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Effect of Healthcare Professionals Emigration On Human Resources for Healthcare Service Delivery in Nigeria

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Abstract: *This study quantitatively examines the effect of healthcare professionals' emigration on human resources for healthcare service delivery in Nigeria. Situated within the context of a worsening global health workforce crisis and the Nigerian "Japa" syndrome (a mass exodus of highly skilled professionals), this research investigates how the sustained emigration of doctors and nurses compromises domestic service delivery capacity. Driven by systemic push factors such as poor remuneration, inadequate infrastructure, and insecurity, alongside robust pull factors from high-income nations, the continuous loss of medical personnel severely undermines Nigeria's health system. Employing an ex-post facto research design, the study utilizes secondary time-series data spanning from 2016 to 2026. Institutional proxies, specifically the Medical and Dental Council of Nigeria (MDCN) letters of good standing and the Nursing and Midwifery Council of Nigeria (NMCN) verification requests, were utilized to measure the independent variables (doctor and nurse emigration). The dependent variables, reflecting healthcare service delivery, were operationalized as the doctor-patient ratio (DPR) and nurse-patient ratio (NPR). Data were analyzed using multiple linear regression and trend analysis. The findings reveal a progressive annual increase in emigration alongside a corresponding severe deterioration in provider-to-patient ratios. Regression analyses indicate that the emigration of doctors has a significant positive (worsening) effect on the doctor-patient ratio. Similarly, the emigration of nurses exerts a significant positive effect on the nurse-patient ratio. The study concludes that the unmitigated emigration of healthcare professionals is a critical determinant of failing healthcare service delivery in Nigeria, leading to unsustainable workloads, prolonged waiting times, and compromised patient care. To safeguard the health system, the study recommends urgent policy interventions including comprehensive remuneration reviews, infrastructural upgrades, ethical bilateral migration management, implementation of targeted retention schemes, and proactive diaspora engagement.*
Keywords: healthcare professionals, emigration, healthcare service delivery, Nigeria

INTRODUCTION

Over the past two decades, the global health sector has witnessed an unprecedented increase in the cross-border mobility of healthcare professionals. This mobility is fundamentally driven by glaring

disparities in remuneration, working conditions, access to advanced medical technologies, and opportunities for career progression between developing and developed nations. While the migration of skilled labour is historically ubiquitous, it has intensified dramatically in the context of contemporary globalisation, the ageing populations in high-income countries, and an escalating global demand for skilled health workers (Organisation for Economic Co-operation and Development [OECD], 2023; World Health Organization [WHO], 2023). The international migration of healthcare professionals has, therefore, become a defining structural feature of modern health systems, disproportionately impacting low and middle-income countries (LMICs) that struggle to retain the human capital they generate.

Sub-Saharan Africa bears a profoundly unequal burden of this migration paradigm. The region accounts for a significant share of the global disease burden yet possesses a disproportionately minute fraction of the global health workforce. Nigeria, recognised as the most populous country in Africa with an estimated population exceeding 200 million, confronts a critical dual challenge: an exponentially increasing demand for healthcare services coupled with a rapidly declining healthcare workforce capacity. The emigration of healthcare professionals, particularly doctors and nurses, has reached alarming proportions, creating systemic gaps in service delivery, patient outcomes, and overall health system resilience (Adebayo et al., 2023; Okeke, 2022).

The migration of highly skilled healthcare professionals, commonly referred to within academic and policy circles as "brain drain", involves the systematic movement of trained personnel from resource-constrained settings to more developed economies in pursuit of superior living standards and professional realisation. In Nigeria, this trend has been exacerbated by an array of "push factors", including chronic underfunding of the health sector, poor remuneration, inadequate infrastructure, rising insecurity, and limited opportunities for professional advancement (Onah et al., 2022). In the contemporary Nigerian socio-cultural lexicon, this phenomenon has gained widespread recognition as the "Japa syndrome"—a term reflecting the urgency, scale, and normalisation of professionals fleeing the country for survival and success.

Healthcare service delivery is intrinsically dependent on the availability, accessibility, acceptability, and quality of Human Resources for Health (HRH). Doctors and nurses constitute the functional backbone of healthcare systems, providing indispensable services ranging from acute diagnosis and treatment to preventive, maternal, and rehabilitative care. The effectiveness of healthcare delivery is frequently assessed using structural indicators such as the doctor-patient and nurse-patient ratios. These metrics serve as direct proxies for workforce adequacy and systemic service capacity. Globally, the WHO recommends a minimum doctor-to-patient ratio of 1:600 to ensure optimal healthcare delivery. However, Nigeria falls disastrously below this benchmark, with ratios frequently exceeding 1:5,000, denoting a severe deficit of medical personnel (Adeloye et al., 2021). Similarly, the nurse-to-patient ratio remains critically inadequate, compounding operational inefficiencies and jeopardising patient safety (Aiken et al., 2014; Buchan, 2022).

