

## Factors Influencing Specialty Choices among Medical Students in a University Teaching Hospital in Southern Nigeria

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### ABSTRACT

*The dearth of medical specialists in different fields of medicine and their mal-distribution is a common occurrence in Nigeria. Understanding the specialty areas preferred by medical students and the factors influencing their choices is important in addressing this problem. This study set out to determine the various medical specialities preference of medical students and the factors that influenced their choices. A descriptive cross sectional study using pre-tested structured questionnaires was carried out among 186 clinical students recruited by total sampling technique from the Faculty of Clinical Sciences, College of Health Sciences of the University of Uyo, Nigeria. Data was analysed using SPSS version 17.0 statistical software. One hundred and seventy five (94.1%) agreed to specialize on graduation. The main specialties of interest were Obstetrics and Gynaecology 39(22.3%), General Surgery 23(13.1%), Internal Medicine 20(11.4%) and Cardiothoracic Surgery 16(9.1%). There was a low preference for Physiology 1(0.6%) and Anatomy 0(0.0%) in the Basic Medical Sciences. Specialty choices was commonly influenced by personal interest 144(83.7%), personal skills 118(68.6%) and intellectual content of the specialty 118(68.6%). There was no sex difference in the choice of specialty areas. Financial benefit significantly influenced males' specialty choices. ( $\chi^2=4.288, p=0.038$ ). The specialty choices of medical students were strongly in favour of the core clinical areas of medicine over other disciplines and the common determinants of their choices were personal interest, personal skills and intellectual content of the specialty.*

**Keywords:** Medical Students, Specialties, Choices, University, Nigeria

### INTRODUCTION

The distribution and mix of physicians across various specialties of medicine has implications on the type and quality of the available and accessible medical services<sup>1</sup>, achievement of the health-related sustainable development goals (SDGs) and the overall health of a community. Apart from providing health services, the medical specialist workforce also educates the community, conducts research, contributes to health policy formulation and the implementation of health care programs<sup>2-4</sup>.

Medical education in Nigeria is a 6-year program, comprising 3-years of preclinical study where the basic medical sciences like Anatomy, Physiology, Pharmacology and Biochemistry are taught and another 3 years of training in laboratory and clinical medicine that exposes students to supervised patient care in some medical specialities. A one year mandatory rotational medical internship is followed by another mandatory one year of National Service.<sup>5</sup>

On completion of these trainings, a medical graduate can proceed to enrol in a specialty (residency) training program in an accredited hospital in the country in a chosen specialty of medicine<sup>5</sup>.

Choosing a specialty in medicine is known to be influenced by a lot of factors. Prestige within the medical profession is a known potential factor influencing medical students' specialty choice, especially among students selecting surgical specialties<sup>6,7</sup>. Other reported factors include characteristics of institution of medical training including private versus public school<sup>8,9</sup>, influence of faculty members/mentors/role models<sup>10,11</sup>, demographic variables<sup>12,13</sup> and the morbidity pattern in the community<sup>6,13</sup>. Workload<sup>10,12,13</sup> and financial issues including income potential<sup>7,12,14</sup> have also been reported. Cultural and societal values also influence future physicians, particularly through student's interactions with family, friends, and physicians<sup>15</sup>. The process of resolving conflicting views from societal constructs and self-realization affect students' views on the types of specialists they want to become<sup>15</sup>.

Mal-distribution of medical specialty is a common occurrence in the health care system of most developing countries like Nigeria<sup>16</sup>. This is reflected in the urban rural mal-distribution of

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medical workforce and the frequent selection of the clinical specialties of Internal Medicine, Surgery, Paediatrics, and Obstetrics and Gynaecology at the expense of other medical and surgical specialties and Community Medicine/Public Health. This pattern of selection of specialty by medical students has repeatedly been reported<sup>17-19</sup>. The far reaching impact of this mal-distribution ranges from unavailability of specialists in some equally important fields of medicine, to the unaffordability of secondary and tertiary health care services for the growing Nigerian and global population. This calls for an urgent need to produce an adequate supply of specialists in all fields of medicine to meet the health demands of Nigerians and the world at large.

This study therefore sought to determine the career preferences of medical students and the factors influencing specialty choices among medical students attending the medical school of the University of Uyo.

