

## Anticipated specialties and influencing factors among final year medical students in a Nigerian University

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### ABSTRACT

**Objectives:** The study aimed at determining final year medical students' anticipated specialty choices, the factors they consider important in choosing a specialty and the interrelationship between these variables.

**Methodology:** In a descriptive cross-sectional survey, questions on specialty preferences and influencing factors were asked, using structured self-administered questionnaires.

**Results:** The specialty preferences included: surgery (50.7%), obstetrics and gynaecology (43.9%), paediatrics (20.6%), community health (17.6%) and adult medicine (14.5%). The proportions of preferred specialties did not 'fit' those of recent graduates of the National Postgraduate Medical College ( $p=0.00$ ). The major influencing factors were personal interest (67.2%), potential for high income (22.0%) and perceived benefit to the society (14.9%). Potential for high income was a major factor associated with all the specialties except community health. Personal interest was a major factor associated with all the specialties except anaesthesia.

**Conclusion:** The findings call for career education and counselling to empower students in specialty choice decisions. They also provide a basis for systematic and proportionate manpower development in medical specialties by relevant stakeholders in order to meet personal and national needs. The study indicates opportunities for further research.

**KEY WORDS:** Medical Students, Specialty Choice, Health Manpower, Career Decision, Nigeria.

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### INTRODUCTION

Medical students and physicians often face the challenge of deciding on a specialty, if they decide to specialise. They consider the factors that motivate or drive them and factors relating to available

specialties, including their prospective rewards and costs.<sup>1</sup>

A recent Australian study identified the major factors influencing specialty choices as appraisal of own skills and aptitudes (79.2% of respondents) and intellectual content (74.7%) and work culture (72.1%) of the specialty.<sup>2</sup> Another Australian study showed the primacy of personal interest in the specialty as a choice factor.<sup>3</sup>

A study in Lagos, Nigeria, showed that house officers' major reasons for specialty preferences were interest in the specialty (72.4%) and job satisfaction (67.6%).<sup>4</sup> In a study in Ibadan, Nigeria, over 81% of students in their clinical years who intended to specialise opted for surgery, internal medicine, paediatrics, obstetrics and gynaecology and general practice, while only 5.5% chose radiology, psychiatry, community medicine, anaesthesia and pathology.<sup>5</sup> A related study in the same population linked

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such preferences to the lucrateness and societal value for the specialty.<sup>6</sup>

Some Nigerian studies also show that students distinguish their perceptions that a specialty is very important from their perception that it has good prospects.<sup>7,8</sup> Some others also show that poor interest in a specialty may arise from short student posting durations<sup>9,10</sup> and poor patient management outcomes.<sup>6,11</sup> Sadly, available data do not provide sufficient links between medical students' carrier preferences and the factors that motivate specific choices. Also, health and education policy makers do not appear to monitor and review medical specialty choices. The identification of final year medical students' anticipated specialty choices, the factors they consider important in the choices and the description of how these variables interrelate constitute the objectives of this study.

## METHODOLOGY

**Setting Participants and Procedure:** The study was conducted in University of Benin, Benin City, southern Nigeria. Approval for the study was given by the Department of Community Health in the medical school. Two consecutive final year medical classes were used for the study in order to exceed the calculated minimum sample size, while making allowance for non-consenters. The purpose and nature of the study was explained to the eligible participants, assurances of confidentiality given and voluntary informed consent obtained. All those who expressed intention to specialise by stating likely areas of specialisation and factors considered important in specialty choice were enlisted for the study without further selection.

The study design was a questionnaire-based descriptive cross-sectional survey. A minimum sample size of 244 was computed. The questionnaire, which covered participants' demographics and the study objectives, was self-administered after pre-testing.

**Data Analysis:** Collected data were transferred into a matrix format in the Statistical Package for Scientific Solutions version 16 from which simple frequency tables were drawn to present likely future specialties, factors considered important in the choice of specialties and relationships between both variables. The chi-square goodness-of-fit test<sup>12</sup> was carried out to compare observed proportions of anticipated specialties in this study (demand end) with those of graduates of the National Postgraduate Medical College from 2001-2007 (supply end),<sup>13</sup> using EpiCalc 2000.<sup>14</sup> The level of significance was 0.05.

## RESULTS

A total of 296 consenting final year medical students, out of 416 in the two consecutive classes, participated in the study. They consisted of 216/296 (73.0%) males and 80/296 (27.0%) females. The mean age was 25.85 years with a standard deviation of 2.6 years and a range of 21-40 years.

Table-I shows that surgery (including its subspecialties) constituted the most frequently indicated area of specialisation, 150/296 (50.7% of respondents), followed by obstetrics and gynaecology (43.9%), paediatrics (20.6%) and community health (17.6%). The distribution of specialties did not fit that of graduates of the National Postgraduate Medical College from 2001 to 2007 ( $\chi^2=35.77$ ;  $df=9$ ;  $p=0.00$ ), see Appendix 1.