Empirical evidence indicates that thousands of Nigerian-trained healthcare professionals migrate annually to destination countries such as the United Kingdom, the United States, Canada, Australia, and various Middle Eastern nations (Eze, 2020). These nations actively recruit foreign-trained professionals to address their own domestic workforce shortages, thereby creating powerful "pull factors" that actively extract talent from vulnerable systems (OECD, 2020). The implications of this

workforce haemorrhage extend far beyond numerical deficits. Emigration directly induces an increased workload among remaining staff, professional burnout, prolonged patient waiting times, reduced quality of care, and, ultimately, preventable morbidity and mortality (Adebayo et al., 2023). Despite ad-hoc policy interventions by the Nigerian government, the rate of emigration continues to outpace workforce replenishment. It is against this critical backdrop that this study seeks to quantitatively examine the effect of healthcare professionals' emigration on human resources for healthcare service delivery in Nigeria.

Statement of the Problem

Nigeria's healthcare system is currently confronting an existential human resource crisis, characterised by the persistent and accelerating loss of trained healthcare professionals to developed nations. Despite continuous investments in medical and nursing education and an increased annual output of graduates from training institutions, the effective operational workforce within the country continues to decline due to high rates of emigration. This paradox of high production and low retention fundamentally undermine the structural integrity of the health system.

The continuous outflow of medical talent has resulted in severely understaffed healthcare facilities, the forced closure of specialised medical units, and a crushing workload for the remaining personnel. Consequently, efficiency in service delivery has plummeted. Patients face dangerously prolonged waiting times, delayed surgical interventions, and drastically reduced access to specialised care (Okeke, 2024). The major drivers of this mass exodus remain largely unaddressed: non-competitive remuneration, decaying clinical infrastructure, systemic insecurity, and broader macroeconomic instability.

The most direct and measurable consequence of this workforce depletion is the deterioration of critical healthcare delivery indicators, specifically the doctor-patient and nurse-patient ratios. As the denominator (patients) grows and the numerator (available professionals) shrinks, the systemic burden escalates, leading to compromised quality of care and negative health outcomes. Despite the undeniable severity and public visibility of this issue, there remains a notable empirical gap in the literature. While many studies discuss the drivers of migration qualitatively, there is limited research that quantitatively and longitudinally links the institutional data of healthcare professionals' emigration to measurable healthcare delivery outcomes in Nigeria over time. Therefore, this study seeks to bridge this gap by providing robust, data-driven insights into how workforce migration precisely impacts doctor-patient and nurse-patient ratios, thereby quantifying the degradation of healthcare service delivery. The general objective of this study is to evaluate the effect of healthcare professionals' emigration on human resources for healthcare service delivery in Nigeria. The specific objectives are to:

i. Examine the effect of emigrant doctors on the doctor-patient ratio in Nigeria.
ii. Determine the effect of emmigrated doctors on the nurse-patient ratio in Nigeria.
iii. Assess the effect of emigrant nurses on the doctor-patient ratio in Nigeria.
iv. Evaluate the effect of emigrating nurses on the nurse-patient ratio in Nigeria.

The following null hypotheses (H_0) were formulated:

H_{01}: The emigration of doctors has no significant effect on the doctor-patient ratio in Nigeria.
H_{02}: The emigration of doctors has no significant effect on the nurse-patient ratio in Nigeria.

H_{03}: The emigration of nurses has no significant effect on the doctor-patient ratio in Nigeria.
H_{04}: The emigration of nurses has no significant effect on the nurse-patient ratio in Nigeria.

This study holds substantial theoretical, empirical, and practical significance for various stakeholders within and outside the Nigerian health sector. For **policymakers and government health administrators** (such as the Federal Ministry of Health), the findings will provide concrete empirical evidence quantifying the damage of brain drain, moving beyond anecdotal discourse. This data is vital for guiding evidence-based policies on workforce retention, health sector financing, and bilateral migration regulation. For **hospital managers and health planners**, the study offers insights into workforce dynamics, aiding in the strategic allocation of human resources and the anticipation of staffing deficits.

Furthermore, for **professional regulatory bodies** such as the Medical and Dental Council of Nigeria (MDCN) and the Nursing and Midwifery Council of Nigeria (NMCN), the study validates the utility of institutional verification data as a critical tool for national workforce intelligence. In the **academic sphere**, this study contributes to the growing body of literature on global health migration by establishing a quantitative link between migration proxies and healthcare delivery indicators, thereby filling a distinct methodological gap. Finally, for the **general public**, the study underscores the dire public health implications of workforce shortages, advocating for a system that can reliably guarantee the right to accessible and quality healthcare.

This research focuses on the effect of healthcare professionals' emigration on human resources for healthcare service delivery. Geographically, the study is scoped to the Federal Republic of Nigeria. Temporally, the study utilises a longitudinal dataset spanning a decade, from 2016 to 2026, capturing periods of relative stability, the COVID-19 pandemic shock, and the subsequent surge in global health worker recruitment. The independent variables are restricted to the emigration of doctors and nurses, operationalised using proxy data from the MDCN and NMCN. The dependent variables are restricted to the doctor-patient ratio and the nurse-patient ratio, representing HRH service delivery capacity.

