

Survey showed that very few paediatric residents in Southwest Nigeria were interested in specialising in gastroenterology

Idowu O Senbanjo¹, Olufunmilola O Abolurin², Comfort O Ezegamba³, Felix O Akinbami⁴, Stephen J Allen⁵.

¹Department of Paediatrics and Child Health, Lagos State University College of Medicine, Ikeja, Lagos, Nigeria.

²Department of Paediatrics, Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

³Department of Paediatrics and Child Health, Lagos State University Teaching Hospital, Ikeja, Lagos, Nigeria.

⁴Department of Paediatrics and Child Health, Niger Delta University, Okolobiri-Yenagoa, Bayelsa State, Nigeria.

⁵Department of Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, United Kingdom.

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Corresponding author: Idowu O Senbanjo, Department of Paediatrics and Child Health, Lagos State University College of Medicine, PMB 21266, Ikeja, Lagos, Nigeria. E-mail: senbanjo001@yahoo.com

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ABSTRACT

Aim: Paediatric gastroenterology remains an under-recognised sub-speciality in Africa. We determined the preferred sub-specialities among paediatric residents in Southwest Nigeria and what influenced whether they chose paediatric gastroenterology.

Methods: This was a cross-sectional survey of paediatric residents in seven teaching hospitals in Southwest Nigeria. A self-administered questionnaire was used to obtain information on their socio-demographics, educational attainment, choice of sub-speciality and the factors influencing that choice.

Results: Of 144 eligible paediatric residents, 124 (86.1%) completed the survey. Their mean age was 35.0 ± 1.7 years and 83 (66.9%) were females. The majority (94.4%) had already chosen their sub-speciality and nearly two-thirds (65.0%) made the decision during training. The most popular sub-speciality was neonatology (30.6%) and only three (2.4%) residents chose gastroenterology. Factors influencing the choice of sub-speciality were perceived ability (85.3%) and academic experience (83.8%). Financial reasons were less frequent (32.5%). Lack of diagnostic equipment (30.6%) and role models (21.0%) were the most frequent reasons for residents being disinterested in paediatric gastroenterology.

Conclusion: Few residents were interested in paediatric gastroenterology and there is a need to encourage interest in this subject at an early stage in their training and provide more diagnostic equipment and greater mentorship.

Key words: mentors, Nigeria, paediatric gastroenterology, residents, sub-speciality.

KEY NOTES

- Paediatric gastroenterology remains an under-recognised sub-speciality in Africa and this study looked at why Nigerian paediatric residents did not want to specialise in this area.
- Most of the 124 residents chose their sub-speciality during training and factors such as lack of diagnostic equipment and role models meant that only three chose gastroenterology.
- Greater diagnostic resources and increased mentorship are needed to attract residents into this sub-speciality.

INTRODUCTION

Paediatrics was first recognised as a distinct medical speciality about two centuries ago, but did not become well established until the middle of the 19th century. The speciality is more recent than other specialities, such as obstetrics and gynaecology, surgery and internal medicine.¹ Paediatric sub-specialities that focus on specific types of ailments and health conditions gradually emerged as the need for trained specialists in the field became evident. The emergence of paediatric gastroenterology, hepatology and nutrition occurred at about the same time that other sub-specialities started to develop in Europe and America.¹⁻³ The speciality was driven by the special skills required for the new diagnostic techniques and therapies that were introduced for gastroenterological disorders in children. The field gradually grew, a number of studies were conducted and expertise increased. Today, the field of paediatric gastroenterology is well developed in many countries, but low-income and middle-income countries appear to be lagging behind.¹

Gastrointestinal disorders are common in children in low-income and middle-income countries, where diarrhoeal disease and undernutrition are the major contributors to childhood morbidity and mortality. Other gastrointestinal disorders, such as coeliac disease and inflammatory bowel disease, were previously thought to be non-existent or rare in sub-Saharan Africa. However, they are increasingly being recorded in some of these African countries due to greater awareness and improved diagnostic capability.⁴⁻⁷ Accurate diagnosis and effective treatment for some of these disorders require special skills, which may not be available without trained paediatric gastroenterologists.¹ Paediatric gastroenterology is in its infancy in Africa, but South Africa and Egypt have the edge over other countries.⁸ Neonatology, pulmonology, cardiology, nephrology and haemato-oncology are very popular paediatric sub-specialities in Nigeria, as in most other

