gynecology 24 (11.1%) as the most preferred then psychiatry 12 (5.6%) and pediatrics 11 (5.1%). Considerably fewer females 9 (4.2%) selected surgery compared to the males 35

(16.4%), $p<0.001$. The females chose pediatrics, 11 (5.1%) vs. 3 (1.4%) and psychiatry 12 (5.6%) vs. 6 (2.8%), more frequently than their male counterparts, $p=0.041$ and $p=0.172$ respectively. No female participant indicated interest in ear, nose and throat surgery, pathology and clinical pharmacology.

Personal interest was rated as having the strongest influence on these choices, followed by the content of specialty, desired practice setting and clinical rotation in the department. Parental influence was least likely to affect choice of future specialty (Table 3). Chi-square analysis revealed statistically significant gender differences in the following factors: 53 (22.5%) males compared to 29 (12.2%) females selected 'potentially lucrative' ($p=0.026$), 9 (3.8%) males compared to 3 (1.3%) females selected 'parental influence' ($p=0.025$), 37 (15.7%) males compared to 18 females (7.6%) selected 'working with new technology' ($p=0.022$), 37 (15.7%) males compared to 17 (7.2%) females indicated 'prestige of specialty' ($p=0.002$) and 41 (17.4%) females compared to 34 (14.4%) males selected 'inspiration/

divine guidance' ($p=0.024$) as the factors having strong influences on their career choices.

DISCUSSION

The study allowed the students to select the specialties of their choice and rank them in order of preference, rather than assessing interest in just one specialty or selecting one most preferred specialty out of a list, which were the methods used in most of the previous studies conducted in Nigeria on specialty choice^{7,9,19-22}. This provides more information about likely final career choices. Ranking specialties in order of interest also allows an observation of trends/patterns in choices of students, and per adventure the most preferred option is changed, it can be predicted what the likely alternatives would be. This has implications for policy. The current study revealed obstetrics and gynecology, surgery and psychiatry in that order as the first choice most preferred specialties. The findings were similar to those from a multicenter survey of three medical schools across South-South and North-Central Nigeria, in terms of first and second most preferred specialties²³. Most of the other studies^{7,9,19-22,24} conducted in Nigeria, found surgery to be most preferred, including a study by Asuzu et al⁹ over two decades ago among final year medical students at the University of Ibadan. Obstetrics and gynecology, internal medicine and pediatrics followed as second, third and fourth in various combinations in these studies. One of the studies¹¹ found public health to tie with pediatrics as second choice specialty. Only a small proportion (4.2%) and a smaller proportion (2.1%) were interested in family medicine and community medicine respectively as first choice in our study. The results represent marginal improvement in the interest of medical students in these fields compared to the previous study⁹ conducted at the University of Ibadan.

The strongest factor influencing these choices was found to be personal interest. Our results therefore show that the interest and hence choices of medical students appear to be changing. While the most chosen specialties in many other studies^{7,9,19-22,24} have been domiciled among the four core clinical specialties; surgery, obstetrics and gynecology, internal medicine and pediatrics, this study found psychiatry to be one of the leading choices. Apart from being third among the most preferred specialties, it was fourth among the second most preferred, and second among the third most preferred. This differs from what was obtainable previously at the University of Ibadan⁹ and in other schools across Nigeria^{6-11,19-23}, where the former curriculum is still in use. Psychiatry usually records very low interest among students, and in fact, in one study no student indicated interest in it²³. A report from the World Health Organization stated that Nigeria

has nine psychiatrists per million citizens, a grossly inadequate figure considering the importance of mental health²⁵. The finding from this study reflects the impact of a training system that is tailored to the needs of the population especially now that mental health is becoming increasingly important. This increased interest most likely reflects a direct effect of the increased clinical exposure to this specialty that the new curriculum affords. Duration of exposure and clinical rotation through various departments was found by our study and others¹⁹ to play key roles in the choice of future specialty. We may therefore conclude from this that one of the ways to increase/stimulate interest in certain specialties lacking in our health system is to increase the amount of exposure medical students get to them in the course of their training. This has been alluded to earlier by Goldacre *et al.*²⁶

Gender differences in choice of specialty were found in our study. Among the males, the most preferred was surgery, followed by obstetrics and gynecology then internal medicine. For the females, obstetrics and gynecology was the most preferred specialty followed by psychiatry and pediatrics. These results are similar to findings from studies conducted in Sweden and Saudi-Arabia where more female medical students indicated interest in future careers in obstetrics & gynecology compared to their male counterparts²⁷. Considerably fewer females selected surgery and compared to the males they chose pediatrics and psychiatry more frequently in our study. Other studies have also found that more males opted for surgery and its subspecialties^{8,19,24,28,29} while the females indicated more interest in pediatrics.^{8,19,28,29} The influence of gender on selection of career choice is likely to be multifactorial with many considerations involved.

Personal interest was found in our study to have the strongest influence on choice of specialty, followed by the content of specialty, desired practice setting and clinical rotation in the department. Participants adduced parental influence as least likely to affect choice of future specialty. Personal interest as the most important factor influencing choice has been found in several other studies as well.^{5,7,19,23,30} The strong influence that personal interest has on choice of specialty should be leveraged on, to develop methods of instruction that stimulate interest among students as they rotate through the various specialties. Most of the other factors identified to influence choices are not modifiable. In the current study, more males indicated the potential for higher income, parental influence, working with new technology, prestige of specialty and faith as having strong influence on their choice, compared to females. Other studies have found similar results with males indicating interest based on pay package^{8,29},

prestige²⁹ and variety of caseload²⁹, while the females' choices were influenced more by having shorter working days²⁹, large amount of patient contact²⁹, flexibility with training^{8,29} and compatibility with having a family^{8,29}.

A major limitation of the study was that it recruited students from a single medical school, the oldest and one of the most well equipped in the country. It may be difficult to generalize the findings to other medical schools with different characteristics in terms of socio-economic indices, facilities that the students are exposed to and the quality and depth of teaching and mentoring that could have influenced the career choices of students.

CONCLUSION

The predominant choices of future specialty among final year medical students were obstetrics and gynecology, surgery and psychiatry. The change in curriculum for medical students may have affected the pattern of their choices with more interest shown in previously neglected areas.

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