

The Imperative Of Medical Entrepreneurship In Addressing Physicians' Brain Drain And Health System Strengthening In Nigeria

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Abstract

A motivated health workforce is central to strengthening health systems. Low and lower-middle-income countries face shortfall in health workers as a result of health workers' brain drain despite a projected 40 million new health jobs by 2030 globally. We seek to assess the role of medical entrepreneurship in addressing health workers' brain drain as an alternative paradigm to strengthen the health system in Nigeria. We conducted a descriptive, cross-sectional study with 300 Nigerian physicians electronically filling out questionnaires. The data were then statistically analysed. Nearly half (49.3 percent) of the respondents are ≤ 35 years of age, and 23 percent are females. Two-thirds intend to migrate, especially to middle eastern countries and the United Kingdom. The push factors are poor remuneration, a worsening economy, reduced access to training and equipment, insecurity and poor infrastructure. Most (88.3 percent) intend to engage in medical entrepreneurship, and 79.4 percent of the physicians agreed that engaging in medical entrepreneurship will prevent them from migrating. There is a need to support health workers in medical entrepreneurship to improve their income and reduce their aspiration to migrate from Nigeria. This will also encourage diaspora health workers to return or invest in Nigeria through brain gain and brain circulation and has made Nigeria a medical tourism hotspot with the consequent economic advantages.

Introduction

A motivated health workforce is central to strengthening health systems. Despite a projected 80 million-health jobs demand by 2030 globally, 65 million jobs are predicted to be supplied, creating a net deficit of 15 million workers. Low and lower-middle-income countries face this shortfall from health workers' brain drain (Jenny & Liu, 2017). The brain drain of healthcare workers is "the movement of health personnel in search of a better standard of living and life quality, higher salaries, access to advanced technology and more stable political conditions in different places worldwide (Misau, 2010).

The history of brain drain is traced to the 1940s after the world wars when European professionals migrated primarily to the United States of America, but the term 'brain drain' was coined in the 1960s in response to a large number of trained scientists, physicians and university teachers leaving developing countries. (Schnidman, 2006) The World Health Organization (WHO) estimates a global shortage of health workers at more than 4 million. Sub-Saharan Africa has the highest rate of physicians' brain drain, with an average rate of 20 percent compared to 10 percent in all regions (Docquier, 2011).

Medical entrepreneurship is a medically-oriented business model that creates new business opportunities in the healthcare industry that meet the needs, demands, and changes in medicine, biotechnology, and social entrepreneurship. (Lukman, 2023). This study aims to assess the migration intention, career change plan and medical entrepreneurship intention among Nigerian physicians and explore the role of medical entrepreneurship in strengthening the health workforce by preventing career change and migration outside the country. This can potentially increase physicians' retention, tackle brain drain and encourage brain gain and circulation.

METHODOLOGY

This study relied on a cross-sectional survey among Nigerian physicians using a semi-structured interview in google forms format. We shared the link to individual and professional WhatsApp group platforms to assess the role of medical entrepreneurship in addressing physicians' brain

drain in Nigeria in December 2019, on the verge of the COVID-19 pandemic. The sample consists of three hundred (300) physicians in Nigeria selected by purposeful sampling technique. Prospective respondents filled out the questionnaires electronically anonymously. A Microsoft Excel spreadsheet version of the data was generated and exported from the google forms responses.

The data was then cleaned, coded and transferred using Statistical Product and Service Solutions (SPSS) 16.0. Descriptive statistics were obtained using frequencies, while inferential statistics were done with Chi-square and binary logistic regression tests with a p-value set at 0.05 and a confidence interval of 95 percent. We explored medical entrepreneurship intention using Shapero's model, which assesses the perceived desirability, perceived feasibility and perceived propensity to act. Each of the three has multiple questions, and each question is measured using a 5-item Likert scale (with one and five signifying 'less likely' and 'most likely' respectively). The mean of all questions under a factor indicated the score.

RESULTS

Three hundred (300) respondents electronically filled out the online questionnaire. The respondents were majorly those living in northern Nigeria. Males constituted 77 percent, while there was an equal distribution between respondents aged ≤ 35 years and > 35 years (49.3 percent and 50.7 percent). Most respondents were married (82 percent), and 60 percent had less than three children. Most respondents got their undergraduate medical education locally, and only 15.8 percent had part or full foreign postgraduate training (see Table 1).