African countries. This imbalance in the choice of paediatric sub-specialities has led to a shortage of other paediatric sub-specialities in most African countries and this can affect the quality of clinical care, research and training in this area.⁸ The European Society for Paediatric Gastroenterology, Hepatology and Nutrition has worked with Nestlé Nutrition, the University of Cape Town and Stellenbosch University, South Africa, to address this imbalance. They have set up a postgraduate training course in paediatric gastroenterology, hepatology and nutrition for paediatricians in Africa. The hope is that doctors who take the course will go back to their individual countries and establish standard paediatric gastrointestinal units. This will help to improve the standard of healthcare and training in the field across Africa.⁹ The programme ran for approximately three years and about 30 Nigerian paediatricians benefitted from the course.⁹ This subsequently improved the practice of paediatric gastroenterology in several centres in Nigeria. However, there has not been an appreciable increase in the number of Nigerian paediatricians who are interested in gastroenterology.

To our knowledge, no data have been published on the sub-specialities chosen by Nigerian paediatric residents and the factors that influenced those choices. The aim of this study was to determine the sub-specialities that paediatric residents in Southwest Nigeria preferred and why they did or did not chose paediatric gastroenterology.

METHODS

Study design

This was a cross-sectional questionnaire survey of a convenience sample of paediatric residents in seven teaching hospitals in Southwest Nigeria, which has a land mass of about 76,852 square kilometres and a population of about 25.2 million people. Southwest Nigeria is one of the six

geopolitical zones in the country and it comprises the following states: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo.¹⁰ Apart from their similar geographical locations, the states have similar languages, cultures and political inclinations. The Yoruba people are native to the Southwest region and the area is considered to be the most educationally advanced geopolitical zone in Nigeria.

Undergraduate medical education in Nigeria is a six-year programme that comprises one year of pre-medical study and five years of basic medical sciences and clinical medicine. The undergraduate curriculum includes a series of lectures on common paediatric gastrointestinal disorders in the country. After graduating, doctors undergo a one-year mandatory, rotational medical internship, followed by one year in the National Youth Service Corps. Both of these are pre-requisites if they want to be a physician or enrol in a residency training programme. Doctors who enrol for residency training must also have passed the primary examination in their chosen speciality. These examinations are administered by the West African Postgraduate Medical College and the National Postgraduate Medical College of Nigeria.

To qualify as paediatricians, individuals have to complete at least two years of junior residency training and part one of the Fellowship examination, followed by at least two years of senior residency training and the part two examination. They develop skills in all aspects of paediatrics and can then choose to seek sub-speciality training from established specialists in Nigeria or abroad.

Study participants

The participants were paediatric residents undergoing training in seven public teaching hospitals in Southwest Nigeria with fully accredited residency programmes in paediatrics. Two were in Lagos: Lagos University Teaching Hospital in Idi-Araba and the Lagos State University Teaching

Hospital in Ikeja. The other five were the University College Hospital in Ibadan, the Obafemi Awolowo University Teaching Hospital in Ile-Ife, the Olabisi Onabanjo University Teaching Hospital in Sagamu, the Ladoke Akintola University Teaching Hospital in Osogbo and the Ekiti State University Teaching Hospital in Ado-Ekiti.

Instruments and data collection

A semi-structured, self-administered questionnaire developed by the authors was used for the data collection. The 26 items focused on demographics and education, the choice of sub-speciality, and the factors that influenced that choice. We also asked about their attitudes towards, and perceptions of, paediatric gastroenterology. Respondents were asked to select options from lists of items and also had the opportunity to provide other relevant information. The questionnaire was pre-tested for clarity and relevance among 20 paediatric fellows and revised as a result of their feedback.

The chief resident at each hospital distributed the questionnaires and returned them to the authors once they had been completed. Some were helped by consultant paediatricians who delivered the training programmes. Ethical approval was obtained from the ethical committees of the seven hospitals and the study participants provided written, informed consent.

Statistical analysis

The data analysis involved descriptive and inferential statistics and SPSS for Windows, version 21.0 (IBM Corp, New York, USA) was used. Univariate analyses were performed for all the major variables of interest, such as demographic data, choice of sub-speciality, interest in gastroenterology and attitudes to, and perceptions of, the sub-speciality. Means and standard deviations were computed for continuous variables, while ratios and proportions were calculated

for categorical variables and comparisons were made using the independent t-test and chi-square test, respectively. P values of less than 0.05 were considered to be statistically significant.

RESULTS

Demographic characteristics of the paediatric residents

We found that 124 (86.1%) of the 144 eligible residents returned the questionnaire. Their ages ranged from 27-48 years, with a mean age of 35.0 ± 1.7 years. There were twice as many females as males (66.9%) and most (86.3%) were married. More than half (60.0%) had spent five years or more years in the residency programme and about half (48.4%) were senior residents in the second phase of the residency programme (Table 1).