Table-II shows that personal interest was the most frequently stated factor considered important in the choice of a specialty, 199/296 (67.2% of respondents), followed by potential for high income (22.0%), perceived benefit to the society (14.9%) and availability of spare time (10.8%).

Table-III presents the major factors influencing specialty choice vis-à-vis the selected specialties. Personal interest, potential for high income and perceived benefit to the society were consistently the top

Table-I: Anticipated areas of specialisation\*

Specialties	Frequency of Responses	Percentage of Responses (n=496)	Percentage of Responses (n=296)
Surgery**	150	30.2	50.7
Obstetrics & Gynaecology	130	26.2	43.9
Paediatrics	61	12.3	20.6
Community Health	52	10.5	17.6
Adult Medicine	43	8.7	14.5
Radiology	15	3.0	5.1
Pathology	15	3.0	5.1
Psychiatry	12	2.4	4.1
Family Medicine	12	2.4	4.1
Anaesthesia	2	0.4	0.7
Others***	4	0.8	1.4
Total	496	100.0	-

\*Multiple responses allowed

\*\*Consists of the following subspecialties, frequencies and % of respondents: General Surgery 68/296 (23.0), Ophthalmology 44 (14.9), Orthopaedics and Traumatology 17 (5.7), Paediatric Surgery 7 (2.4), Cardiothoracic Surgery 6 (2.0), Neurosurgery 4 (1.4), Otorhinolaryngology 2 (0.7), Plastic Surgery 2 (0.7).

\*\*\*'Others' and their frequencies were Medical Genetics 2, Molecular Medicine 1, Sports Medicine 1

Table-II: Factors considered important in the choice of specialisation\*

<i>Factors</i>	<i>Frequency of responses</i>	<i>Percentage of Responses (n=435)</i>	<i>Percentage of Respondents (n=296)</i>
Personal interest	199	45.7	67.2
Potential for high income	65	14.9	22.0
Perceived societal benefit	44	10.1	14.9
Availability of spare time	32	7.4	10.8
Perceived ease of study/practice	20	4.6	6.8
Availability of training resources	12	2.8	4.1
A challenging model/mentor	12	2.8	4.1
Relatively short training period	9	2.1	3.0
Shortage/high demand for specialists	6	1.4	2.0
Challenge for research	6	1.4	2.0
A wide range of practice options	6	1.4	2.0
Prestige	5	1.1	1.7
Opportunity for foreign jobs	5	1.1	1.7
Inspiration and guidance from God	4	0.9	1.4
Rarity of bleeding and death	4	0.9	1.4
Proximity to training institution	3	0.7	1.0
Ease of entry into training programme	2	0.5	0.7
Cost of training	1	0.2	0.3
Total	435	100.0	-

\*Multiple responses allowed

three factors for surgery, obstetrics and gynaecology, paediatrics and adult medicine. Potential for high income was among the major factors for all the specialties listed except community health.

### DISCUSSION

The pattern of specialty preferences in this study – such as the preponderant preference for surgery, obstetrics and gynaecology and paediatrics – is similar to findings in other Nigerian studies in Ibadan and Lagos.<sup>4,5</sup> These preferences were associated with strong personal interest (especially for paediatrics), potential for high income (especially for obstetrics

and gynaecology) and perceived social benefit. This is also similar to the pattern shown in a Pakistani study.<sup>15</sup> But interest in surgery is decreasing in the United States, only 4.8% of final year medical students being estimated as expressing interest in general surgery,<sup>16</sup> compared to 23.0% in this study. The difference may reflect relative specialty saturation in the US.

The sole absence of community health from those specialties majorly associated with a potential for high income suggests that the specialty is not perceived as lucrative. In Nigeria, facility-based locum clinical practice is common among trainers in all

Table-III: Major factors associated with each specialty and their relative weighting.

<i>Specialties</i>	<i>Personal interest</i>	<i>Potential for high income</i>	<i>Perceived societal benefit</i>	<i>Available spare time</i>	<i>Ease of admission for training</i>	<i>Opportunity for foreign jobs</i>
Surgery	99 (66.0)	30 (20.0)	20 (13.3)	-	-	-
Obstetrics & Gynaecology	90 (69.2)	44 (33.8)	24 (18.5)	-	-	-
Paediatrics	46 (75.4)	9 (14.8)	9 (14.8)	10 (16.4)	-	-
Community Health	33 (63.5)	-	10 (19.2)	10 (19.2)	-	-
Adult Medicine	28 (65.1)	9 (20.9)	7 (16.3)	-	-	-
Radiology	13 (86.7)	3 (20.0)	-	4 (26.7)	3 (20.0)	-
Pathology	9 (60.0)	4 (26.7)	-	2 (13.3)	-	-
Psychiatry	9 (75.0)	3 (25.0)	-	2 (16.7)	-	-
Family Medicine	7 (58.3)	3 (25.0)	-	3 (25.0)	-	-
Anaesthesia	-	1 (50.0)	-	1 (50.0)	-	1 (50.0)

\*Each percentage (in brackets) is the proportion of respondents per specialty that indicated each factor, that is, number of respondents per specialty who indicated a factor divided by the total number of respondents indicating that specialty. More than one factor may have the same percentage. The highest three percentages, as provided, may thus reflect more than three factors.

