A systematic review of the literature on the specialty preferences of Nigerian medical graduates: disparity between the literature and reality

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Background: The Nigerian literature on the preference for specialties under the West African College of Physicians (WACP) among medical graduates reported a preference for core specialties (Internal Medicine and Paediatrics). This finding is at variance with the number of certified new fellows produced by different faculties under the WACP (reality). The aim was to compare the preference for specialties under the WACP by medical graduates in the published literature (2006–2017) with the number of new fellows produced by the faculties under the WACP (2006–2015) and provide explanations for any observed disparity.

Methods: A systematic review was done on primary studies databases, which were searched electronically. Based on the inclusion criteria, 14 eligible studies were reviewed. The number of certified new fellows produced by the WACP in a 10-year period (2006–2015) was also analysed.

Results: The reviewed studies were mainly of cross-sectional design. The majority of the studies (n = 12) reported Internal Medicine and Paediatrics as the preferred specialty choice among the specialties under the WACP. Six of the 14 studies did not list Family Medicine as one of the specialties in their results section. Ironically, the faculty of Family Medicine had the highest number of certified fellows (n = 288 [21.4%]) in the WACP over a 10-year period (2006–2015).

Conclusion: There is a disparity between what the literature reports on the preference of Nigerian medical graduates for specialties under the WACP and the reality. This is particularly noted in the Family Medicine specialty. The unpredictable postgraduate medical experiences that may change prior choices of future specialisation makes longitudinal and qualitative study designs appropriate for this theme to reveal new or changed motives.

Keywords: family medicine, medical graduates, medical students, Nigeria, specialty

Introduction

The purposes of clinical research are to answer questions, sometimes rule out answers, and hopefully generate new hypotheses in order to improve our practice and knowledge. In order to be able to generalise clinical research, it must be able to affirm the truth concerning an issue. This ensures that the findings from any research are valid. The diverse Nigerian literature on the choice of specialties under the West African College of Physicians (WACP) preferred by medical graduates/students is not in consonance with their eventual choice of specialties under WACP (reality).

The WACP is responsible for postgraduate specialist training of doctors in 13 West African countries. Its training programmes cover six specialties, namely Community Medicine, Family Medicine, Internal Medicine, Laboratory Medicine (anatomical pathology, chemical pathology, haematology and medical microbiology) and Psychiatry. The Faculty of General Medical Practice, which is now known as Faculty of Family Medicine, was established nine years after the foundation faculties (Community Health, Internal Medicine, Laboratory Medicine, Paediatrics and Psychiatry) of the WACP.1

Family Medicine (FM) is still a relatively new specialty in Nigeria and other sub-Saharan African countries when compared with other specialties.3–5 Nonetheless, FM has gained a great deal of recognition as the number of residency training centres has grown to about 120 in Nigeria alone.2 A family physician is a multi-competent specialist who is trained to deliver high-quality comprehensive health care both at first contact and in continuity. Training to become a family physician is similar to other medical specialties. It entails going through undergraduate medical education (six years at university) and a subsequent five to six years full-time FM residency training programme.2,3

In the 1980s and 90s, FM was not a popular choice among medical graduates in Nigeria. Most medical graduates preferred core specialties under the WACP (Internal Medicine and Paediatrics).6 Over a decade (2006–2015), the proportion of medical graduates choosing FM as well as the number of certified new family physicians in Nigeria had increased. An analysis of the distribution by faculty of 1 345 fellows certified by the WACP during this period showed that the Faculty of FM had the highest number of Fellows.1

Conversely, a review of Nigerian studies on the choice of specialties under the WACP preferred by medical students/young medical graduates did not affirm the reality that the Faculty of FM has produced more fellows than its counterparts in the WACP. The choice of Nigerian medical graduates for specialties under WACP in most Nigerian studies was strongly in favour of the core clinical specialties, i.e. Internal Medicine and Paediatrics.5–16 Most of the studies listed Family Medicine as unpopular among the medical graduates.5–16

The observed disparity made it imperative for the authors to seek to provide explanations for the incongruence. The purpose of this study was to examine the literature on choice
of specialties under the WACP preferred by medical students/graduates and seek to provide reasons for the observed disparity between what the literature says and the reality. This may ensure a robust evidence base that can inform the design of subsequent studies.

Operational definition

Specialties: The specialties that were considered in this study were the faculties under the WACP. This included Community Health, Family Medicine, Internal Medicine, Laboratory Medicine, Paediatrics, and Psychiatry.

Core specialties: The core specialties under WACP in this study were Paediatrics and Internal Medicine.

