

Human Resource Shortage and the Quest for Sustainable Healthcare Management Outcomes in Nigeria

Chekwume Anthony Okolie¹, Oluchukwu Gloria Ishiwu², Onyinyechukwu Joy Ezugwu³, Anene Jane Nwakaego⁴, Salisu Ojonemi Paul⁵, Aaron Adibe Agbo^{6*}

^{1,2,5} Department of Public Administration and Local Government, University of Nigeria, Nsukka, Nigeria.

³ Department of Religion and Cultural Studies, University of Nigeria, Nsukka, Nigeria.

⁴ Department of Marketing, University of Nigeria, Enugu Campus, Nigeria.

⁶ Department of Psychology, Faculty of the Social Sciences, University of Nigeria, Nsukka, Nigeria.

Author Emails

Chekwume Anthony Okolie — anthony.okolie@unn.edu.ng

Corresponding Author

Anene Jane Nwakaego

Department of Marketing, University of Nigeria, Enugu Campus, Nigeria.

Email: jane.anene@unn.edu.ng

Abstract

In Nigeria, the government's attitude towards the healthcare sector and its management is both provocative and suffocating. The direct implication is brain drain. The ripple effect is human resource shortage, which in turn makes sustainable healthcare management outcomes unrealistic. In this study, three tertiary hospitals were selected in South-East Nigeria, using a mixed-method case study design. A total of 8,238 individuals comprising patients and staff constituted the population. Quantitative data collected through close-ended questionnaires were analysed using descriptive statistics and Spearman's correlation test. The findings show that shortage of human resources in the healthcare sector in Nigeria is driven by a laissez-faire government attitude, which is a barrier to attaining lasting healthcare management efficiency. The study recommends, among others, that government take up its role in the healthcare industry, recognising that health is wealth. The study is anchored on Human Resource Management Theory.

Keywords human resource shortage, healthcare management, human resource, health, government.

Introduction

Development in any sphere of life is hinged on human resources. This is based on the empirical fact that humans develop before the society develops. A vehicle, after all, cannot move without tyres; in the same way, human resources are a cardinal element of development. The overall development of a country revolves around the availability, quality, and utilisation of human resources. According to Okeme, Ibrahim, and Ogwu (2021), human capital plays an important role in driving rapid socio-economic development and ensuring efficient service delivery. The absence of human capital growth in any developmental process can bring about inefficiency and ineffectiveness in productivity and service delivery. Mwagbala (2023) posits that it is the human resources of a nation, rather than its capital or material resources that determine the nature, direction, and pace of its socio-economic development. It is therefore understandable that long-term economic growth cannot be achieved in any country without people possessing professional, technical, entrepreneurial, and managerial skills, alongside investment in the real sectors (Mba & Chike, 2022). This is why manpower, as the bedrock of effective service delivery and development, is emphasized in the UNDP's country classification system, which is rooted in the Human Development Index (United Nations Development Programme, 2024). Development of any country is therefore built upon the human capital that controls other factors of production for effective and efficient productivity.

From the above, it is clear that quality healthcare management outcomes in any nation depend on the professional expertise and availability of the medical workforce. The UN High-Level Commission on Health Employment and Economic Growth (2018) underlines the need for immediate investment in a robust health workforce and acknowledges the economic significance of the health industry as an effective strategy for job creation. To solve the global scarcity of health workers and guarantee equitable access to high-quality healthcare, it is imperative

that health workers have proper employment and working conditions (International Labour Organization, 2018). The primary function of healthcare is to provide comprehensive care to patients, including those in disadvantaged sections of society. It also facilitates patients' access to numerous social welfare and public health initiatives provided by relevant government agencies and organizations. Healthcare centres benefit communities by providing early, professional care to patients through preventive measures, chronic disease management, and the promotion of self-care.

Healthcare also provides increased accessibility to advanced healthcare systems for the community, leading to improved health outcomes and the prevention of delay (Ghassan & Jazayrly, 2023). The "triple aim" of healthcare services is to deliver well on patient experience, achieved outcomes, and value for money, while reducing health inequalities by ensuring full equity of accessibility for everyone in a given geographical area (Donald, Thomas, & John, 2008). Health-related indicators such as mortality, morbidity, and life expectancy have been used globally to assess population health. Nevertheless, most research has overlooked more nuanced and objective measures that capture the full complexity of an individual's health. The quality of healthcare services received by the patient, accessibility to health services, the number of health technicians, government health expenditure, coverage of community service centres, and the availability of qualified social workers are among the indicators of health service conditions emphasized by Denise and Daniel (2020).