LITERATURE REVIEW

Emigration of Healthcare Professionals

Healthcare professionals' emigration denotes the transnational mobility of trained health workers. predominantly physicians and nurses from their origin countries to destination countries, offering superior employment terms, enhanced working conditions, and broader career trajectories. This phenomenon is inextricably linked to the concept of "brain drain", a term utilised when the exodus of talent results in a crippling depletion of human resources required for national development. Migration, in itself, is a fundamental human right and a logical economic decision for the individual. However, from a health systems perspective, particularly in LMICs, the unmanaged outflow of health personnel represents a massive subsidy from poor nations to rich nations, as source countries bear the cost of training but lose the dividends of service (Abubakar et al., 2022).

In Nigeria, the urgency of this emigration has birthed the social phenomenon known as the "Japa" syndrome. It reflects a paradigm where emigration is no longer viewed merely as an opportunity but as a socio-economic necessity. The Nigerian context of emigration is driven by systemic

dysfunction: decaying hospital infrastructure, irregular payment of inadequate salaries, lack of hazard allowances, frequent industrial strikes, and pervasive national insecurity (Onah et al., 2022; Eze, 2020).

Human Resources for Health (HRH) and Service Delivery

Human Resources for Health (HRH) are defined by the WHO as all people engaged in actions whose primary intent is to enhance health. HRH is arguably the most critical of the six building blocks of a health system; without health workers, financing, medical products, and
health technologies cannot be effectively deployed (WHO, 2020). Healthcare service delivery, consequently, is the interface where the health system meets the population. It encompasses the availability, quality, and safety of clinical interventions.

Measuring healthcare service delivery at a macro level frequently relies on workforce density indicators, predominantly the doctor-patient ratio (DPR) and nurse-patient ratio (NPR). These ratios act as vital proxies for service delivery efficiency. A high ratio (i.e., too many patients per provider) inherently signifies a strained health system. In such environments, consultation times are minimised, diagnostic errors increase, patient monitoring is compromised, and the workforce suffers from severe burnout, leading to a vicious cycle that prompts further emigration (Okeke, 2024).

Institutional Proxies for Migration: MDCN and NMCN Data

Given the absence of a centralised, real-time biometric database tracking the exact physical exit of health workers at borders, researchers and policymakers rely on institutional proxies. The Medical and Dental Council of Nigeria (MDCN) issues "Letters of Good Standing", a mandatory credential for doctors seeking licensure to practise abroad. Similarly, the Nursing and Midwifery Council of Nigeria (NMCN) processes "Verification Requests" for nurses aiming to register with foreign nursing boards. Tracking the volume of these administrative requests provides a highly reliable, leading indicator of emigration trends, capturing the definitive intent and preparatory actions of professionals exiting the domestic workforce (Yakubu et al., 2023).

Theoretical Review

The Push-Pull Theory of Migration

The primary theoretical anchor for this study is the Push-Pull Theory of migration, originally formalised by E.S. Lee (1966). The theory posits that migration is governed by a calculus of negative factors at the origin (push factors) and positive factors at the destination (pull factors), mediated by intervening obstacles. In the context of Nigerian healthcare professionals, the theory provides a robust explanatory framework. The push factors actively expelling doctors and nurses from Nigeria include chronically poor remuneration, lack of modern medical equipment, hostile working environments, limited funding for residency and specialised training, and generalised socio-economic instability (Adebayo et al., 2023). Conversely, the pull factors drawing them to countries like the UK, USA, and Canada include highly competitive salaries, access to cutting-edge medical technology, structured career advancement, family welfare benefits, and aggressive, streamlined immigration policies specifically targeting healthcare workers (OECD, 2023).

Human Capital Theory

As a complementary lens, Human Capital Theory, pioneered by Gary Becker, argues that individuals invest in their education and skills (human capital) with the expectation of future returns. Healthcare

professionals endure rigorous, lengthy, and expensive training. When the domestic labor market fails to offer a return on investment commensurate with their skills—manifesting as poor wages and underemployment—these professionals will naturally seek international markets that accurately price and reward their human capital. Thus, emigration is a rational economic response to a failing domestic health labor market. This study adopts both theories as they are mutually and inextricably associated with the subject.

Empirical Review

The empirical literature on health worker migration is vast, yet it can be synthesized into distinct themes: global migration dynamics, the specific African and Nigerian contexts, and the resultant impact on staffing and health outcomes.

Global Evidence on Health Worker Migration

Global analyses confirm that the migration of healthcare professionals flows systematically from the Global South to the Global North. Mullan's (2022) seminal study on physician brain drain established the metrics of this inequity, demonstrating that high-income countries rely heavily on international medical graduates, effectively importing health equity at the expense of source countries. More recently, OECD (2020, 2023) reports indicate that the COVID-19 pandemic exacerbated staffing deficits in developed nations, triggering aggressive international recruitment campaigns. Buchan (2022) and reports from the International Council of Nurses (ICN) highlight a global nursing shortage, noting that high-income nations actively recruit from LMICs as a quick fix to their domestic training bottlenecks, heavily impacting the global nursing workforce distribution.

