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Original Article

Career Intentions in Paediatric Surgery: A Cross-Sectional Study Of Junior Surgical Residents In Nigeria And Implications For Workforce Development

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Abstract

Background: The global shortage of paediatric surgeons underscores the need to understand what influences young doctors to pursue this specialty. In Nigeria, paediatric surgery workforce density remains suboptimal. This study explored the proportion of junior surgical residents intending to specialize in paediatric surgery and identified factors that influence their career decisions.

Methodology: A cross-sectional study was conducted among junior surgery residents attending the West African College of Surgeons Integrated Revision Course in Clinical Surgery. Data were collected via self-administered online questionnaires and analyzed with SPSS version 20.

Results: Fifty-five of 85 (64.7%) residents responded. The majority were male (81.8%) with a mean age of 33 ± 3.5 years. Only 7 (12.7%) residents planned to pursue paediatric surgery. No statistically significant association was found between the intention to specialize and prior exposure to paediatric surgery ($p = 0.269$) or having a role model in the field ($p = 0.869$). Common deterrents included unfriendly trainers (8; 16.7%), the demanding nature of the specialty (6; 12.5%), and challenges with paediatric procedures such as intravenous access (6; 12.5%). Conversely, those who planned to specialize cited career fulfillment (5; 71.4%), relevance to local needs (4; 57.1%), and perceived good outcomes (4; 57.1%) as key motivators.

Conclusion: Despite exposure and mentorship, few junior residents intend to specialize in paediatric surgery. The attitude of trainers and perceived clinical challenges may discourage interest while personal fulfillment and contextual relevance could inspire commitment. Addressing interpersonal and systemic barriers may help strengthen the paediatric surgery workforce in Nigeria.

Keywords: Paediatric surgery; Career choice; Surgical education; Surgical Workforce; Residency training; Nigeria.

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Introduction

Surgical care for children is an essential component of a well-functioning health system and a fundamental requirement for achieving Universal Health Coverage (UHC) and Sustainable Development Goal 3, which seeks to ensure healthy lives and promote well-being for all ages [1, 2]. Pediatric surgery, however, remains significantly under-resourced in many low-and middle-income countries (LMICs), including Nigeria [3]. The density of pediatric surgeons in sub-Saharan Africa is alarmingly low, estimated at fewer than 0.26 per 100,000 children, far below the Lancet Commission's recommended surgical workforce density for adequate access [4, 5].

The consequences of this workforce gap are profound. Millions of children in LMICs suffer from untreated congenital anomalies, trauma, and surgical infections that are often curable but remain fatal or debilitating due to lack of timely intervention [6, 7]. Strengthening the pediatric surgical workforce is therefore essential not just for reducing long-term disability and socioeconomic burden [8]. Despite these needs, pediatric surgery is often not a preferred specialty among junior doctors in sub-Saharan Africa [9, 10].

Globally, medical specialty choices are influenced by a complex interplay of factors including personal interest, perceived prestige, income expectations, workload, training experiences, and the availability of mentors or role models [11, 12]. In resource-limited settings, these choices are further complicated by systemic challenges such as high patient volumes, limited infrastructure, and often unfavorable working conditions [13, 14]. In Nigeria, anecdotal evidence and limited studies suggest that pediatric surgery may be perceived as highly demanding, with limited material rewards and professional recognition [15].

While exposure to a specialty during undergraduate and postgraduate training is often thought to Influence career decisions [16], this relationship is not always straightforward. Role modelling, mentorship, and the culture of training environments play key roles in shaping career aspirations [17, 18]. However, very few studies have systematically explored these factors among surgical trainees in Nigeria, particularly in the context of pediatric surgery [19].

Understanding the decision-making processes of junior surgery residents is vital for shaping the future of pediatric surgical workforce in Nigeria. Such knowledge can inform educational reforms and targeted workforce planning. This study is therefore aimed at determining the proportion of junior surgery residents in Nigeria intending to specialize in pediatric surgery after their membership training and to explore the factors influencing this decision. In doing so, we hope to provide evidence to inform national efforts to strengthen pediatric surgical capacity in alignment with broader global surgery goals.

Methods

Study Design

This was a descriptive, cross-sectional study conducted to assess the career preferences of junior surgery residents in Nigeria with respect to pediatric surgery. The study adhered to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross-sectional studies.

Setting and Duration

The study was carried out among participants of the West African College of Surgeons' Integrated Revision Course in Clinical Surgery, which took place between August 28 and September 10, 2022. The course is held annually and attended by junior residents from accredited surgical training institutions across Nigeria.

