

Factors Influencing Choice of Medical Specialty of Preresidency Medical Graduates in Southeastern Nigeria

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Abstract

Background This study examined the determinants of specialty choice of preresidency medical graduates in southeastern Nigeria.

Methods We used a comparative cross-sectional survey of preresidency medical graduates who took the Basic Sciences Examination of the Postgraduate Medical College in Enugu, southeastern Nigeria, in March 2007. Data on participants' demographics and specialty selected, the timing of the decision, and factors in specialty selection were collected using a questionnaire. Data were examined using descriptive and analytical statistics. $P < .05$ was considered significant.

Results The survey response rate was 90.8% (287 of 316). The sample included 219 men and 68 women, ranging in age from 24 to 53 years and with a mean age of 33.5 ± 1.1 (SD) years. Career choice was more frequently influenced by personal interest (66.6%), career prospects (9.1%), and appraisal of own skills/aptitudes (5.6%), and it was least

affected by altruistic motives (1.7%) and influence of parents/relations (1.7%). The respondents selected specialties at different rates: obstetrics and gynecology (22.6%), surgery (19.6%), pediatrics (16.0%), anesthesiology (3.1%), psychiatry (0.3%), and dentistry (0.0%). Most (97.2%) participants had decided on specialty choice by the end of their fifth (of a total 16 years) postgraduate year. The participants significantly more frequently preferred surgery and pediatrics to other disciplines ($P < .002$, after Bonferroni correction for multiple comparisons).

Conclusions Preresidency medical graduates in southeastern Nigeria were influenced by personal interest, career prospects, and personal skills/aptitude in deciding which specialty training to pursue. The most frequently chosen specialties were surgery and pediatrics. These findings have implications for Nigeria's education and health care policy makers.

Editor's note: The online version of this article contains the survey instrument used in this study.

Introduction

The availability of an appropriately trained and motivated health workforce with a balanced specialty distribution is critical for the capacity of a health system to meet the needs of its population.¹ In addition, the medical specialist

workforce provides education, conducts research, and contributes to health policy formulation and the implementation of health care programs.²⁻⁴ Physician specialty choice is a multidimensional process. Accurate mapping of the factors determining specialty choice is important to develop interventions aimed at influencing career choices.

Nigeria, like other developing countries, has a specialty maldistribution of the medical workforce.⁵ The clinical specialties of internal medicine, surgery, pediatrics, and obstetrics and gynecology are frequently chosen at the expense of other medical and surgical specialties and community medicine/public health. This has remained a recurrent finding in several studies of the selection patterns of Nigerian medical students.⁶⁻⁹ Nigeria's medical workforce also has an urban-rural maldistribution. The need for specialist medical care to satisfy the population's health care needs is growing, and the maldistribution has adverse implications for availability and affordability of comprehensive health services, and may create barriers to access specialist care. Understanding the dynamics of specialist career decisions is critical to efforts to modulate the career aspirations of medical graduates to meet specialist workforce needs.¹⁰⁻¹²

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Medical training in Nigeria is a 6-year program, comprising 2 preclinical years and 4 years of education in clinical medicine. Medical school is followed by a 1-year mandatory rotational medical internship and 1 year of National Youth Service; both years are required before individuals can qualify for physician employment or enrollment in a specialty training program. After these mandatory 2 years, many medical graduates work briefly in the private or public health sector for financial reasons, prior to seeking a specialist training program (residency).

During residency training, candidates sequentially complete the Primary (Basic Sciences), Part I, and Part II (final) examinations administered by the National Postgraduate Medical College of Nigeria (NPGMCN) and the West African Postgraduate Medical College. Previous studies of the determinants of medical specialty choice in Nigeria entailed mostly surveys of medical students⁶⁻⁹ and medical interns, with few studies of residents and postinternship, preridency medical graduates.^{5,13-16}

Our study examines the factors influencing the specialty choice of preridency medical graduates in southeastern Nigeria, with the aim of examining if the determinants of specialty choice remain the same after completion of medical school and internship.

Methods

We conducted a cross-sectional survey of preridency medical graduates (postinternship medical graduates who have not yet enrolled in residency training). Our cohort encompassed individuals who took the primary (Basic Sciences) examination in southeastern Nigeria in March 2007. We used a structured, open-ended, self-administered questionnaire to collect data on participants' age, sex, marital status, and time since graduation from medical school, along with data on specialty choice, timing of this decision, and factors that significantly affected their choice.

The questionnaire was adapted from a study of factors influencing specialty choice by Harris et al¹⁷ and was modified using input from a focus group comprising 20 potential study participants drawn randomly from a pool of eligible preridency medical graduates, interns, and medical officers with specialist career plans. Focus group participants were excluded from participation in the final study.

Prior to deployment, the construct validity and psychometric reliability of the questionnaire were assessed through a pretest on a cohort of preridency medical graduates. The questionnaire underwent structural modifications and other revisions before it was administered to the cohort of preridency graduates.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 18.0 (SPSS Inc, Chicago, IL). Descriptive and analytical statistics were calculated.