## MATERIALS AND METHODS

The study was conducted in the Faculty of Clinical Sciences of the College of Health Sciences (CHS), University of Uyo, Akwa Ibom State, Nigeria. This is a relatively new medical school and the only institution that trains medical doctors in Akwa Ibom State. The state located in the southern part of Nigeria is rich in oil and has a projected population of four million people<sup>20</sup>. Clinical training for medical students is conducted at the University of Uyo Teaching Hospital in Uyo, the state capital. During the clinical years of training, medical students are introduced into specialty areas like Surgery, Internal Medicine, Paediatrics, Community Medicine, Family Medicine, Obstetrics and Gynaecology, Otorhynolaryngology (ENT), Anaesthesia, Ophthalmology, Pathology and Psychiatry.

This was a descriptive cross sectional study conducted from January to February 2015 in which a total sampling technique was used to recruit 186 consenting medical students in the three clinical years (clinical year one, clinical year two and clinical year 3/final year) into the study.

A pre-tested structured questionnaire adapted from other studies of factors influencing specialty choices of medical students was used for the study<sup>21</sup>. Participants were asked to rate the contributions of several factors on their specialty choice. A factor was considered contributory if it

was rated 3 or above on a 5 point Likert scale<sup>22,23</sup>. (Graded 0 for not all, 1 for weakly contributory, 2 for fairly contributory, 3 for strongly contributory and 4 for highly contributory). Scores of 2 or lower were designated non-contributory factors.

Data was analysed using SPSS version 17 statistical software. Chi-square test of association at statistical significance of 0.05 was calculated where appropriate. Approval to conduct the research was obtained from the ethical review committee of the University of Uyo Teaching Hospital. Informed consent was obtained from the students and confidentiality was maintained throughout the conduct of the study.

## RESULTS

The ages of the students ranged from 19 to 51 years with a mean age of 25.4 and a standard deviation of 4.7 years. The majority 131 (70.4%) of the respondents were males with a large proportion 71 (38.2%) of them in the 4<sup>th</sup> year of study. Almost all 175 (94.1%) agreed to specialise on graduation from medical school. The socio-demographic characteristics of the students are described (Table 1).

Table 1: Socio-demographic Characteristics of Medical Students (n=186)

<i>Characteristics</i>	<i>Frequency (%)</i>
<b>Sex</b>	
Male	131 (70.4)
Female	55 (29.6)
<b>Clinical Year of Study</b>	
4 <sup>th</sup>	71 (38.2)
5 <sup>th</sup>	56 (30.1)
6 <sup>th</sup>	59 (31.7)
<b>Planning to specialize</b>	
Yes	175 (94.1)
No	11 (5.9)

The main choices of specialities were Obstetrics and Gynaecology 39 (22.3%), General Surgery 23 (13.1%), Internal Medicine 20 (11.4%), Cardiothoracic Surgery 16 (9.1%) and Paediatrics 12 (6.9%). More of the males preferred these core clinical areas compared to females. Also, more females selected Forensic Medicine 3 (5.6%), Haematology 2 (3.7%), Psychiatry 2 (3.7%) and Plastic Surgery 1 (1.9%). However, sex differences in all specialities of medicine and surgery selected were not statistically significant. Three students (1.7%) had not yet decided on the area to specialize. (Table 2)