Participants
The target population consisted of junior surgery residents preparing for their Membership examinations. Eligibility included residents currently enrolled in a surgical training program and attending the 2022 revision course. All 85 registered participants were invited to take part in the study.

Recruitment
All eligible residents were approached via email and invited to complete a structured, self-administered questionnaire. The email included an informed consent statement and a link to the online questionnaire. Follow-up reminders were sent over a four-week period.

Data collection instrument
The questionnaire was adapted from similar studies assessing career intentions in surgical specialties and was reviewed by two paediatric surgeons for content validity. It was piloted among five junior residents who were not part of the study population to assess clarity and flow. Minor adjustments were made from their feedback. Data collected include demographics (age, sex, location of training center), exposure to pediatric surgery (undergraduate and/or postgraduate training), presence of a role model/relative in pediatric surgery, planned career choice, and perceived motivators or deterrents for choosing pediatric surgery.

Outcome measures
The primary outcome was the proportion of junior residents indicating an intention to choose pediatric surgery after their membership training. Secondary outcome included factors associated with this choice, such as exposure, mentorship, and perceived barriers.

Statistical analysis
Data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) of IBM SPSS Statistics for Windows, version 20 (SPSS Inc., Chicago, Illinois). Descriptive statistics such as frequencies, proportions, and means (± standard deviation) were used to summarize findings. The chi-square test was used to assess associations between career choice and selected variables, with $p < 0.05$ considered significant.

Ethical Considerations
Ethical approval was obtained from the Health Research Ethics Committee of the Federal Medical Centre, Umuahia. Participation was voluntary, and confidentiality was ensured.

Results
Of the 85 junior surgery residents invited to participate, 55 responded, giving a response rate of 64.7%. The respondents had a mean age of 33 ± 3.5 years. The majority were males with a male-to-female ratio of 4.5:1 (Table 1). 21 (38.2%) participants reported having a role model or relative who was a pediatric surgeon, while 23 (41.8%) had been exposed to pediatric surgery during undergraduate or postgraduate training.

TABLE 1: PARTICIPANTS' DEMOGRAPHIC CHARACTERISTICS

Variable		Frequency *(N = 55)*	Percentage
Gender	**Female**	10	18.2
	Male	45	81.8
Marital status	**Married**	32	58.2
	Single	23	41.8
Geopolitical Zone	**North Central**	10	18.2
	North East	6	10.9
	North West	9	16.4
	South South	8	14.5
	South East	10	18.2
	South West	12	21.8

Only 7 (12.7%) participants indicated a plan to pursue pediatric surgery after membership training (Table 2).

TABLE 2: THE CHOICE OF SPECIALITY OF JUNIOR SURGICAL RESIDENTS

Variable		Frequency *(N = 55)*	Percentage
Which surgical subspecialty will you join after Part 1/Membership exam?	**Neurosurgery**	12	21.8
	Orthopedic	9	16.4
	General Surgery	9	16.4
	Urology	8	14.5
	Paediatric surgery	7	12.7
	Plastic Surgery	7	12.7
	Cardiothoracic surgery	3	5.5

No significant relationship was found between choice of pediatric surgery and exposure to pediatric surgery (p=0.269) or having a role model/relative who is a pediatric surgeon (p=0.869) (Table 3).

TABLE 3: SHOWING THE RELATIONSHIP BETWEEN THE CHOICE OF PAEDIATRICS SURGERY SUBSPECIALTY AND SOME VARIABLES

Variable		Would you consider a surgical subspecialty in paediatrics surgery		X^2	p-Value
		Yes	**No**		
Do you have a role model or relative who is a Paediatric Surgeon?	**No**	3 (42.9)	31 (64.6)	**1.222**	**0.269**
	Yes	4 (57.1)	17 (35.4)		
Have you attended any course or training program in Paediatric Surgery?	**No**	4 (57.1)	29 (60.4)	**0.027**	**0.869**
	Yes	3 (42.9)	19 (39.6)		

X^2 = Chi-square statistic

Unfriendly trainers (8; 16.7%), the demanding nature of pediatric surgery (6; 12.5%), and difficult intravenous access in children (6; 12.5%) were among the deterrents cited by those not considering pediatric surgery.