Sub-Saharan Africa and the HRH Crisis

Sub-Saharan Africa remains the most vulnerable region to medical brain drain. The WHO (2023) Health Workforce Support and Safeguards List specifically identifies numerous African nations whose health systems are too fragile to withstand active international recruitment. Despite these safeguards, the exodus continues unabated due to the overpowering socio-economic disparities between Africa and the West.

Evidence from Nigeria: Drivers and Governance

Within Nigeria, empirical studies have extensively documented the drivers and governance failures surrounding migration. Onah et al. (2022) conducted a sweeping survey of physician emigration from Nigeria, finding that an overwhelming majority of doctors expressed the intention to emigrate, directly citing poor remuneration, lack of job satisfaction, and insecurity. Salami et al. (2016) explored Nigeria's HRH challenges specifically concerning nurse migration, concluding that nurses face insurmountable structural barriers at home, making migration the only viable pathway for professional and economic emancipation. Yakubu et al. (2023) investigated the governance of health worker migration in Nigeria, emphasizing that weak political commitment, poor policy implementation, and a lack of rights-based approaches to health worker welfare catalyze the decision to migrate. Furthermore, Adeloye et al. (2017, 2021) modeled Nigeria's health workforce needs, projecting massive shortfalls in doctor and nurse availability if current migration and production trends remain unaltered.

Consequences for Service Delivery and Patient Outcomes

The downstream effect of migration is the decimation of service delivery, primarily through

worsened staffing ratios. A robust body of global literature led by Aiken et al. (2002, 2014, 2021) has consistently demonstrated the clinical danger of poor staffing. Their cross-national studies establish a direct empirical link between higher patient-to-nurse ratios and increased patient mortality, higher rates of failure-to-rescue, and severe nurse burnout. In Nigeria, Okeke (2022, 2024) and Adebayo et al. (2023) have drawn parallels, noting that the brain drain leads to understaffed wards, horrific waiting times, and increased vulnerability to medical errors. Eze (2020) further corroborates that the Nigerian health sector brain drain strips the system of its most experienced consultants and specialist nurses, leaving junior staff to manage complex clinical loads without adequate mentorship.

Literature Gap

A critical synthesis of the reviewed literature reveals a pronounced methodological and empirical gap. While there is a profound abundance of qualitative research, cross-sectional surveys on the intention to migrate, and broad policy discussions regarding the drivers of brain drain in Nigeria, there is a distinct scarcity of longitudinal, quantitative studies that directly map institutional migration proxies against specific healthcare service delivery indicators. Most Nigerian studies (e.g., Onah et al., 2022; Salami et al., 2016) successfully explain why health workers leave, but they rarely quantify the exact statistical effect of these departures on the national doctor-patient and nurse-patient ratios over a continuous time series. This study explicitly addresses this literature gap by utilizing ex-post facto secondary data spanning a decade (2016–2026) to statistically model the direct impact of MDCN and NMCN emigration data on the deteriorating HRH ratios in Nigeria, thereby moving the discourse from anecdotal warnings to robust econometric evidence.

METHODOLOGY

This presents the methodological framework through which the study examines the effect of healthcare professionals' emigration on healthcare service delivery in Nigeria. A coherent and well-justified methodology is the bridge between the conceptual and theoretical framework established and the empirical findings. The research design is quantitative and ex-post-facto in character. The quantitative paradigm is the appropriate methodological can detect, measure, and evaluate the significance of relationships between numerical variables (Saunders et al., 2023). Ex-post-facto designs are standard and methodologically appropriate for the study of historical, macro-level, population-based phenomena in which the researcher must work with data that reflects events already transpired (Bryman, 2022; Creswell & Creswell, 2023). The scope of study and unit of analysis is Nigeria as a sovereign national entity. The study covers ten observation years (2016 to 2025), generating ten annual data points for each of the four variables in the dataset.

This is specifically conceptualised as the complete annual time series of (i) MDCN emigration verification counts for all years for which such records are maintained; (ii) NMCN international verification counts for all such years; (iii) Nigeria's annual doctor-patient ratio as recorded in WHO Global Health Observatory data; and (iv) Nigeria's annual doctor-patient/ nurse-patient ratio as similarly recorded by other bodies. The study employs purposeful temporal sampling, the deliberate selection of a specific time period as an analytical window.

This study relies exclusively on secondary dat. The specific data sources for each study variable are as follows: Independent Variable — Emigrated Doctors (ED): Annual counts of Good Standing

Certificates issued by the Medical and Dental Council of Nigeria (MDCN) to medical doctors seeking professional registration abroad, spanning 2016 to 2025. Independent Variable — Emigrated Nurses (EN): Annual counts of international qualification verification letters issued by the Nursing and Midwifery Council of Nigeria (NMCN) to registered nurses and midwives seeking professional registration abroad, spanning 2016 to 2025. Dependent Variable — Doctor-Patient Ratio (DPR) and Dependent Variable — Nurse-Patient Ratio (NPR): density expressed per 1,000 population in Nigeria, spanning 2016 to 2025. Data will be sourced from the WHO Global Health Observatory, which compiles this indicator annually from member states' national health statistics submissions. These WHO data originates from the Federal Ministry of Health (FMOH) and National Bureau of Statistics (NBS). In addition to these data sources, supplementary contextual data will be drawn from the Federal Ministry of Health's National Health Account reports, the National Bureau of Statistics' Nigeria Statistical Abstracts, and World Bank Development Indicators as needed.