Despite the indispensable role and availability of a healthcare workforce for the development and progress of health sectors in every nation, as noted so far, the Nigerian government has continued to drag its feet in setting a stage for robust healthcare policy administration. With a 31% rate, Nigeria is one of the top 13 African countries from which people wish to leave for Europe and other countries due to poverty and suffering. Many highly qualified workers from sub-Saharan Africa have moved to areas of plenty, leaving their home countries with a shortage of professionals, and the continent's progress has become stagnated as a result. An estimated 600 professionals left Nigeria annually on average between 2010 and 2016, almost half of whom went to Europe, followed by North America and other parts of Africa (World Health Organization, 2017).

A continuing concern in the government's health policy and management approach is that healthcare administrators are leaving in droves for other countries in search of greener pastures. This research therefore traces the government's handling of healthcare manpower development in Nigeria with a view to assessing its effects on health management outcomes in the health sector. It is anticipated that the findings will aid policy interventions capable of reversing this trend and revitalising Nigeria's healthcare sector. This is a quantitative study, guided by the research question: what is the relationship between healthcare administrators and sustainable healthcare management outcomes?

Literature Review

Human resource is the driver of every goal in an organization. As a result, anything that brings out the best in personnel should be kept on the front burner, since an organization without capable personnel, like a vehicle without tyres, cannot run. Human resource is the hub of every policy and sector; once human resource management goes wrong in an organization, crisis often follows.

Human resources represent the manpower or employees within an organization, who may be engaged in the short, medium, or long term, and who drive productivity. Any organization that enables the work satisfaction and self-actualisation of its human resource is more likely to achieve optimum performance and a satisfied workforce. When personnel management is given priority, there is room for individual, organizational, and social goals to be realised. In other words, human resource development and proper management is key to the peace and progress of any organization.

Having human resource is one thing; managing personnel's skills, talents, and abilities is another. Efficient and effective human resource management therefore requires human resource planning. According to Attannibi Alemika (2008), this planning represents the continuous assessment or projection of needed manpower in the future, developing plans to attract and retain employees, allocating employees to tasks, and providing training and motivation. Training needs analysis (TNA) must remain central to human resource planning. These principles apply directly to the healthcare sector in Nigeria; however, the preliminary survey results before the commencement of this research suggest that government attention to this sector has been limited, leaving the country without a fully satisfied healthcare workforce.

A nation's economic strength is intrinsically linked to the health of its population. Health is a fundamental citizen's right, and governments are responsible for the welfare of their citizens, including healthcare provision. Health's impact on social, economic, and physical environments necessitates its prioritisation. The World Health Organization (WHO), upon its establishment in 1948, defined health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity,” a definition proposed by Dr Andrija Stampar that emphasises the interconnection of physical, mental, and emotional well-being.

Scholars across various disciplines have offered diverse definitions of health. Shafreena and Ulrich (2013) define health as a relative state of physical, cognitive, social, and spiritual well-being that enables individuals to realise their full potential within their environment. Svalastog et al. (2017) conceptualise health as a dynamic process along a continuum, with optimal functioning at one end and illness leading to death at the other. Health encompasses emotional, mental, and physical well-being, and healthcare systems aim to maintain this state; good health is essential for stress management and longevity and requires proactive preservation. The WHO (1948, 1986) defines health as a state of complete well-being and a resource for daily life, emphasising physical capability and personal and social resources, and notes that health facilitates societal participation and gives life meaning and purpose.

Despite policy efforts, Nigeria's healthcare system faces challenges, as evidenced by its low ranking in the 2000 World Health Report. Rising mortality rates and high maternal mortality ratios necessitate urgent reform. Addressing these challenges requires increased funding, strengthened primary healthcare (PHC), mitigation of human resource shortage, and expanded health insurance coverage. The National Strategic Health Development Plan (2010–2015) and the Revised National Health Policy 2004 informed a new policy aimed at improving PHC, while the National Health Insurance Programme (2006) seeks to protect citizens from medical expenses and ensure equitable access. Health financing is crucial for universal health coverage (UHC), providing access to quality services and financial protection (World Health Report, 2010). UHC, a key component of the UN Sustainable Development Goals, aims to ensure access to quality healthcare without financial hardship, and effective health financing is essential for achieving it, particularly in sub-Saharan Africa.

Nigeria's healthcare system is governed, developed, and managed under a framework established by the National Health Act of 2014 and the National Health Policy of 2016, which establishes guidelines for providing healthcare services nationally. The 2016 National Health Policy acknowledged a significant shift in Nigeria's disease burden from communicable to non-communicable diseases, highlighting the importance of allied health professionals in policy development and implementation. The revised National Health Policy, enacted on 22 June 2016, aimed to achieve UHC by addressing the unfinished Millennium Development Goal (MDG) agenda, the Sustainable Development Goals (SDGs), emerging health issues, the National Health Act 2014, PHC governance reform, and UHC itself. UHC is founded on the principle that everyone should have unrestricted access to high-quality medical treatment, guaranteeing that individuals and communities can access essential healthcare services whenever and wherever needed, without financial hardship, across prevention, treatment, palliative care, rehabilitation, and health promotion.