Table 2: Preferred Specialty Choices of Clinical Students by Sex

Area of Specialization	Sex of Students		Total n (%)	Test Statistics and Statistical Values
	Male n (%) (n= 121)	Female n (%) (n=54)		
Obstetrics and Gynaecology	29 (24.0)	10 (18.5)	39 (22.3)	p=0.693 $\chi^2=0.373$
General Surgery	16 (13.2)	7 (13.0)	23 (13.1)	p=1.000 $\chi^2=0.009$
Internal Medicine	14 (11.6)	6 (11.1)	20 (11.4)	p=1.000 $\chi^2=0.002$
Cardiothoracic Surgery	12 (9.9)	4 (7.4)	16 (9.1)	p=0.781 $\chi^2=0.181$
Family Medicine	7 (5.8)	5 (9.3)	12 (6.9)	p=0.342 $\chi^2=0.850$
Paediatrics	9 (7.4)	3 (5.6)	12 (6.9)	p=1.000 $\chi^2=0.133$
Community Health	6 (5.0)	4 (7.4)	10 (5.7)	p=0.485 $\chi^2=0.523$
Pathology	6 (5.0)	2 (3.7)	8 (4.6)	p=0.769 $\chi^2=0.086$
Forensic Medicine	1 (0.8)	3 (5.6)	4 (2.3)	p=0.058 $\chi^2=3.601$
Neurosurgery	4 (3.3)	0(0.0)	4 (2.3)	p=0.092 $\chi^2= 2.841$
Paediatric Surgery	2 (1.7)	1 (1.9)	3 (1.7)	p= 0.887 $\chi^2= 0.020$
Haematology	1 (0.8)	2 (3.7)	3 (1.7)	p= 1.788 $\chi^2= 0.181$
Urology	3 (2.5)	0 (0.0)	3 (1.7)	p= 0.145 $\chi^2= 2.124$
Psychiatry	1 (0.8)	2 (3.7)	3 (1.7)	p= 0.186 $\chi^2= 1.747$
Orthopaedics	3 (2.5)	0 (0.0)	3 (1.7)	p= 0.145 $\chi^2= 2.124$
Not yet decided	2 (1.7)	1 (1.9)	3 (1.7)	p=0.887 $\chi^2= 0.020$
Ophthalmology	1 (0.8)	1 (1.9)	2 (1.1 )	p= 0. 543 $\chi^2= 0.370$
Genetic Study	1 (0.8)	1 (1.9)	2 (1.1)	p= 0. 543 $\chi^2= 0.370$
Anaesthesia	1 (0.8)	0 (0.0)	1 (0.6)	p= 0. 402 $\chi^2= 0.703$
Radiology	1 (0.8)	0 (0.0)	1 (0.6)	p= 0. 402 $\chi^2= 0.703$
Physiology	1 (0.8)	0 (0.0)	1 (0.6)	p= 0. 402 $\chi^2= 0.703$
Plastic Surgery	0 (0.0)	1 (1.9)	1 (0.6)	p= 0.118 $\chi^2= 2.450$
Medical Psychology	0 (0.0)	1 (1.9)	1 (0.6)	p= 0.118 $\chi^2= 2.450$

The main reasons adduced for choice of specialities by the respondents were personal interest in 144(83.7%), personal skills in 118(68.6%), intellectual content of specialty in

118(68.6%) and focus on urgent care in 105(61%). Financial gain significantly influenced the specialty choice in males compared to females ( $p=0.038$ ) (Table 3).

Table 3: Factors that Influence Medical Student's Specialty Choices by Sex

Factors	Sex (only positive Responses)		Total n (%) (n=172)	Statistical tests and statistical values
	Male n (%) (n=119)	Female n (%) (n=53)		
Personal interest	99 (83.2)	45 (84.9)	144(83.7)	$p=1.000$ $\chi^2=0.079$
Personal skills	82 (68.9)	36 (67.9)	118 (68.6)	$p=0.898$ $\chi^2=0.016$
Intellectual content of specialty	82 (68.9)	36 (67.9)	118 (68.6)	$p=0.898$ $\chi^2=0.016$
Focus on urgent care	77 (64.7)	28 (52.8)	105 (61.0)	$p=0.140$ $\chi^2=2.175$
Research interest	77 (64.7)	27 (50.9)	104 (60.5)	$p=0.088$ $\chi^2=2.905$
Type of patient problem in the society	69 (58.0)	34 (64.2)	103 (59.9)	$p=0.446$ $\chi^2=0.581$
Career prospects	72 (60.5)	28 (52.8)	100 (58.1)	$p=0.346$ $\chi^2=0.887$
Possibility of Dual practice	68 (57.1)	25 (47.2)	93 (54.1)	$p=0.226$ $\chi^2=1.469$
Prestige of the specialty	56 (47.1)	19 (35.8)	75 (43.6)	$p=0.171$ $\chi^2=1.874$
Financial gains in the specialty	56 (47.1)	16 (30.2)	72 (41.9)	$p=0.038^*$ $\chi^2=4.288$
Mentor influence	48 (40.3)	14 (26.4)	62 (36.0)	$p=0.079$ $\chi^2=3.083$
Work load in the area	46 (38.7)	16 (30.2)	62(36.0)	$p=0.286$ $\chi^2=1.140$
Few specialist in the area	36 (30.3)	18 (34.0)	54 (29.5)	$p=0.628$ $\chi^2=0.234$
Parents influence	9 (7.6)	5 (9.4)	14 (8.1)	$p=0.764$ $\chi^2=0.172$