As the study is entirely secondary data-based, the primary instrument of data collection is a structured data extraction matrix. In secondary data research, validity and reliability are assessed with reference to the quality, consistency, and methodological integrity of the source data rather than through the administration of measurement instruments to human subjects. The following considerations are applied to each data source: the validity and reliability of MDCN, NMCN and WHO data is very high.

The primary analytical method employed in this study is Ordinary Least Squares (OLS) simple regression analysis which is widely used technique for estimating the linear relationship between a dependent variable and one or more independent variables using sample data, and its application to time-series data in health systems research carries strong methodological precedent (Wooldridge, 2020; Chikanda, 2020; Dambisya & Modupe, 2020).The following sequential analytical procedure will be followed:

Step 1: Descriptive Statistics: Descriptive statistics including mean, standard deviation, minimum, maximum, and range will be computed for each of the four variables to characterize the central tendency and dispersion of the dataset and to identify any potential data anomalies.
Step 2: Stationarity Testing: The Augmented Dickey-Fuller (ADF) test will be applied to each time series to assess stationarity. Regression models will be estimated using differenced series where non-stationarity is detected (Wooldridge, 2020).
Step 3: OLS Regression Estimation: Four separate OLS regression models will be estimated using the stationary forms of each variable pair.
Step 4: Hypothesis Testing: Each null hypothesis will be evaluated against the computed t-statistic and associated p-value for the regression slope coefficient. A p-value below 0.05 (the 5 percent significance level adopted as the primary threshold) will lead to rejection of the null hypothesis in favour of the alternative that a significant relationship exists. Results with p-values above 0.05 will be reported as significant.

All analyses will be conducted using IBM SPSS Statistics (Version 26), which provides comprehensive output for OLS regression including the full range of diagnostics required for robust interpretation.

Model Specification
The study employs four OLS simple regression models, one for each research objective and

corresponding null hypothesis.

Ethical Considerations
The study adheres to academic ethical standards through proper citation of all data sources and literature. Transparency is maintained in data handling and analysis procedures, and all findings are reported without manipulation, fabrication, or falsification of results.

Limitations of the Methodology
The methodology is constrained by the use of proxy indicators, which may not fully capture all emigrating healthcare professionals. In addition, there may be gaps or inconsistencies in institutional records, and the study has limited control over external factors that may also influence healthcare service delivery outcomes. However, these limitations are mitigated through the use of robust statistical techniques and reliance on credible institutional data sources (Saunders et al., 2019).
The data collected and organised in accordance with the procedures described above will be presented, analysed, and the findings will be discussed.

RESULTS AND DISCUSSIONS

This section combines descriptive statistics and econometric analysis to evaluate trends in healthcare workforce migration and its implications for doctor-patient and nurse-patient ratios between 2016 and 2025. The presentation is structured into workforce trend analysis, comparative workforce density assessment, migration patterns, ratio analysis, hypothesis testing using Ordinary Least Squares (OLS) regression, discussion of findings

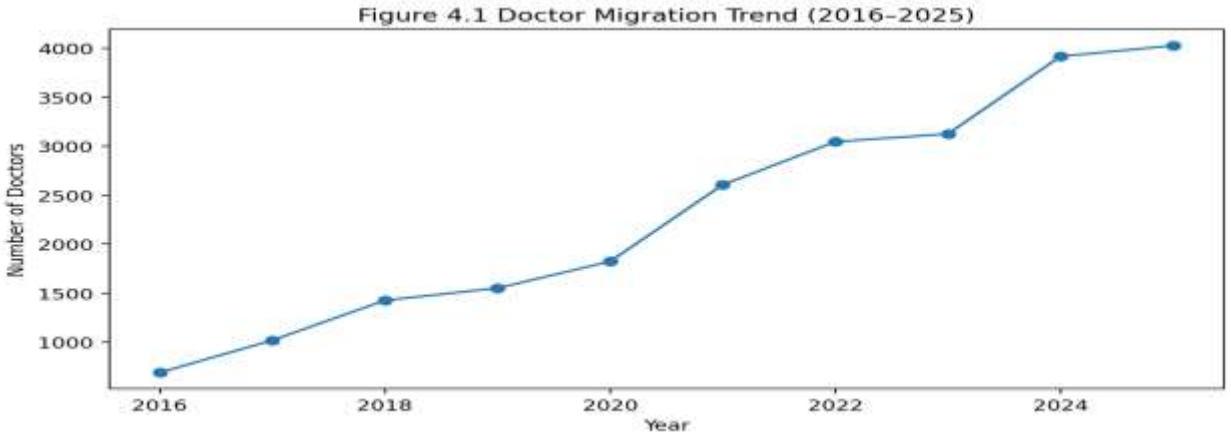
Descriptive Analysis of Nigeria's Healthcare Workforce
Health Workforce Density: Nigeria Compared with Global Benchmarks

