



Letter to the Editor

Nurturing neurosurgical dreams – Overcoming challenges for medical students in resource-limited settings globally

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Dear Editor,

Global neurosurgery refers to the development of neurosurgical services in developing countries. Conventionally, low- and middle-income countries are referred to as developing countries. This group includes many countries in Asia, Sub-Saharan Africa, and some countries in Central America. Over 80% of the world's population is thought to reside in over 100 developing nations.^[2]

The global burden of noncommunicable diseases has grown in recent years due to evolving epidemiologic trends. These trends include cerebrovascular disease and traumatic brain injury, which coexist in many low- and middle-income countries with a consistently significant number of infections of the central nervous system, including tuberculosis, neurocysticercosis, and HIV-related opportunistic infections and complications. Globally, resource-limited settings, such as Africa, lack the infrastructure necessary to treat acute neurologic illness patients adequately despite this enormous disease load.^[7]

Africa ranks second in neurosurgical workforce deficits reported worldwide^[6] despite recent developments in expanding the number of training centers and collaborating with global neurosurgical organizations and neurosurgery departments in advanced nations. This shortfall has adversely affected surgical capacity, with an estimated 2 million surgical case deficits yearly.^[3] Some unanswered concerns, however, are how to get beyond the obstacles in the way of closing the neurosurgical labor shortage, which is crucial to guarantee prompt delivery of excellent care, lowering the risk of complications, and eventually raising patient satisfaction.^[6]

To enable an increased neurosurgical workforce capacity, one area that needs to be enhanced is the recruitment of medical students and younger doctors into the neurosurgery specialty.^[6] To guarantee that neurosurgery recruits the brightest individuals who could improve the discipline and motivate future generations of neurosurgeons, neurosurgery must get enough exposure. As such, one of the long-term approaches to addressing the unmet burden of disease is to reduce the shortage in the neurosurgical workforce, which the lack of exposure may hamper.^[6]

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CHALLENGES FACED BY NEUROSURGERY-INTERESTED STUDENTS

One of the challenges faced by African medical students that affect their choosing neurosurgery as a career choice is the discouragement from individuals due to the lack of an “ideal personality” trait.^[6] Neurosurgery is perceived as a demanding and high-stress profession that calls for certain personality attributes such as fast thinking and aggressiveness. For those who do not match the stereotype, discouragement from mentors, classmates, and even family members might make them feel unfit for the profession.

Second is the cultural views regarding gender roles.^[1] Traditional gender roles are still prevalent in many African communities, with some professions – such as surgery and medicine – being seen as more suited for men. Women who want to work as neurosurgeons may run across prejudices and expectations from society that deter them from choosing this profession.

Third is the lack of mentorship.^[1] Aspiring neurosurgeons need mentorship to help them navigate the challenges of medical school and career advancement. On the other hand, there might not be as many skilled neurosurgeons in many African nations to guide and encourage aspiring neurosurgeons.

Fourth is the insufficient opportunities for proper neurosurgical education.^[1] Certain regions of Africa may have restricted access to standard facilities and educational programs for neurosurgery. This may impede the training of future neurosurgeons and prevent them from being exposed to cutting-edge surgical methods and tools which could affect their decision to choose the specialty.

Fifth is the lack of infrastructure and health-care resources, as many African nations may not have the advanced technology, specialist facilities, and sufficient support services needed for neurosurgical practice. This could discourage medical students from specializing in neurosurgery and present serious difficulties for practicing neurosurgeons. In addition, there may be a brain drain because prospective neurosurgeons can decide to work in developed nations like the US.

Sixth is the poor prognosis of neurosurgery cases in Africa.^[1] Several factors, including restricted access to healthcare, delayed patient presentation, and insufficient funding, could cause this. Aspiring neurosurgeons may find it demoralizing to deal with the psychological impact of handling such situations, which may influence their career decisions.

Seventh is the long hours at work. A rigorous routine and a stressful atmosphere are characteristics of neurosurgery. In places with limited resources, such as Africa, where

neurosurgeons may have high workloads and a shortage of support staff, juggling professional and personal obligations can be especially troublesome.^[1] This may also impact students’ perceptions about picking a career in neurosurgery.

STRATEGIES TO OVERCOME THE CHALLENGES

There are practical tools that could help achieve the objective of raising the proportion of medical students studying neurosurgery in resource-limited settings globally, regardless of gender. These tools could also be used as a means of removing obstacles faced by prospective neurosurgeons, which could decrease the lack of workers in the field and improve access to neurosurgical care.

First is providing career development resources needed for the success of one planning to become a neurosurgeon.^[4] This could make it easier for aspiring neurosurgeons to find mentorship opportunities. In addition, training sessions on writing strong personal statements, resumes, and letters of motivation could be offered. Furthermore, opportunities for research, educational exposure, and conference abstract presentations foster professional growth and may pique interest in neurosurgery as an area of specialization.

Second is the establishment of formal mentorship programs that pair up medical students with experienced neurosurgeons. This will help to appropriately advise medical students on the actions that they should take to pursue their dream of becoming neurosurgeons while still in school.

Third is training on the application of productivity tools to aid in time management, given that neurosurgery is known to be a demanding specialty. This is on top of picking up the right use of social media sites such as LinkedIn and X, which open doors to a plethora of options, including webinars, networking, and scholarships. Indeed, the improvement of internet infrastructure is crucial to provide smooth navigation through these online educational platforms and resources.

Fourth is the exploration of scholarships that offer observership opportunities. Research has shown that exposure to a specialty by means of clinical rotations improves students’ decision to choose a career in that specialty.^[5] Factors that contribute to this favorable outcome include time spent in theaters, access to and interactions with surgeons, professional networking, and mentor-mentee connections.^[8]

Sixth involves voluntary work for neurosurgical associations by helping with administrative tasks, including social media account management, document drafting, initial research, poster design, visual abstract design, and email correspondence. This could allow engagement with notable

individuals in the community and become acquainted with the operations of professional organizations by taking part in these activities.^[3] Female medical students should be encouraged to join the African chapter of Women in Neurosurgery, an organization that promotes effective female representation in neurosurgery.

CONCLUSION

Fostering medical students' interest in neurosurgery in resource-constrained environments around the world necessitates addressing a wide range of issues, such as cultural prejudices, a lack of mentorship, poor infrastructure, and a dearth of educational opportunities. On the other hand, useful tactics, including advocacy support, professional development resources, observership opportunities, and mentorship programs, can greatly increase exposure to neurosurgery and lower entry barriers. This is a call to action for stakeholders in the medical community to unite in support of nurturing the next generation of African neurosurgeons.

Ethical approval

The Institutional Review Board approval is not required.

Declaration of patient consent

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Conflicts of interest

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Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the

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