ORIGINAL ARTICLE

Post-graduate surgical training in nigeria: The trainees' perspective

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ABSTRACT

Background: Quality surgical training is crucial to meeting manpower needs and creating a vibrant healthcare delivery. Feedback from trainees provides insight to understanding training challenges and needs to improve the programme. The objective of this study was to determine the challenges faced by surgical trainees and their perception of their training in Nigeria. **Materials and Methods:** A questionnaire survey of trainees in 16 academic surgical training centres in Nigeria between September and December 2012. **Results:** Of 235 respondents, 227 were males (96.6%) and 8 females (3.4%) with mean age of 33.9 years. A significant proportion (62.3%) of the respondents believed that the volume and diversities of surgical cases managed during their training were sufficient; however, 53.9% were less satisfied with their operative experience. Majority (71.8%) of the respondents felt "*supported*" by their trainers but they also believed that the training was skewed towards service provision. They were not actively involved in research due to lack of funds in 77.7%, lack of time/motivation in 15.8%, indifference in 11.8% and poor knowledge of research methods in 9.2%. Inadequate training facilities (50.7%), poor welfare (67.2%), inadequate sponsorship (65.9%) and poor remuneration (88.3%) were identified among their challenges. On the whole, majority (62.3%) believed that their training would adequately prepare them to function independently. **Conclusion:** Surgical residents in Nigeria face a variety of challenges. Based on our findings, a training that tracks and keeps trend with global changes through a higher investment in surgical training, improved facilities and residents' well-being from both the teaching authorities and government will more likely improve the quality of training.

Key words: Challenges, Nigeria, residency, surgical education, training

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INTRODUCTION

The quality of surgical training is of tremendous importance to the future manpower planning of any nation.[1] Such training must responsibly respond to meeting its challenges, the expectations of its trainees, the public and the public health system needs.[2] Achievement of this goal is most crucial in developing nations with a high burden of surgical diseases compounded by a limited surgical workforce and access to care.[1]

Nigeria, the most populous African country and the seventh most populous country in the world, is a developing nation with 158,423,000 inhabitants representing about 2.26% of the world population. The country harbours about half of the entire population of West Africa sub region and 44 (88%) of the total accredited surgical training centres in the sub region.[3] Surgical training in Nigeria aims at raising specialists of the highest standard who will provide world class healthcare both within and beyond its immediate population.[4]

Post-graduate surgical training in Nigeria is conducted in designated institutions accredited by the West African College of Surgeons and/or the National Postgraduate Medical College of Nigeria. The curriculum for the Fellowship programme emphasised definite competencies in core areas of professional practice, which includes clinical problem solving, research, teaching and health resources management. In all, it covers all the domains of sound surgical knowledge, skills acquisition and best practices. Residency follows one-year training as an intern in medicine and surgery. A graduate intern registered as a medical practitioner must pass an entrance primary exam before entering into the junior residency training of

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24 months minimum rotations [Table 1]. Progress to the senior training [minimum 30 months rotation] requires another examination (part one) consisting of clinical, oral and written components but there is ongoing consideration to expand the minimum training duration to about 6 years. An individual is certified as a surgical specialist and awarded a fellowship after passing the final (part two) examination, which requires a dissertation as well as clinical, oral and written tests at the end of the senior training rotations.

In the past, the noble goal of training has faced several challenges that resulted in phobia among prospective trainees. Unstable government and institutional policies, dwindling national economy, low budgetary priority, brain drains syndrome as well as poor facilities were contributory to the state of surgical training in Nigeria.[5] However, in recent times, there has been increasing focus and efforts at strengthening surgical education in Nigeria. This study therefore sought to evaluates the general surgical training in Nigeria from feedbacks received from the trainees, which is valuable for gaining insight into their training and future improvement of training.

MATERIALS AND METHODS

Semi structured questionnaires were administered anonymously to surgical residents in 16 surgical residency training centres covering all the six geopolitical zones of Nigeria including its Federal Capital territory, Abuja, between September and December 2012 [Table 2]. Information sought included resident's demography, duration of training, perception of surgical training and the challenges confronting their training. The perception of training by the residents was assessed on a five point Likert item with 1 corresponding to strongly disagree and 5 to strongly agree. Free text spaces were also incorporated in assessing the challenges encountered by residents and their participation in research during training. Residents less than 6 months in training were excluded from the study and Epi info version 3.5.4 statistical software was used to enter and analyse data.

RESULTS

Of the 336 of questionnaires administered, 235 were completed giving a response rate of 69.9% [Table 2]. There were 227 (96.6%) males and 8 (3.4%) females; their ages ranged between 25 and 53 years (mean 33.9 ± 4.6). One hundred and forty-nine (63.4%) were married and the rest were either single, in relationship or separated. Junior residents constituted 176 (74.9%) and senior residents 59 (25.1%) as shown in Table 3.