UHC rests on the principle that everyone has a right to the highest attainable standard of health, a fundamental human right in which universality ensures that no one is left behind. Health systems therefore need a robust primary healthcare approach that emphasises equitable access to services; selective schemes for certain populations undermine equity, universality, and non-discrimination, leading to fragmented healthcare and inequitable resource allocation. At the policy level, health and healthcare must be recognised as public goods, ideally mandated by legislation or enshrined as a constitutional right. Achieving UHC is a target set by nations in the 2015 SDGs, and progress towards it also advances other health-related targets, since good health enables children and adolescents to learn and adults to earn, facilitating poverty reduction and long-term economic development.

Progress towards UHC also helps countries advance other targets, such as eradicating extreme poverty (SDG 1), improving educational outcomes (SDG 4), achieving gender equality (SDG 5), promoting economic growth (SDG 8), and establishing effective institutions (SDG 16). SDG 17 and its targets 17.1–17.5 emphasise strengthening financial resources, including international aid commitments, without which both the SDGs and UHC remain aspirational.

Despite all of the above, Nigeria still struggles to achieve sustainable healthcare management outcomes. Challenges include poor medical services, poor policy implementation, poor financing, and poor conditions of service, alongside leadership ineptitude, inadequate medical supplies, and deteriorating infrastructure. The implication is that Nigeria continues to fall short of the WHO's minimum standard for a solid, sustainable healthcare system. This research therefore examines human resource shortage in Nigeria's healthcare system to determine how it affects sustainable healthcare management outcomes.

Theoretical Framework

The theoretical framework of this study is anchored on Human Resource Management Theory. Human resource management is fundamental to the success of any country or organization, guiding individuals and teams towards achieving their goals and contributing to the overall mission. However, achieving optimal performance is not a uniform process; it involves a complex interplay of factors and theories. This study is anchored on both Vroom's (1964) Expectancy Theory and Maslow's Hierarchy of Needs Theory, both of which form part of the human resource management theories. A nation's progress is directly related to the quantity and quality of its human resources, and the two theories used in this study provide a foundational understanding of health sector performance in contemporary society.

Research Method

This research focuses on three selected tertiary healthcare institutions: the Federal Medical Centre, Owerri, Nigeria; Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria; and Federal University Teaching Hospital, Owerri, Nigeria. A mixed-method case study design was used, allowing for an in-depth exploration of the phenomenon within a specific and critical context. Quantitative data were collected from healthcare workers through close-ended questionnaires and analysed using descriptive statistics and Spearman's correlation test. The mean and standard deviation were used to measure the average score and variability of responses on the Likert scale. Statistical analysis for the study was conducted using IBM SPSS Statistics version 25.0. Documentary data, including books, magazines, newspapers, official documents, and government policies on healthcare challenges, were also used, and thematic analysis was applied to the qualitative data.

The population of this study was 8,238 individuals, with a breakdown presented in Table 1. The sample size for the study was 412 individuals, drawn using multi-stage stratified random sampling. Owing to the small size of the administrative directors' sub-population (15 individuals), a full enumeration was conducted for this group.

Table 1

Population and Sample of the Study

	Population	Sample (5%)
Federal University Teaching Hospital, Owerri, Imo State		
Health workers	312	16
Administrative directors	5	5
Patients	3428	171
Total	3745	192
Federal Medical Centre, Umuahia, Abia State		
Health workers	253	13
Administrative directors	5	5
Patients	2524	126
Total	2782	144

	Population	Sample (5%)
Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State		
Health workers	210	11
Administrative directors	5	5
Patients	1246	62
Total	1461	78
Migrant Health Workers		
United States of America	110	6
United Kingdom	80	4
Canada	60	3
Total	250	13
Grand Total	8,238	412

Note. Source: Federal Tertiary Hospitals (2024), Patient Registered Note (2024), and Asoya (2025). Due to the small size of the administrative directors' sub-population (15 individuals), a full enumeration was conducted. Data Presentation, Discussion, and Findings

Table 2**Location of the Federal Tertiary Hospitals of Respondents**

Location	Frequency	Percent
Ebonyi	11	27.5
Owerri	16	40.0
Umuahia	13	32.5
Total	40	100.0

Note. Source: Field Survey (2025).

Table 2 shows the location of the federal tertiary hospitals of respondents. Ebonyi respondents numbered 11 (27.5%), Owerri respondents numbered 16 (40.0%), while Umuahia respondents numbered 13 (32.5%).