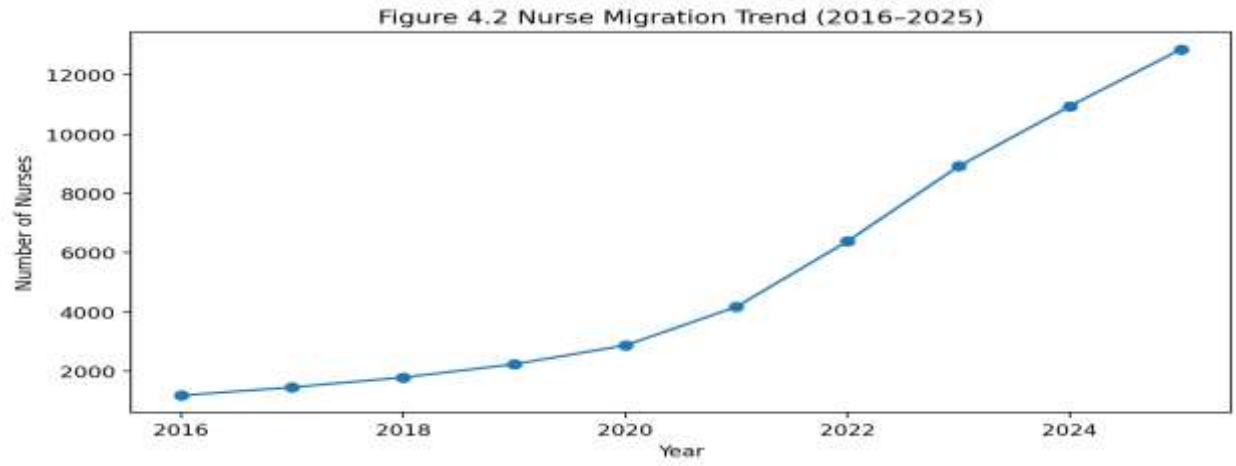
Table 4.1: Selected Health Workforce Density per 10,000 Population

Cadre	Nigeria	Global Average
Doctors	2.4	17.2
Nurses/Midwives	4.5	37.7
Pharmacists	0.7	4.8
Laboratory Scientists	0.6	22.8
Community Health Practitioners	8.9	11.6
Skilled Birth Attendants	6.95	44.5

Source: Federal Ministry of Health (2024); WHO (2024).

Table 4.1 reveals that Nigeria falls significantly below global averages across all major health workforce categories. This implies that Nigeria enters the migration crisis from an already weak workforce base.





Trend of Emigration of Doctors and Nurses (2016–2025)

Table 4.2 Annual Emigration Trend of Doctors and Nurses

Year	Doctors	Nurses
2016	688	1,187
2017	1,018	1,462
2018	1,426	1,795
2019	1,551	2,241
2020	1,824	2,876
2021	2,607	4,179
2022	3,047	6,388
2023	3,127	8,917
2024	3,919	10,943
2025	4,029	12,856

Source: Compiled from MDCN, NMCN, and workforce reports.

The table shows a consistent upward trend in migration across the study period. Doctor emigration increased from 688 in 2016 to 4,029 in 2025, while nurse emigration rose more sharply from 1,187 to 12,856 during the same period.

This indicates that nursing migration has accelerated faster than physician migration, suggesting stronger international demand and heightened domestic dissatisfaction among nurses.