Choice of sub-speciality and influencing factors

Table 2 shows the choice of sub-speciality, period of decision making and factors associated with the choice of sub-speciality. The majority (n=117, 94.4%) had already chosen their sub-speciality and nearly two-thirds (n=76, 65.0%) made the decision during residency training. The most popular choices were neonatology (30.6%), haemato-oncology (15.3%) and cardiology (11.3%). Only three (2.4%) residents declared a preference for gastroenterology. The period of decision making was not significantly related to their age (chi-square 15.7, p=0.226), gender (chi-square 3.2, p = 0.526) or where they did their residency training (chi-square 33.0, p =0.104). The main factors that influenced their choice of sub-speciality were their perceived ability (85.3%), academic experience (83.8%), the variety of medical problems the specialities offered (81.2%) and research opportunities (81.2%).

Table 3 shows why the residents were not interested in gastroenterology. The key reasons were that diagnostic equipment was not available (30.6%) and that they lacked role models (21.0%) and knowledge of procedures (6.5%). However, more than half (52.4%) of the residents gave no reason for their lack of interest in the sub-speciality.

DISCUSSION

To the best of our knowledge, this was the first study to examine the sub-specialities that paediatric resident doctors in Nigeria chose. The average age of the paediatric residents was 35 years, which was similar to the age of postgraduate doctors training in Nigeria.¹¹ This was higher than the average age of 28 years for paediatric residents in the United States¹² and 28.7 years for internal medicine residents in Canada.¹³ This age difference may be due to the fact that university lecturers in Nigeria frequently take part in industrial action, which disrupts university courses. Another reason could be delays in getting placements for residency training, due to the lack of training centres across the country.

The high proportion of female paediatric residents who took part was similar to previous studies on what specialities Nigerian medical graduates chose¹¹ and findings from developed countries.¹⁴⁻¹⁶ This has been attributed to the preference that female doctors have for people-orientated specialities, such as paediatrics and psychiatry.¹⁷ Over the past four decades, there has been a steady increase in the number of female doctors in the United Kingdom, United States of America, Canada and Australia, with a corresponding increase in the number of women in all medical specialities.¹⁸ A study published in 2008 reported that women outnumbered men in British medical schools, which could translate to more females than males in most specialities.¹⁹

In our study, only three of the 124 (2.4%) paediatric residents expressed an interest in gastroenterology, hepatology and nutrition as their preferred sub-speciality. This was much lower than those interested in neonatology, haemato-oncology and cardiology. One Indian study found that neonatology, critical care and cardiology were the most common sub-specialities chosen by paediatric residents. It reported that the percentage who were interested in gastroenterology was about double the figure we found in Nigeria.²⁰ This may be a cause for concern for Nigeria, because it needs to provide adequate specialised care across all specialities in order to improve child health.

In the past, there were very few paediatric endocrinologists in Nigeria, but interest in this sub-speciality has steadily increased over the past few years. The high rate of interest in endocrinology in our study may reflect the positive effect of the two-year fellowship training programme in endocrinology for African residents that has been sponsored by the European Society of Paediatric Endocrinology.²¹ The programme is provided in dedicated centres in Nigeria and Kenya and a number of Nigerian doctors have been successfully trained.^{21,22} This approach may be helpful for paediatric gastroenterology, as it could provide trained specialists and increase the profile of the sub-speciality among future residents.

Most of the residents in our study chose their sub-speciality during training. This was similar to a study of paediatric residents in the United States of America, which reported that 73% had chosen their career path and most had made that decision early in their residency training.¹² It has been shown that early exposure and intensive introductions to certain specialities in medical education may arouse students' academic and clinical interest.^{23,24} Therefore, efforts must be made to improve medical students' knowledge of gastroenterology during undergraduate paediatric postings. Although gastrointestinal diseases are covered in the undergraduate curriculum for paediatrics postings of Nigerian medical students, the range of topics covered is quite narrow. In

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addition, clinical exposure in this field is usually restricted by the lack of specialists who have expertise in the relevant diagnostic procedures and therapies. The curriculum for paediatric gastroenterology, hepatology and nutrition in medical schools must be revised and expanded to reflect the emerging trends of diseases in this speciality. Students must also be exposed to the various procedures and skills involved.