Table 3**Position of the Respondents**

Position	Frequency	Percent
Anaesthetist	1	2.5
Auditor	1	2.5
Consultant urologist	1	2.5
Dentist	5	12.5
Doctor	9	22.5
House officer	1	2.5
Laboratory assistant	4	10.0

Position	Frequency	Percent
Laboratory scientist	1	2.5
Nurse	10	25.0
Paediatrician	4	10.0
Radiographer	2	5.0
Radiologist	1	2.5
Total	40	100.0

Note. Source: Field Survey (2025).

Table 3 shows that, out of 40 valid questionnaires returned, the anaesthetist, auditor, consultant urologist, house officer, laboratory scientist, and radiologist each accounted for 1 respondent (2.5%); dentists accounted for 5 (12.5%); doctors accounted for 9 (22.5%); laboratory assistants and paediatricians each accounted for 4 (10.0%); nurses accounted for 10 (25.0%); and radiographers accounted for 2 (5.0%).

Hypothesis One

H_0 : There is no significant relationship between healthcare professionals and accessibility of medical services in Federal Tertiary Hospitals in South-East Nigeria, 2015–2024.

The item-level responses relevant to this hypothesis are presented in Table 4, and the corresponding Spearman's rank correlation matrix is presented in Table 5.

Table 4

Responses, Mean, and Standard Deviation on the Impact of Healthcare Professional Shortage on Accessibility of Medical Services in South-East FTHs

	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)	Total n (%)	<i>M</i>	<i>SD</i>
1. Healthcare professional shortage has increased patients' waiting times for consultations at this FTH.	22 (55.0)	11 (27.5)	0 (0.0)	7 (17.5)	0 (0.0)	40 (100.0)	4.20	1.11
2. Healthcare professional shortages have made it increasingly difficult for patients to secure timely appointments.	17 (42.5)	16 (40.0)	1 (2.5)	6 (15.0)	0 (0.0)	40 (100.0)	4.10	1.03
3. Healthcare professional shortages have reduced the availability of outreach programmes, making it harder for patients in remote areas to access care.	24 (60.0)	9 (22.5)	0 (0.0)	7 (17.5)	0 (0.0)	40 (100.0)	4.25	1.13
4. Shortage of healthcare professionals has compromised the timely delivery of emergency medical services at this FTH.	17 (42.5)	19 (47.5)	0 (0.0)	4 (10.0)	0 (0.0)	40 (100.0)	4.23	0.89
5. Access to specialised medical care has become limited due to the shortage of specialists at this FTH.	24 (60.0)	12 (30.0)	0 (0.0)	4 (10.0)	0 (0.0)	40 (100.0)	4.40	0.93
6. Healthcare professional shortages have reduced the availability of medical services during after-hours and weekends at this FTH.	21 (52.5)	12 (30.0)	1 (2.5)	4 (10.0)	0 (0.0)	40 (100.0)	4.20	1.03

	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)	Total n (%)	<i>M</i>	<i>SD</i>
7. Healthcare professional shortages have disproportionately affected the accessibility of medical services for vulnerable populations (e.g., elderly, children, disabled).	23 (57.5)	13 (32.5)	1 (2.5)	3 (7.5)	0 (0.0)	40 (100.0)	4.40	0.87
8. Due to staffing shortages, more patients are being referred to other hospitals than previously.	15 (37.5)	16 (40.0)	5 (12.5)	4 (10.0)	0 (0.0)	40 (100.0)	4.05	0.96
9. Healthcare professional shortages have increased the frequency of cancelled patient appointments.	15 (37.5)	16 (40.0)	2 (5.0)	7 (17.5)	0 (0.0)	40 (100.0)	3.98	1.07

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; *M* = mean; *SD* = standard deviation. *n* = 40. Values in the SD (frequency) column above are 0 for all items in Table 4 except items 2, 6, 7, 8, and 9. Some item totals do not sum to exactly 40 (100.0%) in the source dataset; figures are reproduced here as reported.

Table 4 shows the respondents' responses to the questionnaire items addressing Hypothesis One. For item 1, 22 (55.0%) respondents strongly agreed and 11 (27.5%) agreed, while 7 (17.5%) disagreed that healthcare professional shortage has increased patients' waiting times; the mean score was 4.20 (*SD* = 1.11). For item 2, 17 (42.5%) strongly agreed, 16 (40.0%) agreed, 1 (2.5%) was neutral, and 6 (15.0%) disagreed that shortages have made it increasingly difficult for patients to secure timely appointments (*M* = 4.10, *SD* = 1.03). For item 3, 24 (60.0%) strongly agreed and 9 (22.5%) agreed, while 7 (17.5%) disagreed, that shortages have reduced the availability of outreach programmes (*M* = 4.25, *SD* = 1.13).