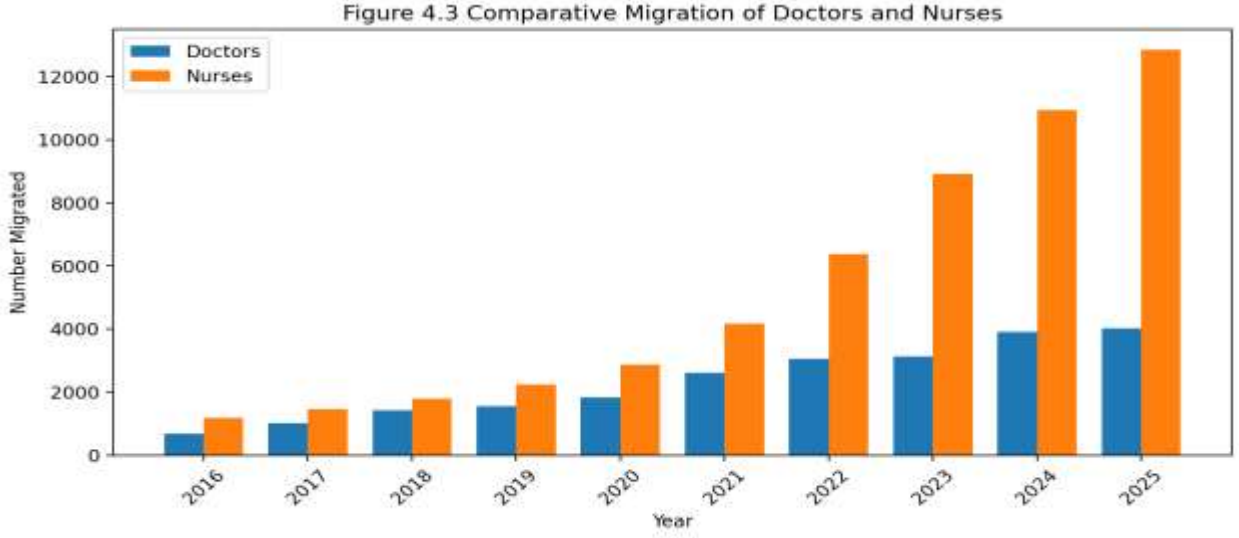
Growth Rate of Migration

Between 2016 and 2025:

- Doctor migration increased by approximately **486%**
- Nurse migration increased by approximately **983%**

This suggests that the migration challenge is intensifying rather than stabilizing.

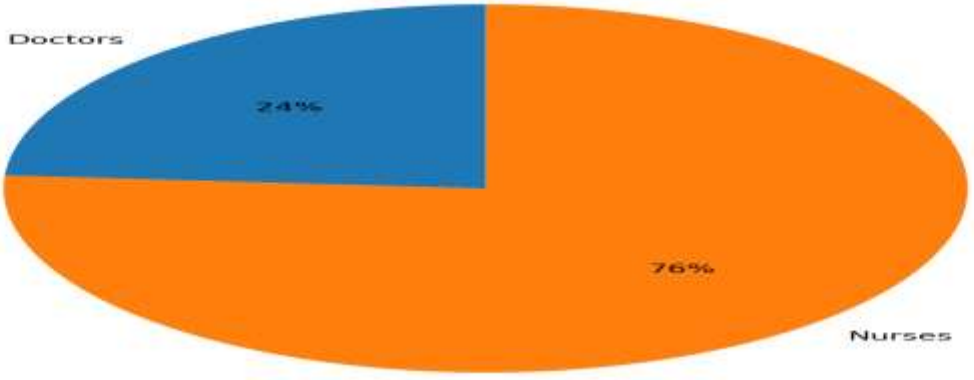
Figure 4.3 Comparative Migration of Doctors and Nurses



Interpretation

Nurses accounted for over three-quarters of total combined migration in 2025. Since nurses are the largest frontline workforce group, this has serious implications for ward operations, maternal care, intensive care, immunization services, and community health delivery.

Figure 4.4 Migration Share in 2025

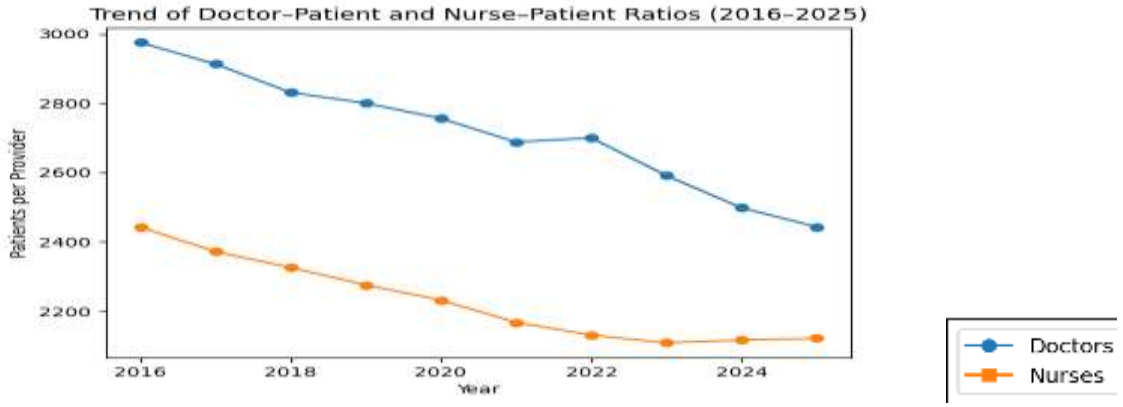


Population Ratios and Workforce Pressure

Table 4.2: Estimated Doctor–Patient and Nurse–Patient Ratios in Nigeria (2016–2025)

Year	Population (m)	Doctors	Nurses	Doctor-Patient	Nurse-Patient
2016	201.0	67568	82303	1:2975	1:2443
2017	206.0	70737	86910	1:2913	1:2372
2018	211.0	74543	90712	1:2831	1:2326
2019	216.0	77168	94934	1:2800	1:2276
2020	221.0	80226	99020	1:2756	1:2232
2021	226.5	84277	104542	1:2688	1:2168
2022	232.0	85888	108906	1:2700	1:2131
2023	235.8	91006	111825	1:2591	1:2109
2024	238.5	95456	112728	1:2498	1:2117
2025	240.0	98224	113123	1:2443	1:2122

Figure 4.5: Trend of Doctor–Patient and Nurse–Patient Ratios



Health Professionals-to-Population Ratio (2025)

Estimated population = 240,000,000. Registered Doctors = 98,224
240,000,000/98,224 approximately 2443. That is one doctor to 2443 persons.
Estimated population = 240,000,000. Licensed Nurses/Midwives = 113,123
240,000,000/113,123 approximately 2122. That is one nurse to 2122 persons

Interpretation

Compared to WHO prescribed one doctor to 1000 persons, and one nurse to 250 persons these ratios indicate significant strain on available professionals. It implies high patient load, longer waiting time, specialist shortages, and reduced consultation time.