Methods

Literature searches

Three systematic review databases, Cochrane Library, Google Scholar and PubMed, were searched to ensure that a similar review has not been conducted in Nigeria. A search for published primary studies and unpublished data was conducted and appropriate studies were identified for retrieval. The search topics were ‘specialty choices/preferences’, medical students, medical graduates, house officers and ‘career choice’. All studies were found by searching through the electronic databases and looking through the reference list of articles identified for relevant articles not indexed in the databases.

Study selection

The inclusion criteria were: articles with a variety of study designs that meet other criteria; studies with participants being medical students or pre-residency medical graduates; focus on specialty preference and factors that influence their preferences; different specialties must be assessed; studies carried out in Nigeria; and study must have been carried out between 2006 and 2017. The articles published in a language other than English were excluded from the study. The search and selection of the articles were initially done by the five reviewers using the title and abstract. Subsequently only full-text articles were selected and assessed for content validity, based on the inclusion criteria by two reviewers. In order to assess the quality of the studies, the two reviewers independently assessed the study designs, sampling techniques and participants in the studies. Studies that were controversial were resolved through discussion and consultation with a third reviewer. This resulted in 14 articles. A specially designed data collection form was used to extract data on the study quality.

Data extraction

Initially, 311 records were identified; 43 full-text articles were assessed for eligibility and 14 were selected (Figure 1). Two reviewers independently appraised and extracted details of the 14 articles. There was no disparity in their reviews. Extracted data were collected using a data collection form designed for the review. Data extracted from each paper included the specialty of the author, study site in Nigeria, study design, study population, top four clinical specialties preferred by respondents, and whether Family Medicine was among the specialties listed in the table showing specialty preference in their results section.

Results

This is the first systematic review on this topic to have been conducted in Nigeria. A total of 14 studies that fulfilled the inclusion criteria were used for the review as listed in Table 1.5–18

The majority of these studies were cross-sectional, except for one with a longitudinal design.18 The year of publication was between 2010 and 2017. Two of them were multi-centre studies.10,12

The studies were conducted across the six geopolitical zones of Nigeria. The studies conducted in different geopolitical zones are as follows (see Table 1): south-west,16 south-east,3,7,8,10 south-south,4,6,12,13,17 north-central,3,12,14,15 north-east,19 and north-west,3,5,11,18

The study population ranged from year 4 to 6 medical students,6,11,14,15 year 5 and 6 medical students,16 final-year medical students,5,9,10,13,17,18 house officers,8,12 and medical graduates writing primary examination7 (see Table 1).

The Faculty of Family Medicine had the highest number of certified fellows in the WACP over the 10-year period (2006–2015).
Table 1: Summary of the studies reviewed

| Article ID | Authors’ specialty | Place of study | Study design | Study population | Preferred first four specialties | Family Medicine (FM) presence in the table of specialties |
|------------|--------------------|----------------|--------------|------------------|----------------------------------|------------------------------------------------------|
| Asani et al.⁵ | Paediatrics | Bayero University, Kano | Cross-sectional | Final-year medical students | Core specialties | Yes; not chosen at all by participants |
| Ekanem et al.⁶ | Public Health and Haematology | University of Uyo | Cross-sectional | Year 4 to 6 medical students | Core specialties | Yes; ranked fifth |
| Eze et al.⁷ | Ophthalmology | Postgraduate medical college, Enugu | Cross-sectional | Medical graduates taking primary examination | Core specialties | Yes; ranked eighth with Pathology |
| Madu et al.⁸ | Paediatrics and Haematology | University of Nigeria Teaching Hospital | Cross-sectional | House officers | Core specialties | No; it was not one of the specialties listed in the table |
| Mohammed et al.⁹ | Microbiology and Chemical Pathology | University of Maiduguri | Cross-sectional | Final-year medical students | Core specialties | No; it was not one of the specialties listed in the table |
| Ossai et al.¹⁰ | Community medicine | Multicentre: University of Nigeria; Nnamdi Azikiwe University; Abia State University; Ebonyi State University Abakaliki; Enugu State University of Science and Technology; Imo State University | Cross-sectional | Final-year medical students | Core specialties | No; it was not one of the specialties listed in the table |
| Oku et al.¹¹ | Anaesthesia | University of Calabar | Cross-sectional | Final-year medical students | O&G, Paediatrics, FM and internal medicine | Yes; FM ranked third |
| Oche et al.¹² | Public Health | Usman Dan Fodio University | Cross-sectional | Year 4 to 6 medical students | Core specialties | Yes; FM ranked eighth |
| Okonta et al.¹³ | Surgery | Multi-centre: University of Port Harcourt Teaching Hospital, Port Harcourt; University of Uyo Teaching Hospital, Uyo; National Hospital, Abuja and Jos University Teaching Hospital, Jos | Cross-sectional | House Officers | Core specialties | No; it was not one of the specialties listed in the table |
| Adeleye et al.¹⁴ | Public Health | University of Benin | Cross-sectional | Final-year medical students | Core specialties | Yes, FM ranked ninth |
| Ogiator et al.¹⁵ | Internal Medicine Histopathology and Paediatrics | Benue State University | Cross-sectional | Year 4 to 6 medical students | Core specialties | No; it was not one of the specialties listed in the table |
| Eke et al.¹⁶ | Histopathology and Surgery | Benue State University | Cross-sectional | Year 4 to 6 medical students | Core specialties | Yes; FM ranked fifth |
| Akinsola et al.¹⁷ | Public Health and Child Dental Health | University of Lagos | Cross-sectional | Year 5 and 6 medical students | Core specialties | No; it was not one of the specialties listed in the table |
| Gadanya et al.¹⁸ | Community Medicine and Radiology | Bayero University, Kano | Longitudinal design | Final-year medical students | Graduation: core specialties; 10 years post-graduation: Family Medicine, Internal Medicine, Radiology and Paediatrics | Yes; FM was not among first four specialties at graduation but became one of the first four specialties of choice 10 years post-graduation |
In 7 of the 10 years reviewed, the Faculty of Family Medicine was among the top 3 faculties with the highest number of certified fellows. The Faculty of Family Medicine still had the highest number of certified fellows in 2014 when all the faculties under the WACP experienced a dip due to the Ebola virus epidemic in Liberia and Sierra Leone and subsequent cancellation of the October 2014 examination (Figure 3).