For item 4, 17 (42.5%) strongly agreed and 19 (47.5%) agreed, while 4 (10.0%) disagreed, that shortages have compromised the timely delivery of emergency medical services (*M* = 4.23, *SD* = 0.89). For item 5, 24 (60.0%) strongly agreed and 12 (30.0%) agreed, while 4 (10.0%) disagreed, that access to specialised care has become limited (*M* = 4.40, *SD* = 0.93). For item 6, 21 (52.5%) strongly agreed, 12 (30.0%) agreed, 1 (2.5%) was neutral, and 4 (10.0%) disagreed that shortages have reduced the availability of after-hours and weekend services (*M* = 4.20, *SD* = 1.03).

For item 7, 23 (57.5%) strongly agreed, 13 (32.5%) agreed, 1 (2.5%) was neutral, and 3 (7.5%) disagreed that shortages have disproportionately affected vulnerable populations (*M* = 4.40, *SD* = 0.87). For item 8, 15 (37.5%) strongly agreed, 16 (40.0%) agreed, 5 (12.5%) were neutral, and 4 (10.0%) disagreed that staffing shortages have increased referrals to other hospitals (*M* = 4.05, *SD* = 0.96). For item 9, 15 (37.5%) strongly agreed, 16 (40.0%) agreed, 2 (5.0%) were neutral, and 7 (17.5%) disagreed that shortages have increased the frequency of cancelled appointments (*M* = 3.98, *SD* = 1.07).

The item mean scores range from 3.98 to 4.40, indicating a general trend of agreement among respondents that healthcare professional shortage has affected accessibility of medical services in Federal Tertiary Hospitals in South-East Nigeria. These are, however, descriptive statistics only: means and standard deviations describe the pattern of responses but do not, on their own, constitute a test of the stated hypothesis. The decision on Hypothesis One is based instead on the inferential statistics presented in Table 5.

Table 5

Spearman's Rank Correlation Matrix for Item-Level Responses on Healthcare Professionals and Accessibility of Medical Services

	1	2	3	4	5	6	7	8	9
1. Item 1	1.00								
2. Item 2	.76**	1.00							
3. Item 3	.75**	.69**	1.00						
4. Item 4	.81**	.57**	.55**	1.00					
5. Item 5	.70**	.70**	.98**	.55**	1.00				
6. Item 6	.66**	.75**	.91**	.43**	.89**	1.00			
7. Item 7	.34*	.41**	.62**	.27	.72**	.51**	1.00		
8. Item 8	.84**	.71**	.81**	.60**	.80**	.68**	.68**	1.00	
9. Item 9	.56**	.40*	.82**	.58**	.79**	.69**	.63**	.74**	1.00

Note. Values are Spearman's rho. $n = 40$ for all coefficients. * $p < .05$. ** $p < .01$.

The coefficients in Table 5 are item-level (inter-item) Spearman correlations among the nine questionnaire items measuring the perceived impact of healthcare professional shortage on accessibility of medical services. They indicate the strength of association between individual items rather than a single overall relationship between two distinct composite constructs. A construct-level test of the hypothesis, as stated, would require composite (total) scores for two separate constructs; because the instrument used here measured a single construct through multiple items, and participant-level composite scores for a distinct “accessibility” construct were not separately collected, an overall construct-to-construct correlation coefficient is not manufactured here. Instead, the pattern of association among the item-level indicators is reported and used, cautiously, to inform the hypothesis decision below.

Correlations among the nine items were consistently positive and, with one exception, statistically significant at $p < .01$. The correlation between items 1 and 3 ($\rho = .75$, $p < .001$) and between items 1 and 4 ($\rho = .81$, $p < .001$) were very strong, as was the correlation between items 3 and 5 ($\rho = .98$, $p < .001$) and between items 3 and 6 ($\rho = .91$, $p < .001$). The correlation between items 1 and 8 ($\rho = .84$, $p < .001$) was likewise very strong. Moderate correlations were observed for pairs involving item 7, such as items 1 and 7 ($\rho = .34$, $p = .03$) and items 4 and 7, which did not reach significance ($\rho = .27$, $p = .09$). Overall, the consistently positive and, in most cases, very strong or strong item-level correlations indicate a coherent pattern of association among the indicators of perceived impact of healthcare professional shortage on accessibility of medical services.

Research Result: Based on the consistent pattern of statistically significant, predominantly strong to very strong positive item-level correlations reported in Table 5, the null hypothesis that there is no significant relationship between healthcare professionals and accessibility of medical services in Federal Tertiary Hospitals in South-East Nigeria, 2015–2024, is rejected. The alternate hypothesis, that a significant relationship exists, is accepted.

Hypothesis Two

H_0 : There is no significant relationship between the competence of healthcare personnel and patients' treatment outcomes in Federal Tertiary Hospitals in South-East Nigeria, 2015–2024.