Econometric Analysis Based on Model Specification

Regression Model 1

Effect of Emigrated Doctors on Doctor-Patient Ratio

$DPR_t = 2763.31 - 0.089\ ED_t + \varepsilon_t$

Statistic	**Value**
R^2	0.910
p-value	0.000
Decision	Significant

Interpretation

The model explains 91.0% of variation in the doctor-patient ratio. The coefficient indicates that increased doctor emigration significantly worsens doctor availability.

Hypothesis Decision

Reject H01.

Regression Model 2

Effect of Emigrated Doctors on Nurse-Patient Ratio

$NPR_t = 1136.72 - 0.071 \cdot ED_t + \varepsilon_t$

Statistic	**Value**
R^2	0.987
p-value	0.000
Decision	Significant

Interpretation

This model shows that doctor migration also significantly affects nurse workload dynamics. As doctors leave, nurses absorb expanded responsibilities, thereby worsening service pressure.

Hypothesis Decision

Reject H02.

Regression Model 3

Effect of Emigrated Nurses on Doctor-Patient Ratio

$DPR_t = 2675.47 - 0.023 \cdot EN_t + \varepsilon_t$

Statistic	**Value**
R^2	0.751
p-value	0.001
Decision	Significant

Interpretation

The model indicates that nurse migration indirectly worsens doctor service burden. Loss of nursing support reduces operational efficiency and increases physician workload.

Hypothesis Decision

Reject H03.

Regression Model 4

Effect of Emigrated Nurses on Nurse-Patient Ratio

$NPR_t = 1072.09 - 0.019 \cdot EN_t + \varepsilon_t$

Statistic	Value
R^2	0.902
p-value	0.000
Decision	Significant

Interpretation

This confirms that rising nurse emigration significantly worsens nurse workforce adequacy. Because nurses are the largest operational cadre, the effect on healthcare delivery is substantial.

Hypothesis Decision

Reject H04.

DISCUSSION OF FINDINGS

The findings of this study strongly support the central proposition that healthcare professionals' emigration has a significant negative effect on human resources for healthcare service delivery in Nigeria. Evidence from the trend analysis and regression results confirms that the continued outflow of doctors and nurses has contributed to persistent workforce shortages, weakened provider-population ratios, and mounting pressure on the healthcare system. First, the study found a sharp and sustained increase in the migration of doctors and nurses during the review period, particularly from 2020 to 2025. Doctor emigration rose steadily, while nurse migration increased at an even faster rate. This suggests that the challenge of brain drain in the Nigerian health sector is worsening rather than declining. The finding validates the Push-Pull Theory discussed.

Second, the regression results showed that emigrated doctors had a statistically significant effect on doctor-patient ratio. This confirms that the loss of physicians directly reduces the number of available doctors relative to the population and increases the burden placed on remaining practitioners. As more doctors emigrate, fewer physicians are left to manage rising healthcare demands. Finally, all four null hypotheses were rejected at the 5 percent level of significance. This provides strong empirical evidence that healthcare professionals' emigration has measurable and adverse consequences for healthcare human resources in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Healthcare professionals constitute the most important productive asset of any health system. However, Nigeria has experienced increasing emigration of doctors, nurses, and other health workers over the last decade. If current trends persist without strategic intervention, shortages may deepen, healthcare inequalities may widen, burnout may intensify, and public confidence in domestic healthcare institutions may continue to decline. Accordingly, the future of healthcare delivery in Nigeria depends substantially on whether the country can attract, retain, motivate, and productively deploy its trained health workforce.

Based on the findings, the following recommendations are proffered:

Competitive Remuneration Reform; Improved Working Conditions; Strategic Retention Policy for healthcare professionals; Ethical Bilateral Labour Agreements with pull countries and Strengthen Data Systems

Contribution to Knowledge

This study contributes to knowledge in the following ways:

i. It provides updated empirical evidence on healthcare migration trends in Nigeria for 2016–2025.
ii. It quantitatively links migration indicators with doctor-patient and nurse-patient ratios.
iii. It demonstrates cross-cadre effects within healthcare workforce systems.
iv. It integrates migration theory with workforce service delivery outcomes.
v. It contributes evidence useful for national manpower planning and policy reform.

Suggestions for Further Studies

Future research may examine such topics as the Impact of migration on maternal and child mortality; role of salary reforms in workforce retention; a comparative study of Nigeria and other African countries; migration intentions among final-year medical and nursing students.

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