**Discussion**

This study summarised the literature on the choice of specialties under the WACP preferred by medical students/graduates in Nigeria between 2006 and 2017 and juxtaposed it with the number of certified new fellows produced across various faculties under the WACP over a 10-year period (2006–2015). All the authors were involved during the selection process and two authors independently reviewed the selected articles in order to reduce bias as much as possible.

The general consensus in these studies was that the core specialties under the WACP (Internal Medicine and Paediatrics) were preferred by the medical students/graduates. Conversely, the cumulative number of certified fellows over a 10-year period (2006–2015) produced by the Faculty of Family Medicine was more than the number of certified fellows produced by other faculties under the WACP. In addition, the Faculty of Family Medicine produced the highest number of certified fellows in 5 out of the 10 years reviewed (2007–2010, 2014). The low preference for Family Medicine observed in these studies differs significantly from the high proportions of graduating Family Medicine specialists, hence the need to probe the disparity. The reasons for the observed difference can be broadly attributed to two factors. These are the tremendous growth of the Family Medicine specialty over the last two decades and the study designs employed.

The increase in the number of certified fellows in the Faculty of Family Medicine may be due to medical school curriculum factors and structural factors. Increasing numbers of medical schools in Nigeria have now incorporated a special Family Medicine focus in their curriculum. In the last 10 years, there had been an improvement in the rotation time in Family Medicine in all the medical schools. In addition, family physicians are now actively involved in the development of the medical school curriculum. The establishment of the undergraduate and postgraduate training in Family Medicine in some Nigerian

![Figure 2: Distribution by faculty of 1,345 fellows certified by the WACP in 10-year period (2006–2015). Adapted from Odusote (2016, 20–21).]

![Figure 3: Line graph showing the comparison between the number of certified fellows produced by each faculty under the WACP over a 10-year period (2006–2015).]
universities, the recent National Universities Commission (NUC) pronouncement on establishment of a Family Medicine department in all universities with a medical school as a prerequisite for accreditation and the increase in the number of accredited residency training centres for Family Medicine, the highest in the WACP,

are structural factors that might have contributed to the highest number of fellows produced by the Faculty of Family Medicine when compared with the number of certified new fellows produced by other faculties in the WACP.

More importantly, there are technical reasons in the studies reviewed that could cause the observed disparity. A cross-sectional design was used in most of the studies. Hence, specialty preference was measured at only one point in time when the choice of future specialty can still be influenced by other factors. Specialty choice does not remain stable over the course of medical education as students tend to use their clinical years as well as the internship period to refine their specialty preferences.

Furthermore, the study population in the studies (medical students and house officers) may be one of the factors responsible for the disparity. The respondents were still at a stage in their medical profession when their decisions on choices of future specialty can be influenced. Post-graduation experience is an important aspect of medical doctors’ career path that can influence the preference of medical students and house officers for a future specialty. Experiences during a house job, opportunities for private practice, family constraints and availability of spaces for residency training are some of the factors that can alter previous decisions on future specialty made by a medical student or house officer.