The item-level responses relevant to this hypothesis are presented in Table 6, and the corresponding Spearman's rank correlation matrix is presented in Table 7.

Table 6

Responses, Mean, and Standard Deviation on the Effect of Competence of Healthcare Personnel on Patients' Treatment Outcomes in South-East FTHs

	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)	Total n (%)	<i>M</i>	<i>SD</i>
1. Inadequate clinical skills among some healthcare personnel have negatively impacted the overall quality of patient treatment outcomes at this FTH.	7 (17.5)	11 (27.5)	13 (32.5)	5 (12.5)	4 (10.0)	40 (100.0)	3.30	1.20
2. Availability of specialised treatments is limited due to insufficient qualified healthcare personnel at this FTH.	22 (55.0)	8 (20.0)	1 (2.5)	8 (20.0)	1 (2.5)	40 (100.0)	4.05	1.28
3. Delays or issues in patients' treatment were due to insufficient competence of staff.	11 (27.5)	19 (47.5)	3 (7.5)	6 (15.0)	1 (2.5)	40 (100.0)	3.83	1.08
4. Timeliness in attending to patients for treatment is a challenge at this FTH.	15 (37.5)	18 (45.0)	0 (0.0)	6 (15.0)	4 (10.0)	43 (107.5) ^a	4.00	1.11
5. Knowledge transfer and training of junior staff is a challenge at this FTH due to the migration of experienced personnel.	26 (65.0)	10 (25.0)	3 (7.5)	0 (0.0)	1 (2.5)	40 (100.0)	4.50	0.85
6. Teamwork and collaboration among healthcare professionals delays patients' treatment plans for recovery at this FTH.	19 (47.5)	14 (35.0)	6 (15.0)	0 (0.0)	1 (2.5)	40 (100.0)	4.25	0.90
7. Continuous learning among healthcare professionals is a challenge at this FTH and has resulted in a high maternal and infant morbidity rate.	16 (40.0)	n/r ^b (n/r)	6 (15.0)	6 (15.0)	1 (2.5)	40 (100.0)	3.88	1.18

Note. SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree; *M* = mean; *SD* = standard deviation. n = 40.

^a Reported frequencies for this item sum to 43 (107.5%) in the source dataset, exceeding the sample of 40; the figures are reproduced as originally recorded pending author verification.

^b The Agree frequency/percentage for this item was not recorded in the source dataset; it is marked “not reported” rather than assumed to be zero, since the remaining reported categories do not sum to 100%.

Table 6 shows the respondents' responses to the questionnaire items addressing Hypothesis Two. For item 1, 7 (17.5%) strongly agreed, 11 (27.5%) agreed, 13 (32.5%) were neutral, 5 (12.5%) disagreed, and 4 (10.0%) strongly disagreed that inadequate clinical skills have negatively affected treatment outcomes ($M = 3.30$, $SD = 1.20$). For item 2, 22 (55.0%) strongly agreed, 8 (20.0%) agreed, 1 (2.5%) was neutral, 8 (20.0%) disagreed, and 1 (2.5%) strongly disagreed that specialised treatment availability is limited by insufficient qualified personnel ($M = 4.05$, $SD = 1.28$). For item 3, 11 (27.5%) strongly agreed, 19 (47.5%) agreed, 3 (7.5%) were neutral, 6 (15.0%) disagreed, and 1 (2.5%) strongly disagreed that delays in treatment stemmed from insufficient staff competence ($M = 3.83$, $SD = 1.08$).

For item 4, 15 (37.5%) strongly agreed and 18 (45.0%) agreed, while 6 (15.0%) disagreed and 4 (10.0%) strongly disagreed, that timeliness in attending to patients is a challenge ($M = 4.00$, $SD = 1.11$); as noted in Table 6, the reported frequencies for this item exceed the sample size and are flagged for author verification. For item 5, 26

(65.0%) strongly agreed, 10 (25.0%) agreed, 3 (7.5%) were neutral, and 1 (2.5%) strongly disagreed that knowledge transfer to junior staff is hindered by the migration of experienced personnel ($M = 4.50$, $SD = 0.85$). For item 6, 19 (47.5%) strongly agreed, 14 (35.0%) agreed, 6 (15.0%) were neutral, and 1 (2.5%) strongly disagreed that teamwork and collaboration challenges delay treatment plans ($M = 4.25$, $SD = 0.90$). For item 7, 16 (40.0%) strongly agreed, 6 (15.0%) were neutral, 6 (15.0%) disagreed, and 1 (2.5%) strongly disagreed that continuous learning challenges have contributed to maternal and infant morbidity ($M = 3.88$, $SD = 1.18$); the Agree category for this item is not reported in the source data.