On the whole, majority (62.3%) of the surgical trainees indicated that their training would adequately prepare them for independent practice as surgeons at the conclusion of their training. The vast majority of the

Table 1: Junior residency rotations

Specialty	Duration (months)
General surgery	6
Trauma (accident and emergency or casualty)	6
Urology	3
Orthopaedics	3
Anaesthesia	3
Elective (cardiothoracic surgery; neurosurgery; Paediatric surgery or plastic and reconstructive surgery)	3

Table 2: Distribution of respondents per institution surveyed

Institution	Responding of total (%)
National Orthopaedic Hospital, Enugu	22 (9.4)
Irrua Specialist Teaching Hospital	20 (8.5)
University of Abuja Teaching Hospital	11 (4.7)
Usman Danfodiyo University Teaching Hospital	20 (8.5)
National Orthopaedic Hospital, Kano	20 (8.5)
Jos University Teaching Hospital	20 (8.5)
Lagos University Teaching Hospital	18 (7.7)
Aminu Kano University Teaching Hospital	1 6 (6.8)
University of Ilorin Teaching Hospital	15 (6.4)
University of Port Harcourt Teaching Hospital	15 (6.4)
Ladoke Akintola University Teaching Hospital	14 (6.O)
Federal Medical Centre, Ido-Ekiti	12 (5.1)
University of Maiduguri Teaching Hospital	11 (4.7)
Federal Medical Centre, Gombe	10 (4.3)
Lagos State University Teaching Hospital	7 (3.0)
University of Uyo Teaching Hospital	4 (1.7)
Total	235 (100)

Table 3: Characteristics of study population

Age group (years)	Frequency (%) participants (*n* = 235)
20-29	32 (13.6)
30-39	171 (72.7)
40-49	24 (10.0)
> 50	01 (0.4)
Unspecified	7 (3)
Mean 33.9 ± 4.6	Range 27-53
Gender	
Male	226 (96.2)
Female	8 (3.4)
Unspecified	1 (0.4)
Residency year (PGY)	
1st	30 (12.8)
2nd	84 (35.7)
3rd	32 (13.6)
4th	33 (14)
5th	16 (6.8)
≥6th	38 (15.9)
Unspecified	2 (0.8)
Mean duration: 2.4 ± 2.0	Range: 6months to 13 years
Marital status	
Married	149 (63.4)
Single/in relationship,	83 (35.3)
Separated	3 (1.3)

respondents were also satisfied with the duration of their training with a further 55.5% agreeing to a 6-year training duration [Figure 1]. The number and spread of cases managed during training were sufficient in the opinion of about two-thirds of the trainees but over a half (53.9%) wish for more operative experience particularly in endoscopic and minimal access surgery. The level of didactic teaching was rated as satisfactory by 42.3% of respondents while, 30.8% were undecided and 26.9% were dissatisfied. The surveyed residents were not actively participating in research at the time of survey due to lack of funds in 77.7%, lack of time or motivation 15.8%, indifference 11.8% and due to poor knowledge of research methodology in 9.2%.

Most (71.8%) trainees felt "*supported*" by their consultants but a significant proportion (69.1%) of trainees felt that their surgical training is skewed towards provision of services, was associated with significant workload among 77.9% and resulted in substantial family life strain among 66.3% [Table 4]. Inadequate training facilities (50.7%), poor welfare (67.2%), inadequate sponsorship (65.9%) and inadequate remuneration (88.3%) were identified among the challenges confronting their surgical training [Figure 2].

Table 4: Opinion of surgical trainees on areas of emphasis in surgical residency

Area	Proportion (%)
Provision of services	69.1
Development of trainees' academic prowess	13.3
Development of trainees' surgical skills	11.3
All	10.3
Development of trainees' surgical skills and academic prowess	8.9
Provision of services and development of trainees' academic prowess	5.9
Provision of services and development of trainees' surgical skills	2.0
None	1

DISCUSSION

The age composition of the Nigerian surgical trainees, comprising of a young population with a mean age of 33.9 years is much reassuring. This composition is similar to that of the Netherland and United States of America.[6,7] Nevertheless, it must be borne in mind that this young age group, of whom about a third of them are still single in this study, represents the most adventurous and highly mobile segment of the national population with the tendency to seek for greener pastures beyond the shores of the country. Trainees usually migrate away from their native countries to developed nations in search of career development, better working conditions, training, remuneration and research opportunities among other reasons.[8] Effort should therefore continue to be placed on improving the quality of education and creating opportunities that fulfils the expectations of trainees. Clinton *et al*., have shown in Ghana that the provision of a viable training programme, coupled with social and economic factors played a significant role in graduates' decisions to stay back in a developing country.[9]