\*significant p value

## DISCUSSION

The choice of speciality areas was strongly in favour of the core clinical specialties. The top three specialties choices of the respondents were Obstetrics and Gynaecology, General Surgery and Internal Medicine. This finding agrees with reports from other Nigerian studies and similar studies in the Gambia, United Kingdom, Canada and the United States of America<sup>1,16,24-30</sup>. It is believed that the teaching

hospitals, which dominate undergraduate training and which place a disproportionate emphasis on clinical disciplines and disease-focused philosophies, likely influence medical student choices on the core clinical areas. Previous studies have shown that whenever a specialty is not even considered among the first three choices, then it is very unlikely that students would consider it later for specialization<sup>31,32</sup>. By implication, this cohort of students in this study



may deny the medical field of specialists in other areas of medicine outside Obstetrics and Gynaecology, General Surgery, Internal Medicine. The three (1.7%) students who had not yet decided on their area of specialization were in their 4<sup>th</sup> year/first clinical year. A higher percentage of students in their final year who were unsure of their specialty area was reported in a Swedish study.<sup>33</sup> These students still have a lot of time in the subsequent clinical years and during internship programme to decide on their specialty preference.

The lower preference for Community Medicine and Family Medicine, specialties that improve the general health of the population at the community and family levels is observed in this study. This finding corroborates previous reports of other studies<sup>1,25,34</sup>. The far reaching implication is that this cohort of students in this study may produce fewer specialists in these specialties of medicine known to provide promotive, preventive and rehabilitative health services, which are key components of the universal health coverage (UHC)<sup>35</sup>. There is an urgent need for specialist doctors in Community Medicine, Family Medicine and Paediatrics. This is more so in a country that is still trying to control preventable diseases like poliomyelitis and measles and has an unacceptably high infant and under-five mortality rates<sup>36</sup>.

The lower preference of the medical students for specialties in the basic medical sciences like Anatomy and Physiology is worrisome. Physiology and Medical Psychology each had a student indicating interest to specialize therein with none indicating interest in Anatomy. This finding corroborates that of a similar study in Gambia<sup>25</sup>. The importance of having specialists in the basic medical sciences cannot be overemphasized. It is necessary to identify the factors that discourage students from this area and rectify them in order to produce the required manpower in this field of medicine.

There was no significant association between sex of the students and the fields of medicine chosen for specialization. This finding disagrees with other studies where males were more biased to surgical specialties and internal medicine than females<sup>4,37,38</sup>. However, the findings of this study is supported by similar studies in Sweden where no differences in specialty preference between sex was reported<sup>39</sup>. At this stage of development of the medical

school, perhaps career counselling may be helpful to encourage women pick up careers in otherwise male dominated specialties. This will ensure that specialists of both sexes are produced in all areas of medicine.

Personal interest, appraisal of one's personal skills and intellectual content of specialty were the leading determinants of students' career choices in this study. This agrees with similar studies among medical graduates and medical students<sup>4,25</sup>. There was no difference by sex in factors influencing specialty choices. However, work and time related factors and patient orientation influenced specialty choices for females while technical challenges, salary, career prospects and prestige influenced males specialty choices in a similar study in Sweden<sup>40,41</sup>. Financial gain significantly influenced specialty choices in males compared to females in this study and corroborates findings of a similar study in Sweden<sup>40,41</sup>. This observation may be due to the fact that as heads of families in most cultures, men have a greater financial responsibility than women.

## CONCLUSION

The core clinical areas of medicine were preferred by medical students over other disciplines. This may reduce the needed manpower in other important specialties thereby militating against the achievement of the universal health coverage and the health related sustainable development goals. The major determinants of specialty choices were personal interest, personal skills and intellectual content of the specialty

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