Studies have shown that medical students/graduates take a stable decision concerning their choice of future specialty some years after graduation. In a Nigerian study conducted by Eze et al., the observed timing of the decision on specialty choice was assessed among medical graduates who were taking primary examinations (entrance examination into the residency training programme). Most of the respondents (83.3%) made their decision within 10 years after graduation from medical school as against 16.7% who made their decisions in medical school. Similarly, Omolase et al. conducted a study on the factors that influence the choice of specialty among Nigerian ophthalmologists and observed that that about a third of the respondents (resident doctors and ophthalmologists) opted for Ophthalmology after their one-year youth service.

This is of particular importance in taking an informed decision on being a Family Physician. Before the Nigeria University Commission (NUC) mandated for all medical schools to have a functional department of Family Medicine for accreditation, the scenario was that of medical students not being exposed to Family Medicine in hospitals with no existent department of Family Medicine or at most being exposed to a two- to four-week posting in Family Medicine during their medical training. In addition, not all training centres for house officers mandate that doctors must rotate through Family Medicine. Thus, it is likely that a medical student/young medical graduate may not have experienced actual clinical exposure to Family Medicine. It is thus thought-provoking that a doctor who has not passed through all areas of specialisation may not make the best informed decision on specialty choice. With the current structure in Nigerian medical education, the decision to specialise in Family Medicine might be best made only post-graduation.

This was confirmed by one of the studies in which a longitudinal study design was employed. Forty final-year medical students were followed up for 10 years to determine the stability of the specialty of choice as medical students. There was a high preference for Obstetrics and Gynaecology (O&G) and Paediatrics at graduation. At 10 years post-graduation, there was a high preference for Family Medicine, Internal Medicine, Radiology and Community Medicine despite the predominance of Paediatrics and O&G at graduation. In fact, none of them was pursuing O&G at the time of the study.

Several challenges were encountered during the index review. Assessment of the quality of retrieved studies showed that the published studies used varying methods. Six of the 13 (46.2%) studies did not list Family Medicine as one of the specialties in the table listing specialty preference by their respondents under the results section. Even if none of the respondents would have chosen Family Medicine, it is important that it was listed in the frequency table showing the preferred specialty choices of the respondents.

In addition, a biased interpretation of results on the preferred specialty choices of the respondents was observed. In one of the studies reviewed, Family Medicine ranked fourth with Paediatrics. Despite this, the author stated that Paediatrics was one of the most sought-after specialties by the respondents while he reported Family Medicine as being unattractive to respondents. This highlights the need for Nigerian researchers to follow more accurate and generally established methods of interpreting findings in order to aid comparability of results.

An interesting finding in this study is the fact that there was no family physician among the authors of the different studies reviewed. Perhaps the limited contact of family physicians with medical students in the very few universities that run a Family Medicine undergraduate programme may partly explain this finding. This is, however, not appropriate considering the role that family physicians will play in the Nigerian health system in the years to come. The Federal Government of Nigeria in 2016 vowed to make primary health care (PHC) accessible to Nigerians by ensuring at least one fully functional PHC centre in each of the 109 senatorial districts in Nigeria to deliver quality health services. The functionality of the PHC depends on the infrastructure as well as the PHC team. Family physicians, together with PHC nurses, community health extension workers and other mid-level healthcare workers, act as clinical practitioners in the primary health care team. There is a need for us to conduct studies on what attracts or deters medical graduates from choosing Family Medicine. This might suggest ways of reducing or eliminating the barriers in order to achieve a viable PHC structure.

Conclusion

There is a disparity between what the literature reports on the preference of Nigerian medical graduates for specialties under the WACP and the reality. This is particularly noted in the Faculty of Family Medicine. This disparity may be attributed to the study designs adopted. The specialty choice of a medical graduate is complex and varies with time. Therefore, a longitudinal study that will follow the students and assess their career preferences at the end of the chosen period might yield valuable information on trends in career choice by medical students. In addition, well-designed qualitative studies may also be appropriate to reveal new or changed motives.
Strengths and limitations
This is the first review of studies on career choices among Nigerian medical graduates. In addition, all the studies included in the review were from the six geopolitical zones in Nigeria.

While the authors made every effort to include all material relevant to the research questions, some studies may not have been identified due to poor keywording imposed by the editorial process in the databases. The exclusion of articles published before 2006 may also have omitted literature that could have provided valuable information. In addition, some of the studies had small sample sizes and, in most cases, from a single institution.