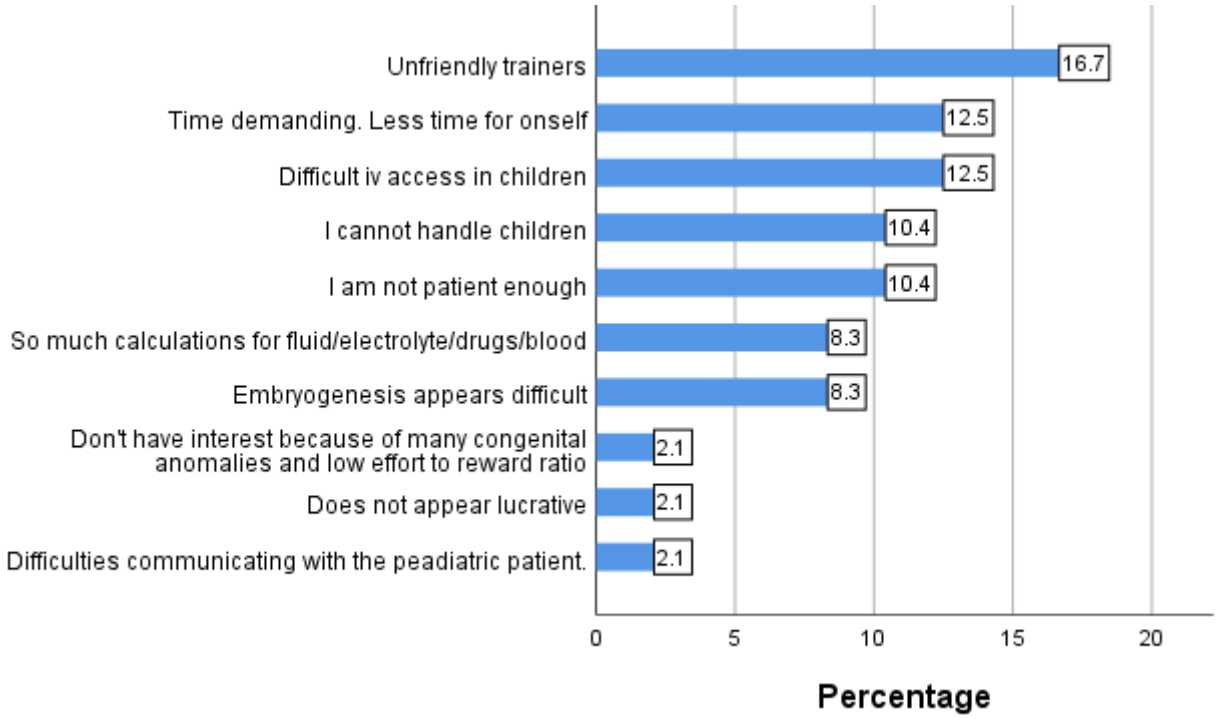

Figure 1: Participants' reasons for not choosing paediatric surgery

Those planning to choose pediatric surgery mentioned Career fulfilment (5; 71.4%), and relevance to local environment (4; 57.1%) among other motivators.