The item mean scores range from 3.30 to 4.50, indicating a general trend of agreement that the competence of healthcare personnel affects patients' treatment outcomes in Federal Tertiary Hospitals in South-East Nigeria. As with Hypothesis One, these means and standard deviations are descriptive statistics and are not, on their own, the basis for a hypothesis decision. The decision on Hypothesis Two rests on the inferential statistics presented in Table 7.

Table 7

Spearman's Rank Correlation Matrix for Item-Level Responses on Competence of Healthcare Personnel and Patients' Treatment Outcomes

	1	2	3	4	5	6	7
1. Item 1	1.00						
2. Item 2	.56**	1.00					
3. Item 3	.90**	.62**	1.00				
4. Item 4	.57**	.59**	.67**	1.00			
5. Item 5	.33*	.76**	.31	.30	1.00		
6. Item 6	.36*	.28	.40*	.50**	.38*	1.00	
7. Item 7	.74**	.66**	.88**	.80**	.34*	.59**	1.00

Note. Values are Spearman's rho. $n = 40$ for all coefficients. * $p < .05$. ** $p < .01$.

As with Table 5, the coefficients in Table 7 are item-level Spearman correlations among the seven items measuring the perceived effect of healthcare personnel competence on patients' treatment outcomes. They are not presented as a single definitive construct-level test of the relationship named in the hypothesis; a construct-level test would require composite scores for two separate constructs, which were not separately collected in this dataset, and no overall coefficient is manufactured here in their absence.

The correlation between item 1 and item 3 ($\rho = .90$, $p < .001$) was very strong, as was the correlation between item 3 and item 7 ($\rho = .88$, $p < .001$) and between item 4 and item 7 ($\rho = .80$, $p < .001$). The correlation between item 2 and item 5 ($\rho = .76$, $p < .001$) was also very strong. Moderate correlations were observed between item 1 and item 5 ($\rho = .33$, $p = .04$) and between item 1 and item 6 ($\rho = .36$, $p = .02$), while the correlation between item 3 and item 5 did not reach statistical significance ($\rho = .31$, $p = .05$). Overall, correlations among the seven items were predominantly positive and statistically significant, indicating a coherent pattern of association among the indicators of perceived competence-related effects on treatment outcomes.

Research Result: Based on the consistent pattern of statistically significant, predominantly moderate to very strong positive item-level correlations reported in Table 7, the null hypothesis that there is no significant relationship between the competence of healthcare personnel and patients' treatment outcomes in Federal Tertiary Hospitals in South-East Nigeria, 2015–2024, is rejected. The alternate hypothesis, that a significant relationship exists, is accepted.

Discussion of Responses from the Open-Ended Questionnaire for Health Workers Currently in the System

Responses reveal that approximately 673 health workers migrated from the hospitals under study between 2015 and 2024. Of the years examined, 2024 recorded the highest number of migrations, at 102 health workers, followed

by 2018 with 78, and 2019 with 76. The year 2021 ranked fourth, with approximately 75 health workers migrating, followed by 2020, 2015, 2022, 2023, 2017, and 2016, with 73, 70, 63, 52, 49, and 45 migrations respectively.

Table 8**Number of Migrated Staff by Year**

	<i>M</i>	N	<i>SD</i>
2015	5.00	12	2.45
2016	3.75	12	2.53
2017	4.08	12	1.98
2018	6.50	12	4.68
2019	6.33	12	6.71
2020	6.08	12	8.87
2021	6.25	12	4.20
2022	5.25	12	2.14
2023	4.33	12	2.77
2024	8.50	12	7.01
Total	5.61	120	4.91

Note. Source: SPSS 25.0. N represents 12 months per year.

Table 8 presents the mean number of healthcare professional migrations per year between 2015 and 2024. Overall, the mean number of migrations across the entire period was 5.61 ($SD = 4.91$), indicating moderate variability in migration numbers. The lowest average number of migrations was recorded in 2016 ($M = 3.75$, $SD = 2.53$), while the highest was recorded in 2024 ($M = 8.50$, $SD = 7.01$). While there are fluctuations from year to year, there is no clear linear trend of consistent increase or decrease, though the increase from 2023 to 2024 is notable. Variability across hospitals also differed by year: 2020 ($SD = 8.87$) and 2024 ($SD = 7.01$) showed the highest variability, while 2017 ($SD = 1.98$) showed the most consistency.

Table 9**Number of Migrated Staff by Hospital**

	<i>M</i>	N	<i>SD</i>
Federal Medical Centre, Umuahia	5.30	40	4.08
Federal University Teaching Hospital, Owerri	7.40	40	6.90
Alex Ekwueme Federal University Teaching Hospital, Abakaliki	4.13	40	1.90
Total	5.61	120	4.91

Note. Source: SPSS 25.0.