Notable in our surgical training is male gender dominance unparalleled by the proportion of female graduates from the medical schools. Although male predominance in surgery is often attributed to women belief that specialising in surgery is incompatible with a rewarding female lifestyle, several studies have disputed this view.[10] In the United States of America, up to 22% of surgical trainees and almost one-third (28%) in the Netherlands were female.[6] The real barriers to women embracing surgery include perceived gender-bias, discrimination experienced by women during surgical clerkship and lack of role models particularly same sex role models in surgical training.[6,11] This mean that there must be a better outreach to female students with improved understanding of issues specific to women surgeons, effective mentoring and elimination of gender bias. Motivation should also be given to females

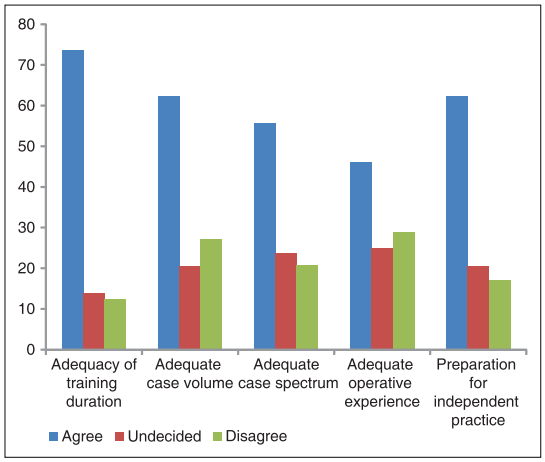

Figure 1: Perception of training by residents

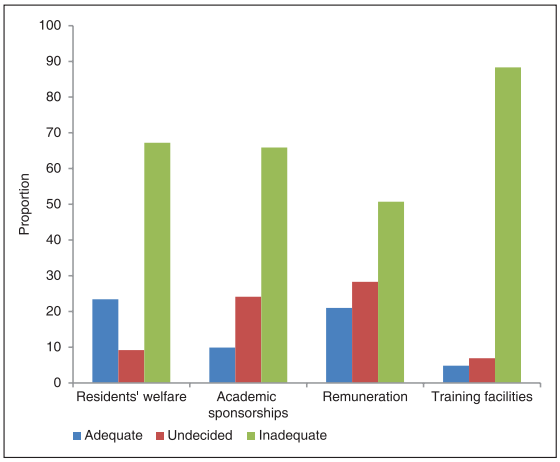

Figure 2: Challenges faced by residents during training

already in surgical training, who are potential female role models that are crucial to attracting more women into the surgical training.

Residents are expected to be proficient clinicians, educators, researchers and administrators with best practices at the completion of their training. Although this demands rigorous learning, it should be accomplished within a finite period of training.[12] Duration of training is important before considering surgery as a career by trainees with a significant relationship existing between the times spent by trainees in training, their levels of mood disturbances and daily hassles as reported by Archer *et al*.[13] In the opinion of the majority of trainees (55.5%), duration within 6 years is considered an optimal period for training and any form of specialisation should be preceded by training in general surgery in the opinion of 93.5% of the respondents.

Surgical training involves acquisition of a large body of knowledge, skills and best practices in an environment of adequate caseloads and case mix.[14] To be competent, surgeons must spend an appropriate amount of time caring for patients and must encounter adequate range of cases both in number and spectrum.[14] In This survey, majority of the residents (62.2%) observed an adequate case volume and case complexities sufficient to prepare competent surgeons, which may not be surprising due to a high burden of infectious diseases, increasing spate of injuries, violence and a rising incidence of non-communicable diseases that all result in surgical complications in developing countries like Nigeria.[4] Of more concern, however, is their opinion regarding their provisions of surgical service within training. About two-thirds (66.3%) perceived their training as skewed in favour of provisions of surgical service with a detrimental workload. Provision of clinical duties within training should primarily serve as a means of getting residents well trained and must therefore guarantee balanced opportunities for other academic programmes.[15] Else, tension could generate when the time available for service delivery is imbalanced against that available for surgical training and prolonging residents duty hours, could lead to burn out, weakened residents' health status, poor performance, depression, increased medical errors and compromise of patient safety leading to deterioration of the public confidence in health services.[12,15] Consequently, a weighted work load has been considered a more realistic assessment of surgical workload and is of relevance to working out assessment in surgical training.[16]