Tests for significant interclass differences were performed using χ^2 , Fisher exact *t* test, and Student *t* test. Because the study entailed multiple comparisons, use of the

Bonferroni adjustment reduced the level of significance to $< .002$.

The questionnaire asked participants to rate the contributions of factors on their specialty choice. A factor was considered to contribute if it was rated 3 or above on a 5-point Likert scale^{18,19} (graded 0, for not at all, to 4, for highly contributory) by most participants. Scores of 2 or lower were designated noncontributory factors.

Prior to commencement of the study, ethical clearance was sought and obtained from the Ethical Committee of the University of Nigeria Teaching Hospital, Enugu, and the NPGMCN.

Results

Of 316 candidates who registered for the March 2007 primary (Basic Sciences) examination, 10 were absent, and 9 declined participation in the study. The remaining 297 candidates were enrolled in the study. Participants who did not respond to most questions had their data excluded from the analysis. The final sample comprised 287 candidates (a 90.8% response rate) and included 219 men (76.3%) and 68 women (23.7%). Participants ranged in age from 24 to 53 years, with a mean age of 33.5 years and a modal age group of 31 to 40 years. Their marital status by sex revealed that men tended to be single (144 versus 75; $P < .028$), whereas women were likely to be married (38 versus 30; $P < .042$).

Most participants (67.2%) had graduated from medical school in the past 5 years, 72 (25.1%) in the past 6 to 10 years, and 22 (7.7%) more than 10 years earlier. The core clinical specialties ($n = 191$; 66.6%), comprising obstetrics and gynecology, surgery, pediatrics, and internal medicine, were more frequently preferred to other specialties ($n = 96$; 33.4%). The distribution of participants by specialty is shown in TABLE 1. Significantly more men selected surgery ($P < .001$), whereas women predominantly chose pediatrics ($P < .001$) and community medicine (preventive health; $P < .048$). Choices of obstetrics and gynecology for men and community medicine (preventive health) for women were notable but did not reach statistical significance. Sex differences in other specialties were not statistically significant.

Participant's personal interest in specialty ($n = 191$; 66.6%) and job security/advancement prospects ($n = 26$; 9.1%) were the leading determinants of specialty choice. In contrast, altruistic motives ($n = 5$; 1.7%), influence of parents and relations ($n = 5$; 1.7%) and appraisal of prestige of specialty ($n = 6$; 2.1%) had a minimal influence on specialty choice (TABLE 2). Most of the participants (97.2%) had made a decision on specialty choice by the end of their fifth postgraduate year. Compared with men, women tended to choose a specialist career earlier, either in the medical school or before the end of postgraduate year 3. The timing of the decision on specialty choice is shown in TABLE 3.

TABLE 1 DISTRIBUTION OF SPECIALTY CHOICE BY SEX

| Specialty | Men, No. (%) | Women, No. (%) | Total, No. (%) | χ^2 | P |
|---------------------------|--------------------|-------------------|--------------------|----------|---------------------|
| Obstetrics and gynecology | 56 (25.6) | 9 (13.2) | 65 (22.6) | 4.51 | .034 |
| Surgery | 53 (24.2) | 3 (4.4) | 56 (19.5) | 12.94 | < .001 ^a |
| Pediatrics | 26 (11.9) | 20 (29.4) | 46 (16.0) | 11.86 | .001 ^a |
| Internal medicine | 15 (6.8) | 9 (13.2) | 24 (8.4) | 2.76 | .097 |
| Community medicine | 13 (5.9) | 9 (13.2) | 22 (7.7) | 3.91 | .048 |
| Radiology | 15 (6.8) | 4 (5.9) | 19 (6.6) | 0.08 | .779 |
| Ophthalmology | 10 (4.6) | 3 (4.4) | 13 (4.5) | 0.00 | .957 |
| Pathology | 9 (4.1) | 2 (2.9) | 11 (3.8) | 0.19 | .661 |
| General practice | 8 (3.7) | 3 (4.4) | 11 (3.8) | 0.08 | .776 |
| Otorhinolaryngology | 7 (3.2) | 3 (4.4) | 10 (3.5) | 0.23 | .633 |
| Anesthesiology | 6 (2.7) | 3 (4.4) | 9 (3.1) | 0.48 | .490 |
| Psychiatry | 1 (0.5) | 0 (0.0) | 1 (0.3) | - | .577 ^b |
| Dentistry | 0 (0.0) | 0 (0.0) | 0 (0.0) | - | - |
| Total, No. (%) | 219 (100.0) | 68 (100.0) | 287 (100.0) | | |

^a Significant at the <0.04 level.^b Fisher exact t.

Discussion

The high proportion of men found in this study is similar to previous Nigerian studies¹³ and those in other developing nations,¹³ but it differs from many developed nations.²⁰ It has been suggested that this sex imbalance may be caused by rigidity in medical training programs and sex-based discrimination.²¹

The 31- to 40-year modal age group in the present study is similar to that in previous reports in Nigeria⁵ and America,²² and reflects both disruption in the educational process and the current practice of most graduates working in the private or public health sector to attain financial stability before enrolling in a specialist training program.