The authors could not acquire data on the number of certified fellows in various faculties of the National Postgraduate Medical College of Nigeria and the West African College of Surgeons despite appreciable efforts. Thus, the focus of the research analysis was based on the number of certified fellows produced in various faculties of the West African College of Physicians. Although we cannot ascertain whether the preference for specialties under the West African College of Surgeons is greater than for Family Medicine, this study has revealed that the preference for Family Medicine is higher than has been reported in the literature.

Summary – The specialty preference of a medical graduate is complex, unpredictable and fluctuates with time. A longitudinal study with a qualitative approach would be a suitable study design to assess career preferences and disclose new or changed intentions.

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References
1. Odusote K. The college at 40-time for reflection and reform. Mabayoje annual lecture. 40th West African college of physicians annual general and scientific meeting; 2016; Monrovia, Liberia. Lagos, Nigeria: West African College of Physicians; 2016. p. 9–21.

2. National Postgraduate Medical College of Nigeria. Residency training programme in family medicine for the fellowship of the national postgraduate medical college of Nigeria; A handbook for residents and trainers, 3rd ed. Lagos: NPMCN Publishers; 2015.p. 1–6.

3. West African College of Physicians. Prospectus 3rd ed. Lagos: Osprints Glory Press; 2017, 1–10.

4. Ajayi AO. The history of the faculty of general medical practice, national postgraduate medical college of Nigeria (1980–2005). A paper delivered at the International Conference to mark the 25th Anniversary of the GMP Faculty; 2005 Nov 3 [cited 2015 July 10]. Available from: http://ifs-rural.com/ HistoryOfFamilyMedicineInNigeria.pdf

5. Asani MO, Gwarzo GD, Gambo MJ. Preference of specialty choices among final year medical students of Bayero University Kano. Sahel Med J. 2016;19:155–158.

6. Ekanem AM, Ekwere TA. Factors influencing specialty choices among medical students in a university teaching hospital in Southern Nigeria. W J Biomed Res. 2015;2(2):13–19.

7. Eze Bl, Okoye OI, Maduka-Okafor FC, et al. Factors influencing choice of medical specialty of pre-residency medical graduates in Southeastern Nigeria. J Grad Med Educ. 2011;3(3):367–371.

8. Madu AJ, Ubesie A, Madu KA, et al. Medical specialist preferences and reasons among fresh Nigerian interns. Ann Med Health Sci Res. 2014;4:223–227.

9. Mohammed Y, Zaidani SB, Galadima GB, et al. Perception of final year medical students about the choice of medical microbiology as a specialty. Orient J Med. 2015;27(1–2):28–33.

10. Osai EN, Uwakwe KA, Anyanwagwu UC, et al. Specialty preferences among final year medical students in medical schools of southeast Nigeria: need for career guidance. BMC Med Educ. 2016;16:259–266.

11. Oche MO, Raji MO, Kaoje AU, et al. Medical students’ specialty preferences: a survey in a medical school in Northern Nigeria. Acad J. 2013;8(25):1603–1609.

12. Okonta KE, Akpayak IC, Amusan EO, et al. Multi-center survey of house officers’ choice of medical specialties in Nigeria: preferences and determining factors. Pan Afr Med J. 2015;20:338.

13. Adeleye OA, Eze GU. Anticipated specialties and influencing factors among final year medical students in a Nigerian university. Pak J Med Sci. 2010;26(3):510–514.

14. Ogiorotu MO, Ojo BA, leave ET, et al. Internal medicine as a career choice among rotatory interns in a developing country: a multi centre study. Br J Med Med Res. 2017;19(10):1–7.

15. Eke BA, Ojo BA, Elachi IC, et al. Surgery as a career choice among medical undergraduates in a developing country. Br J Med Res. 2017;19(9):1–6.

16. Akinsola OJ, Aboseode OA, Olatosi OO, et al. The dynamics of clinical students specialty preference: a study of the college of medicine, university of Lagos. J Clin Sci. 2013;10(1):11–16.

17. Oku OO, Oku AO, Edentekhea T, et al. Specialty choices among graduating medical students in university of calabar, Nigeria: implications for anesthesia practice. Ain-Shams J Anaesthesiol. 2014;7:485–490.

18. Gadanya MA, Ismail A. Specialty choices of final year medical students: A 10-year follow-up. Niger J Basic Clin Sci. 2014;11:110–113.

19. Omolase CO. Factors influencing choice of specialty amongst Nigerian ophthalmologists. Pak J Ophthalmol. 2012;28(1):10–13.

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