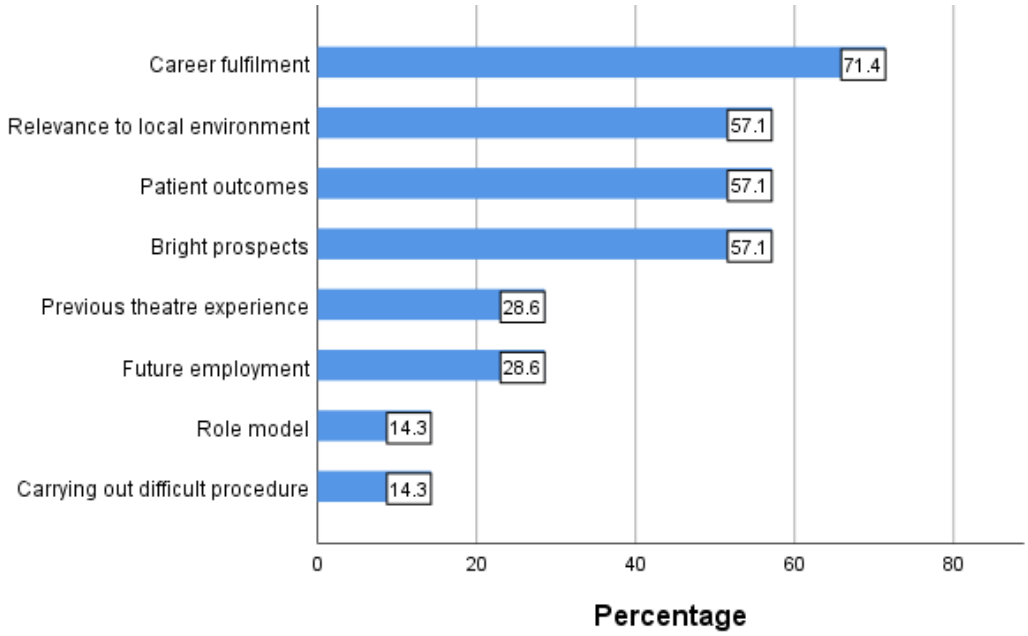

Figure 2: Participants' reasons for choosing paediatric surgery.

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Discussion

This study offers valuable insights into the career aspirations of junior surgery residents in Nigeria and their disposition towards pediatric surgery as a long-term specialty choice. Despite the growing global emphasis on strengthening pediatric surgical capacity in low-and middle-income countries (LMICs), we found that only a small proportion (12.7%) of surveyed junior residents planned to pursue pediatric surgery following membership training. This low interest is similar to workforce concerns raised in sub-Saharan Africa, where pediatric surgical workforce density remains critically low [3, 5].

One of the most striking findings is that neither prior exposure to pediatric surgery nor having a role model in the field was significantly associated with choosing the specialty. This contrasts with the previous understanding that clinical exposure and mentorship strongly shape specialty choice [16, 18]. While such factors have been shown to influence decision-making in high-income settings [11, 12]. Other contextual elements, such as the perceived training environment and systemic challenges, may have a greater appeal in LMICs. Interestingly, while clinical exposure is necessary, it is not sufficient on its own to influence career paths. The absence of statistically significant associations suggests that interventions aiming to strengthen pediatric surgery workforce must go beyond traditional models of exposure and mentorship. Systematic reforms in postgraduate training culture, such as improving trainer-trainee relationships, promoting a more supportive work environment, and demonstrating clear career pathways, may be more impactful.

Indeed, the reasons cited by respondents who chose not to pursue pediatric surgery, such as unfriendly trainers, difficult working conditions, and technical challenges like pediatric intravenous access, emphasize earlier reports about the demanding nature of surgical practice in Africa [14, 15]. In particular, the perception of a toxic or discouraging learning environment can profoundly impact career enthusiasm, especially in formative stages of training [17]. Conversely, those inclined toward pediatric surgery were motivated by the promise of career fulfilment, relevance to local health needs, and a sense of long-term professional impact, highlighting intrinsic motivation as a key driver.

Our study adds to a growing body of evidence that calls for multifaceted strategies to address surgical workforce imbalances in LMICs. Strengthening pediatric surgical capacity in Nigeria will require national-level planning, including dedicated pediatric surgery tracks during residency, targeted incentives, and possibly mandatory rotations in pediatric surgery during early residency, coupled with evaluation of teaching quality [9, 20].

Moreover, several limitations to our study may be acknowledged. The cross-sectional design captures intention rather than actual behavior; participants' plans may not translate into future career choices. The sample was limited to those attending a revision course, which may represent a more motivated or academically inclined subgroup. The reliance on self-reported data via email-based questionnaires may introduce response bias, particularly around sensitive topics like trainer behavior. Also, the study did not explore deeper psychological or socio-economic factors such as work-life balance aspirations, debt burden, or family pressure, which may influence specialty choice [12]. Despite these limitations, this study focused on a national sample of junior residents attending a major revision course, thus capturing participants from diverse geopolitical zones and training institutions. This geographical diversity enhances the relevance and generalizability of our findings across the surgical training landscape in Nigeria. This study provides early evidence of deeper conversation around pediatric surgery training and workforce planning in Nigeria. It encourages the need for culturally tailored, context-sensitive interventions that go beyond increasing exposure to pediatric surgery and instead create an enabling, affirming environment for budding pediatric surgeons.

Conclusion

This study has shown that interest in pediatric surgery among junior surgical residents in Nigeria remains low and may not be significantly influenced by exposure to the specialty or the presence of a role model. Unfriendly training environments and perceived technical challenges may deter residents, while intrinsic motivations such as career fulfilment and relevance to community needs inspire interest. There is a need to improve trainer-trainee dynamics, integrate pediatric surgery more intentionally into undergraduate and early postgraduate training and establish a clearer career development pathway in pediatric surgery with financial and academic incentives.

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