Indicators	percent (n=300)	
Age (years)	<i>≤ 35 years</i>	148 (49.3)
	<i>> 35 years</i>	50.7 (152)
Gender	<i>Female</i>	23 (69)
	<i>Male</i>	77 (231)
Marital status	<i>Unmarried</i>	18 (54)
	<i>Married</i>	82 (246)
Number of children	<i>0-2</i>	62.8 (108)
	<i>≥ 3</i>	37.2 (64)
Place of undergraduate education	<i>Nigeria</i>	94.3 (283)
	<i>Foreign Country</i>	5.7 (17)
Place of postgraduate education	<i>Nigeria</i>	85.2 (235)
	<i>Foreign country</i>	15.8 (44)

Source: Author's Field Survey

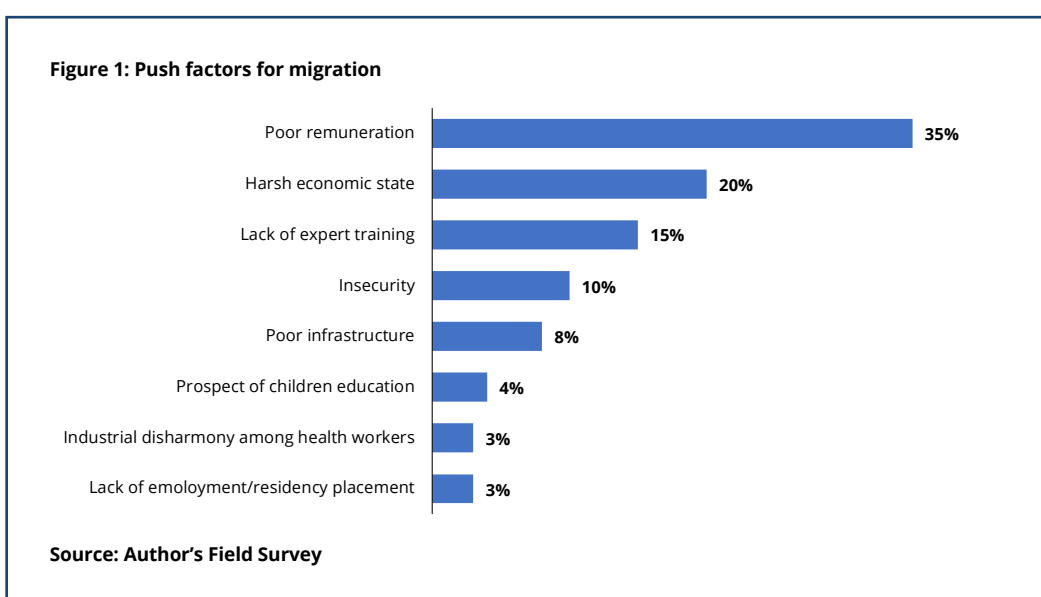
Most respondents work solely in public hospitals (74 percent), with the remaining having additional private medical practice, and only 29.3 percent were specialist consultants compared to 70.7 percent as either trainees, basic medical science academics or medical officers. Seventy-two percent (72 percent) practised for ten years and below, 51 percent held administration positions, and only 43 percent received a monthly remuneration of more than US\$1,000. A few had entrepreneurship courses during their undergraduate, formal entrepreneurship training (22.3 percent and 12.3 percent), while 40 percent had a family entrepreneurship background, and 46.7 percent had previous entrepreneurship exposure (see Table 2).