The level of consultant supervision is considered an important component of surgical education and is very pivotal in nurturing the trainees to eventual independent consultant practice.[17] In this study, 79% of residents could find support from their consultants when struggling with how to treat patients. Appropriate supervision is important in guiding and directing trainee's decision making process, develop their confidence and improve their skills acquisition.[14,17] Otherwise, repeatedly unsupervised experiences of trainee may increase their confidence level at embarking on a task without necessarily increasing their competence or proficiency.[18] In contrast, when supervised by consultants, trainees are more likely to perform challenging task than when unsupervised.[19]

The goal of any surgical training programme is to promote knowledge acquisition and ensure skills development with adequate judgment and professionalism.[14] Trainees should be competent in their knowledge base, operative skills and vocational skills alongside their personal development. It is interesting to note in this study that despite the adequate case spectrum and case mix, less than half (46.1%) of respondents expressed satisfaction with their operative experience. Most of the respondents would have love to have operative skills that keep pace with expanding surgical technology in surgery with increased application of endoscopic and minimal access techniques in surgical practice. On the global scene, promotion of technical skills acquisition that keep abreast with evolving surgical technology and knowledge has prompted structured competence-based training such that the graduated operating theatre apprenticeship and skill acquisition is increasingly complemented by laboratory surgical skills acquisition, which allows the trainees take ownership, self-direct and take responsibility of their own training and development within a finite time.[2,20] In the past, Nigerian residents have also expressed in a similar fashion, their opinion for up-to-date skill acquisition by requesting, incorporation of postings to better-endowed centres in foreign institutions as part of their training.[21] These findings therefore suggest that ensuring trainees' professional development beyond their immediate environment, in the spirit of the founding goal of surgical training in Nigeria, which forbids training merely tailored towards the local pathologic conditions, will more likely satisfy the desire of the majority of trainees.[4]

Sponsorship to conferences and workshops was available to about a tenth of our respondents and less than one-fifth of the trainees reported adequate access to educational aids like libraries with journals and texts. Optimal and up-to-date provision of surgical care relies on training specialists who are abreast with contemporary trends through constant update of their knowledge and skills. This requires regular conferences and workshops attendance for continuous professional development. Technical competency, however, is just an aspect of what makes a good surgeon; surgery further requires an integration of higher-order cognitive skills derived from interaction with medical texts, journals, teaching rounds and lectures to make good clinical decisions.[2,22] Good clinical judgment is needed before, during and after surgery because most of

the highly preventable adverse surgical events are errors of poor judgment rather than the actual procedures.[23] This underlines a need for constant sponsorship and educational supports for trainees' professional development.

Health research is fundamental to establishing the scientific basis of clinical care through evidence-based best practices, which involves a critical literature assessment, hypothesis formulation, critical data statistical analysis to derive practice changing conclusions.[15] Involving residents in research is an important step in initiating them to adopting scientific methods of providing care and helps in developing their thinking faculty, analytic skills, problem solving prowess, verbal and written communication skills for a successful career.[15] Barriers to participating in research could result from individual or system factors and include insufficient resident interest, limited resident time, paucity of mentors, limited faculty time, lack of resident research skills, lack of a research curriculum or inadequate funding.[15] In this survey, 65.1% of the residents were not actively involved in research due to lack of funds, time constraints, lack of opportunities and poor knowledge of research methodology. This calls for more emphasis, dedicated research time, adequate research funding and mentorship for improvement in both the quality and output of research.

Trainees identified a variety of challenges within their training, which include inadequate training facilities, sponsorship, remuneration and poor residents' welfare. This demands improvement to training facilities as well as support services like equipments and investigative modalities, which is very essential for timely decisions making and good surgical outcomes.[14] By nature, surgical training is known to be a lengthy process with considerable amount of stress of diverse sources.[24] This therefore calls for devoted attention to residents' welfare and incorporation of residents' wellness as part of training.[12] Furthermore, the quality of relationship between the trainers and trainee is an important motivator to trainees achieving their professional desires when faced with diverse challenges of training.[25] Hence, in-between a surgeon and his trainee, there must be a fostered bond of positive professional relationship, which though may take effort and time to build, its result is immensely gratifying.[26]

In conclusion, surgical residents in Nigeria face a variety of challenges ranging from professional to personal issues in their training. Nevertheless, the majority felt that their current training would allow them practice independently as consultants at the completion of their training. Based on the residents' opinion, improvement of training facilities, educational sponsorship and overall residents' welfare would enhance their training experience. Therefore, a higher investment in surgical training, more emphasis on residents well being, incentive from the government and teaching authorities and ensuring a well structured training that both tracks and keep trend with emerging global changes will more likely improve the residents perception of surgical training.

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