Appendix-1: Anticipated areas of specialisation analysed with chi-square goodness-of-fit test.

Specialties**	Percentage of Responses (n=496)	Percentage of specialty graduates*
Surgery	30.2	22.8
Obstetrics & Gynaecology	26.2	16.8
Paediatrics	12.3	10.9
Community Health	10.5	12.3
Adult Medicine	8.7	16.9
Radiology	3.0	9.7
Pathology	3.0	16.8
Psychiatry	2.4	5.3
Family Medicine	2.4	0.9
Anaesthesia	0.4	4.4
Total	100.0	100.0

df=9;  $\chi^2=35.77$ ; p=0.00

\*Percentage of specialists graduates at the National Postgraduate Medical College (2001-2007).<sup>13</sup> These values were used as 'expected values' for the chi-square goodness-of-fit test.

\*\*The category of 'others' in Table I was excluded from this analysis as the specialties are not available in Nigeria and exclusive residency programmes are not conventionally created for them.

specialties except community health, and students may have based their judgment on this, being oblivious of the less noticeable locum consultancies held by community health specialists. But the specialty was most strongly associated with social benefit. These findings suggest that community health is perceived in the study population as the most altruistic specialty.

The prominence given to the availability of spare time as a basis for preference of anaesthesia, radiology, family medicine and community health suggest that these specialties, in the respondents' perception, would allow for part-time jobs, domestic roles and other social responsibilities as corroborated by an Australian study.<sup>3</sup>

The commonest factor influencing specialty choice in this study was trainee's personal interest, as similarly observed in Australia,<sup>3</sup> Lagos in Nigeria<sup>4</sup> and Pakistan.<sup>15</sup> The Lagos study showed that 72.4% held this view compared to 67.2% in this study.

The fact that the proportions of preferences for the specialties in this study differed significantly from the proportions of graduating specialists in the National Postgraduate Medical College illustrates the importance of monitoring specialist training at both demand and supply ends. Such a difference would signal the need for policy makers to triangulate the demands and supplies with public and personal

needs and to adjust training opportunities accordingly.

It is surprising that no student indicated interest in specialising in anatomy, physiology, biochemistry or pharmacology. These specialties are usually not perceived as lucrative and medical doctors constitute a relatively small proportion of trainers there, with consequently weak role modelling as specialties for physicians. Studies on attitudes of medical students to preclinical specialties have highlighted this challenge.<sup>7,8</sup>

Broadly speaking, the least preferred specialties were those with the shortest durations of undergraduate postings. Lessons learned from three Canadian universities<sup>17</sup> and from the development of family medicine residency training programs in Japan<sup>18</sup> suggest that it is important for undergraduates to gain adequate exposure to various specialty areas. That way, they can adequately conceptualise short-posting areas in the process of specialty choice. While it is not recommended that all postings should be run for the same duration, it remains necessary to offer career education to students in all specialties, while giving ample attention to short-posting specialties.<sup>9,10</sup>

As no formal career counselling services exist for medical students in the study population, it is possible that some of the preferences and perceptions expressed were based on inadequate information. Counselling, mentoring and information on individual specialties may provide better opportunities to assess possible benefits from specialties and thus empower trainees for choices.<sup>11,19-23</sup>

Curricular adjustments to accommodate career education are required. Trainers should be trained to play roles as career educators, counsellors and mentors. Changes in specialty preferences ahead of the onset of residency<sup>4</sup> necessitate continuous monitoring in order to determine needs and offer guidance.<sup>15</sup> Institutional capacities for these roles should be strengthened.

At top policy level, health planners and managers should monitor the number and proportions of existing and required medical specialists nationally and regionally as a part of monitoring health manpower needs. Where gaps are identified, neglected specialties can then be incentivized by offering periodic training scholarships and additional remuneration.

The paucity of data on specialists necessitated the use of the proportions of graduates of the National Postgraduate Medical College as a crude estimate of the proportions of specialists at the supply of end,

though other sources of specialists exist, including foreign and international training institutions. This limitation notwithstanding, this study provides a strong basis on which systematic and proportionate manpower development in medical specialties should be given due attention by all stakeholders. It also indicates opportunities for further studies.

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