The most common factors for choosing a sub-speciality were perceived ability, academic experience, the variety of medical problems and research opportunities. Interestingly, remuneration was not a major deciding factor. This contrasts with other studies that found that job opportunities and income significantly influenced career decisions.^{24,25} This finding was unexpected, a Nigeria in a low-income country where good finances mean a higher standard of living

Our study was similar to other research that reported role models or mentors were a major influence on career choice.^{26,27} The lack of role models in our study was the second reason for the residents' disinterest in gastroenterology, after the lack of diagnostic equipment. Therefore, concerted efforts must be made to train more paediatric gastroenterologists who can then mentor new residents. This can be achieved by establishing dedicated paediatric gastroenterology training centres in Nigeria and working with training centres in developed countries. Scholarships and fellowship training grants are also important.²⁸ We also need to support the few trained gastroenterologists in the country by providing diagnostic tools, such as endoscopy, and well-equipped laboratories that support this specialist service by assaying stool, blood and urine samples. This will allow residents to be involved in several procedures and provide a more intellectually challenging exposure to paediatric gastroenterology.

This study had some limitations. It was a cross-sectional study of residents who were in different stages of their training. It is possible that some of them may have changed their decisions about their preferred sub-speciality after the survey, due to the various rotations they experienced before they achieved their Fellowship. The study was limited to one of the six geopolitical zones in the country, but the lack of trained paediatric gastroenterologists was a national issue.²⁸ A larger, longitudinal study would have explored the factors that influenced the paediatric residents' final career decisions more effectively.

CONCLUSION

This study highlighted that Nigerian paediatric residents showed a lack of interest in specialising in gastroenterology. Most made decisions about their preferred sub-specialities during their residency training and the main factors that influenced their choices were academic experience and perceived ability. This is of concern, because gastrointestinal disorders are major contributors to childhood morbidity and mortality in Nigeria. Efforts to increase the number of paediatric gastroenterologists should focus on exposing medical undergraduates and paediatric residents to a wide array of gastroenterology topics during their early postgraduate years. We also need to stimulate their interest by engaging them in gastrointestinal procedures. Finally, the few formally trained paediatric gastroenterologists that already exist in Nigeria need to act as role models and mentors, in order to increase the number of clinicians in this sub-speciality.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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Table 1: Demographic characteristics of the paediatric residents.

Characteristics	(n = 124)
Age in years (mean and SD)	35.0 ± 1.7
Gender, n (%)	
Male	41 (33.1)
Female	83 (66.9)
Marital status, n (%)	
Single	16 (12.9)
Married	107 (86.3)
Divorced	1 (0.8)
Postgraduate year status, n (%)	
1	23 (18.5)
2	13 (10.5)
3	9 (7.3)
4	17 (13.7)
5 and above	54 (43.5)
Present rank, n (%)	
Junior registrar	64 (51.6)
Senior registrar	60 (48.4)

SD, standard deviation

Table 2: Choice of sub-speciality, period of making decision and factors that influenced the choice of sub-speciality by the paediatric residents.

Paediatric sub-speciality	Number (%)
Choice of sub-speciality (n = 124)	
Neonatology	38 (30.6)
Haemato-oncology	19 (15.3)
Cardiology	14 (11.3)
Endocrinology	11 (8.9)
General and social paediatrics	7 (5.6)
Infectious diseases	6 (4.8)
Pulmonology	6 (4.8)
Emergency paediatrics	5 (4.0)
Nephrology	4 (3.2)
Gastroenterology, hepatology and nutrition	3 (2.4)
Neurology	2 (1.6)
Rheumatology	2 (1.6)
Undecided	7 (5.6)
Period of decision making (n=117)	
Before medical school	5 (4.3)
While in medical school	17 (14.5)
During internship	19 (16.2)
During residency	76 (65.0)
Factors influencing choice of sub-speciality (n=117)	
Financial: job opportunities and income	38 (32.5)
Perceived intellectual ability required???	101 (86.3)
Academic experience during medical training	98 (83.8)
Enjoyed internship in sub-speciality	76 (65.0)
Role models	90 (76.9)

Respected and admired sub-speciality	68 (58.1)
Research opportunities	95 (81.2)
Variety of medical problems available	95 (81.2)
How much working time role would involve	92 (78.6)
Opportunity to give back to society	79 (67.5)

Table 3: Reasons for lack of interest in gastroenterology sub-speciality.

Features	Number (%) (n=124)
Diagnostic equipment not available	38 (30.6)
Lack of role models	26 (21.0)
Lack of knowledge of procedures	8 (6.5)
Not intellectually challenging	5 (4.0)
Job opportunities and relative income	4 (3.2)
No reason stated	65 (52.4)
Others (few patients, poor outcomes)	2 (1.6)