TABLE 2 FACTORS AFFECTING SPECIALTY CHOICE

| Factor | Men, No. (%) | Women, No. (%) | Total, No. (%) | χ^2 | P |
|---|--------------------|-------------------|--------------------|----------|-------------------|
| Personal interest in specialty | 144 (65.8) | 47 (69.1) | 191 (66.6) | 0.26 | .608 |
| Job security/advancement prospects | 18 (8.2) | 8 (11.8) | 26 (9.1) | 0.79 | .374 |
| Appraisal of own skill/aptitudes | 15 (6.8) | 1 (1.5) | 16 (5.6) | 2.85 | .091 |
| Influence of consultants/mentors | 11 (5.0) | 4 (5.9) | 15 (5.2) | 0.08 | .781 |
| Prevailing concept of primary health care | 10 (4.6) | 2 (2.9) | 12 (4.2) | 0.34 | .559 |
| Financial prospects (income) | 8 (3.7) | 3 (4.4) | 11 (3.8) | 0.08 | .776 |
| Prestige of specialty | 4 (1.8) | 2 (2.9) | 6 (2.1) | 0.31 | .575 |
| Altruistic motives | 5 (2.3) | 0 (0.0) | 5 (1.7) | - | .256 ^a |
| Influence of parents/relations | 4 (1.8) | 1 (1.5) | 5 (1.7) | 0.04 | .845 |
| Total, No. (%) | 219 (100.0) | 68 (100.0) | 287 (100.0) | | |

^a Fisher exact t.

TABLE 3 TIMING OF DECISION ON SPECIALTY CHOICE

| Timing of Choice | Men, No. (%) | Women, No. (%) | Total, No. (%) | χ^2 | P |
|-----------------------|--------------------|-------------------|--------------------|----------|--------------------|
| In medical school | 25 (11.4) | 23 (33.8) | 48 (16.7) | 18.7 | <.001 ^a |
| PGY-1 to PGY-3 | 121 (55.3) | 30 (44.1) | 151 (52.6) | 2.58 | .108 |
| PGY-4 to PGY-5 | 70 (32.0) | 10 (14.7) | 80 (27.9) | 7.69 | .006 |
| PGY-6 to PGY-10 | 3 (1.4) | 5 (7.4) | 8 (2.8) | 6.85 | .009 |
| PGY >10 | 0 (0.0) | 0 (0.0) | 0 (0.0) | - | - |
| Total, No. (%) | 219 (100.0) | 68 (100.0) | 287 (100.0) | | |

Abbreviation: PGY, postgraduate year.

^aSignificant at the <.002 level.

The spectrum of career choice was biased in favor of clinical specialties. Additionally, women were underrepresented in all specialties and significantly underrepresented in surgery and, to a lesser degree, obstetrics and gynecology. This corroborates previous reports in Nigeria^{5,13,23} and elsewhere.^{24–28} The sophisticated referral teaching hospitals, which dominate undergraduate training and which place a disproportionate emphasis on clinical disciplines and disease-focused philosophies, likely influence medical student choices. In addition, the prospect of extra income from a dual clinical practice (working in the public and private health sectors simultaneously) likely is a factor in the observed specialty selection pattern. Personal interest in specialty, career prospects, and appraisal of one's own skills and aptitude were the leading determinants of participants' career choice, with interest far outweighing the influence of the other factors. The general patterns of influences on specialty career choice echo previous reports,^{13,15,20,26} including the lower appeal of surgery to women.²⁸ Despite these sex-specific differences in specialty choice, there were no differences by sex in the factors that influenced specialty choice. Absence of sex differences in factors influencing specialty choice in this study is at variance with the findings by Harris et al¹⁷ and prior surveys in Nigeria.^{5,13} This may be partially explained by the female sex dominance and low response rate for Harris et al,¹⁷ and the lack of between-sex comparisons in previous Nigerian surveys. For overall specialty choice, the comparatively longer undergraduate clinical exposure to the core clinical specialties may reinforce participants' preexisting affinities for these specialties. Finally, it is possible that sex-neutral external influences affected respondents' personal interest in a specialty, the leading determinant of career choice in our survey.

Most respondents had made a decision on specialty choice by the end of their fifth postgraduate year, with women deciding even earlier than men. The observed timing of decision on specialty choice is generally consistent with other studies.^{17,29,30} This strengthens the case for

interventions early in medical school, to influence specialty selection for both sexes.

This study has several limitations, including its cross-sectional, single-site, and single-assessment design. Future studies should investigate candidates early in medical school to evaluate the factors that influence career choices, and follow students longitudinally to determine the stability of these choices.

Conclusion

The specialty choice of preresidency medical graduates in southeastern Nigeria shows a distribution of specialty choice that favors core clinical specialties. Personal interest in the specialty was the predominant factor that influenced most individuals, and most individuals chose a specialty before the end of their fifth postgraduate year. The study found sex differences in specialty choice and timing of choice, but not in the factors influencing the choice. Our findings have implications for the provision of comprehensive specialty health care in Nigeria. It suggests a need for medical educators to offer enhanced career guidance and to review specialist training curricula to eliminate sex-based obstacles to specialist career choices.

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