Table 2: Workplace and entrepreneurship background information

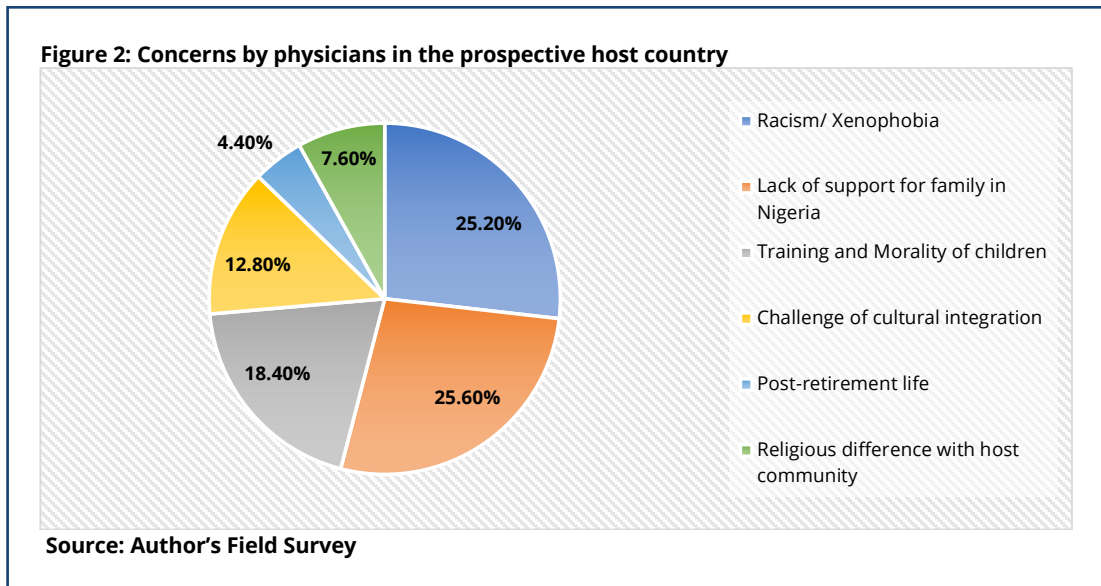
Indicators		percent(n=300)
Place of practice	<i>Public</i>	74 (222)
	<i>Private/Additional private</i>	26 (78)
Cadre	<i>Trainees, medical officers, academic non-clinical</i>	70.7 (212)
	<i>Specialists (Consultants)</i>	29.3 (88)
Years of practice	<i>≥10 years</i>	72 (216)
	<i>>10 years</i>	28 (84)
Monthly remuneration	<i>\$1,000</i>	57 (171)
	<i>>\$1,000</i>	43 (129)
Previous Undergraduate entrepreneurship courses	<i>Yes</i>	22.3 (67)
	<i>No</i>	77.7 (233)
Previous professional entrepreneurship training	<i>Yes</i>	12.3 (37)
	<i>No</i>	87.7 (263)
Family entrepreneurship background	<i>Yes</i>	40 (120)
	<i>No</i>	60 (180)
Previous entrepreneurship exposure	<i>Yes</i>	46.7 (140)
	<i>No</i>	53.3 (160)

Source: Author's Field Survey

Two-thirds (66.3 percent) had the intention to migrate outside Nigeria, and the major destinations are the Middle Eastern countries (Saudi Arabia - 32.2 percent, United Arab Emirates - 12.4 percent), United Kingdom (31.2 percent), United States of America (6.4 percent) and Canada (6.4 percent). The main push factors include poor remuneration, a harsh economic state in Nigeria, lack of exposure to training and sophisticated equipment, inadequate infrastructure and equipment, and insecurity. (see Figure 1). About 52.2 percent of the respondents will not be willing to migrate if the increased remuneration is not up to 300 percent.



After migrating, the respondents' primary concerns are a lack of physical support for the family left in Nigeria, racism and xenophobia, training and moral upbringing of children, lack of cultural integration and religious difference with the host community (see Figure 2). The result showed that physicians with less than three children and those with previous entrepreneurship exposure have more intention to migrate with significant association $x^2 = 0.08$, OR 1.92 (CI 1.18-3.13 and $x^2 = 0.027$, OR 2.03 (CI 1.08-3.82) respectively.



Only a third of the respondents (31.7 percent) planned a career change outside healthcare, and the most preferred disciplines are agribusiness (41.2 percent), trading (17.5 percent), manufacturing (88.2 percent) and export-import business (8.2 percent). Younger age groups, females, those with fewer children and junior physicians are more willing to change careers. There is a significant association between career change plan and age, gender, number of children and career position with $x^2 = 0.023$, OR 1.76 (CI 1.08-2.89, $x^2 = 0.043$, OR 0.53 (CI 0.28-0.99), $x^2 = 0.08$, OR 1.92 (CI 1.18-3.13 and $x^2 = 0.027$, OR 2.03 (CI 1.08-3.82) respectively.