Table 9 presents the mean number of healthcare professional migrations for each Federal Tertiary Hospital. Federal University Teaching Hospital, Owerri, reported the highest mean number of migrations ($M = 7.40$, $SD = 6.90$), suggesting a higher average level of staff migration relative to the other hospitals, and also the greatest

variability. Alex Ekwueme Federal University Teaching Hospital reported the lowest mean number of migrations ($M = 4.13$, $SD = 1.90$) and the least variability. Federal Medical Centre, Umuahia, reported a mean number of migrations ($M = 5.30$, $SD = 4.08$) slightly below the overall average of 5.61 ($SD = 4.91$).

Table 10

Number of Migrated Staff by Position

	<i>M</i>	<i>N</i>	<i>SD</i>
Doctor	6.20	30	3.78
Nurse	8.93	30	7.54
Pharmacist	3.37	30	1.47
Medical laboratory technologist	3.93	30	2.39
Total	5.61	120	4.91

Note. Source: SPSS 25.0.

Table 10 presents the mean number of migrated staff by position. Nurses had the highest mean number of migrated staff ($M = 8.93$, $SD = 7.54$), with a very high standard deviation suggesting that the number of migrated nurses varied considerably across hospitals. Pharmacists had the lowest mean number of migrated staff ($M = 3.37$, $SD = 1.47$), with a low standard deviation indicating relative consistency across hospitals. The average number of migrated doctors ($M = 6.20$) was slightly above the overall mean of 5.61, while medical laboratory technologists ($M = 3.93$) were slightly below it.

Conclusion

Based on the empirical findings from healthcare professionals working within the system, this study concludes as follows:

Healthcare professional shortage represents a critical barrier to accessing medical services in Federal Tertiary Hospitals in South-East Nigeria, affecting multiple dimensions of patient care access.

The competence of healthcare personnel at these institutions significantly affects the quality of patient care and treatment outcomes, and the sustainability of the health workforce is compromised by hindered knowledge transfer and training.

Inadequate remuneration and poor working conditions, including deficient infrastructure, equipment, safety concerns, high workload, and limited development opportunities, are associated with diminished staff motivation, satisfaction, and overall medical service provision.

Shortages, incompetence, poor pay, and poor conditions are interconnected challenges that significantly undermine the capacity of Federal Tertiary Hospitals in South-East Nigeria to deliver effective, accessible, and high-quality healthcare services.

Recommendations

Following the findings of this research on human resource shortage, limited competence, and poor working conditions affecting healthcare service delivery in the Federal Tertiary Hospitals of South-East Nigeria from 2015 to 2024, the following recommendations are presented.

Strengthening Local Capacity through Strategic Investment in Medical Education

In light of the continuing human resource shortage and its impact on healthcare delivery in Nigeria, it is recommended that medical education reform be institutionalised through federal and state collaboration mirroring recent national efforts. The recent approval of a N110 billion grant for 18 universities, targeted at improving simulation laboratories, hostels, and enrolment in medical sciences, provides a valuable template for scaling educational capacity and enhancing clinical training. To maximise the impact of this investment, the following measures are recommended:

Establish a national medical talent development framework ensuring that simulation facilities are embedded in both urban and rural teaching hospitals to reduce geographic disparity.

Link medical school funding to graduate retention policies, including bonding contracts, incentivised rural postings, and postgraduate specialisation slots.

Create public–private partnerships to ensure continuous upgrading of training infrastructure beyond initial government funding.

Ensure each university's medical faculty has access to digital health education platforms to connect students with global best practices.

By combining financial investment with systematic human capital reforms, Nigeria can begin to reverse the effects of healthcare worker migration and strengthen access to quality care in tertiary health institutions, especially in underserved regions such as South-East Nigeria.

Introduction of a Competence-Linked Clinical Credentialing and Performance Network

This recommendation draws on practices in countries such as Singapore and Israel, where continuous skill upgrading and peer-reviewed performance inform a healthcare professional's status and mobility. In Nigeria, such a system could support a national performance dashboard that tracks and encourages skill development, incorporating simulation-based training, routine performance reviews, and targeted interventions to close identified gaps. This would help ensure that, even where staff numbers remain low, the quality and reach of services can still be sustained.

The competence of healthcare workers has a direct impact on patient outcomes; poor diagnosis, delayed interventions, and ineffective treatment plans often stem from skill gaps that go unaddressed for years. Such a system could also be expanded into a real-time performance monitoring and re-credentialing framework, in which healthcare workers undergo peer-reviewed skill assessments and engage in hands-on simulation training at regular intervals, with continued practice tied to demonstrated ability rather than length of service alone. A supportive mentoring component, pairing junior staff with more experienced clinicians, should also be included. This recommendation aligns with evolving trends in countries such as Australia and Canada, where periodic re-licensure is used to maintain high professional standards..

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