The majority (88.3 percent) intend to engage in medical entrepreneurship. Shapero's model showed that the respondents had an increased likelihood for desirability (4.04/5) and propensity to engage (4.04/5) in medical entrepreneurship in Nigeria. The preferred medical entrepreneurship sectors include establishing a clinic or a hospital, pharmaceutical business, hospital equipment and consumables retail and medical education and training. The perception of the feasibility of medical entrepreneurship was moderate (3.16/5) in Nigeria.

The significant challenges affecting medical entrepreneurship in Nigeria include lack of access to funding (51.1 percent), high cost of doing business (23.2 percent), lack of laws to support start-ups (14.3 percent) and lack of skilled human resources (5.7 percent). Family entrepreneurship background and previous entrepreneurship experience are associated with increased willingness to engage in medical entrepreneurship with $x^2 = 0.28$, OR 2.47 (CI 1.08-5.64 and $x^2 = 0.028$, OR 2.41 (CI 1.11-5.21), respectively. Engagement in Medical entrepreneurship through creating opportunities and funding will prevent brain drain and planned career change by 79.4 percent and 68.3 percent of the respondents, respectively, and nearly two-thirds (64.5 percent) will not migrate if their monthly remuneration is increased by 300 percent.

DISCUSSION

The World Health Organization (WHO) recommended a doctor-population ratio of 1:600, but the ratio has worsened in Nigeria to 1: 4,000-5,000 (Onah, 2022). Only about half of the 72,000 registered doctors practice in Nigeria, according to the Medical and Dental Council of Nigeria (MDCN), and currently, the doctor population ratio is 1:10,000 in urban areas and 1:22,000 in rural areas (Ogundipe, 2019). The number of doctors emigrating has doubled since 2016 (Nwankwo, 2019). The estimated amount African nations spend to train each doctor is US\$21,000 to US\$59,000. Also, nine (9) countries – Ethiopia, Kenya, Malawi, Nigeria, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe have lost about US\$2 billion in training doctors who migrate to other countries. On the other hand, the UK saved US\$2.7 billion by recruiting doctors from other countries (Mo Ibrahim Foundation, 2018).

Furthermore, two-thirds (66.3 percent) of the respondents in this study intend to migrate. This is slightly lower than findings from some studies in Nigeria, which reported migration intention of 88 percent (Ihua B, 2017), 74.4 percent (Ossai E, 2020) and 83.5 percent (Chime OH, 2020) but higher than other reports of 43.9 percent (Onah, 2022) and 57.4 percent (JO, 2010). This is explained because physicians' brain drain only recently hit the Northern part of Nigeria, and the trend is increasing. Meanwhile, Agribusiness, Trading, Manufacturing, and Import & Export businesses are preferred areas for a career change by physicians. Agribusiness is the predominant occupation in Nigeria, especially in the North, and the only business legalised for public servants to engage in. The government has so much interest and funding for agricultural ventures.

The migration destinations are similar to other studies (Onah, 2022); (Adebayo A, 2021), but more than half of the respondents intend to migrate to the Middle East, especially Saudi Arabia. The recent drive by the Middle Eastern countries to attract Nigerian physicians, the attractive packages, and cultural and religious similarities with some respondents might explain the preference. The colonial relationship between the United Kingdom and Nigeria and the emergence of the BREXIT, where physicians from English-speaking countries are highly in demand in the United Kingdom.

There are push and pull factors for brain drain. The push variables are those attributes that evolve within the area of origin, attracting the skilled and experts to move to other nations. While the pull attributes are unintentional and voluntary movements that provoke healthcare professionals from the immigrant nation's policies, the push elements are poor career opportunities, inadequate remuneration, poor service condition, decreased job satisfaction, civil unrest and security issues (Quartey-Papafio, 2021; Dinbabo, 2015).

The commonest push factor being financial by 54.7 percent (Remuneration and Harsh economic situation account for 34.8 percent and 19.9 percent, respectively) is instructive. The monthly remuneration of the physicians was low as 57 percent receive \leq US\$1,000 monthly (which is currently halved due to the Naira devaluation against the US dollar). Finding a way to improve the respondents' financial status will likely get half of those physicians intending to migrate instead of staying and working in Nigeria. Almost two-thirds (64.5 percent) were willing to halt their migration plan if they could generate 300 percent of their monthly remuneration in Nigeria.

Entrepreneurship is an engine of economic growth and an essential vocational option (Ngugi K, 2012). Timmons (1999) considers entrepreneurship an economic equaliser through opportunities mobilisation, offering self-sufficiency and self-determination. Medipreneurship is defined as the process of starting a new venture in healthcare and allied services (Patil N, 2016). There are different

forms of Medipreneurship ventures, such as establishing a clinic or a Hospital, pharmaceutical shops, hospital and equipment and consumables retail, home healthcare services, medical Education and Training, Digital Health, medical tourism and health insurance.

Healthcare has gradually metamorphosed from an entirely social service to a business venture. There is a need for entrepreneurship to be taught at the undergraduate and postgraduate levels. Regular professional entrepreneurship training is indispensable to enable physicians and other health workers to sail across the competitive world of business and corporate governance.

Medical entrepreneurship can prevent career change and physicians' brain drain. In this study, 79.4 percent and 68.3 percent of the respondents believe that creating opportunities and funding for medical entrepreneurship will prevent them from migrating and changing their careers, respectively. In 2022, a major European research project ENDORSE (Enhancing development of entrepreneurial strategies at university locations affected by brain drain), was started in Sweden, Austria, Latvia, Germany, Poland and Greece with the sole aim of using entrepreneurship strategies to prevent brain drain.

The project was to run up to 2025, and it uses healthcare entrepreneurship and innovation training for students, entrepreneurs and academics to develop business ventures through strengthening linkages between universities, businesses and municipalities and creating regional innovation networks, especially in areas affected by brain drain. This will create an entrepreneurial environment for the participants to work in and stay. Competitive advantages will be considered in developing business models that will be successful for each area. It was realised that "to live where you want to live and work, you need to be able to make a living and therefore the need for entrepreneurship" (Mid Sweden University, 2022).

The ENDORSE model can be adapted in Nigeria and other African countries to train health workers on entrepreneurship and tackle the challenges such as lack of access to critical financing, multiple taxations, capacity development and strengthening through this project. The support can be provided to individuals, groups and cooperative societies to establish clinics and hospitals, diagnostic centres, pharmaceutical shops, medical education and training, medical equipment and consumable retail. This will prevent migration plans by health workers and encourage brain gain and brain circulation where diaspora Nigerian health workers can return and participate in the process or invest back home and also encourage medical tourism, reduce the huge foreign exchange loss of more than US\$1 billion annually, and improve the micro and macro-economic indices. This project should be a deliberate multi-stakeholder engagement to address this challenge using a new paradigm instead of the proposed selective and coercive approach to ban health workers from migrating outside Nigeria.

POLICY RECOMMENDATIONS

- Review of undergraduate medical curriculum to include practical healthcare entrepreneurship courses with opportunities for internship in a healthcare business environment.
- Development of a healthcare entrepreneurship and innovation project that will include masterclasses, professional training, and mentorship programs for health workers.
- Provision of special loan facilities and grants for Healthcare entrepreneurship through the central bank of Nigeria and the Bank of Industry.

- Create a business-enabling environment for medical entrepreneurs.
- Provide Tax-waivers for healthcare businesses.
- Encourage brain gain and brain circulation by enticing diaspora health workers to return and invest in healthcare.

CONCLUSION

The health workforce in Nigeria faces a massive brain drain precipitated by a multitude of push factors and the attractiveness of the pull factors from the destination countries. The state of the economy plays a vital role in health workers' brain drain. The current reality requires new paradigms to address this challenge away from the migration banning plans selectively aimed at health workers. Medical entrepreneurship engagement by health workers can play a vital role in health workers' retention, preventing brain drain, and encouraging brain gain and brain circulation. This will improve the ratio of health workers to patients, strengthen the health system, improve the healthcare indices and make Nigeria a medical tourism hotspot with the consequent employment boost and economic advantages.

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