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Assessment of the National Policy on Health Workforce Migration

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Abstract:

Nigeria continues to experience significant health workforce migration, popularly known as *Japa*, which contributes to persistent shortages of doctors and weakens health system performance. To address this challenge, the Federal Government introduced the National Policy on Health Workforce Migration (NPHWM) in 2024, focusing on retention strategies, ethical recruitment, international collaboration, and improved workforce planning. Evidence on the policy's practical impact, however, remains limited. A convergent mixed-methods design was adopted, combining a cross-sectional survey with qualitative analysis. The study involved doctors working in public hospitals in Edo State, including facilities under the Edo State Hospitals Management Agency and three tertiary hospitals. A multistage sampling approach was used, and 82 respondents completed a semi-structured questionnaire. Quantitative data were analysed using descriptive statistics, Spearman's rank correlation, and binary logistic regression, while qualitative responses were analysed thematically. Most respondents were early- to mid-career doctors, predominantly resident physicians. Awareness of the NPHWM was low, with 65.9% of respondents reporting no prior knowledge of the policy. Several intervention domains showed positive correlations with doctors' retention intentions. However, logistic regression analysis identified only international collaboration and ethical recruitment as a significant predictor of retention ($p < 0.05$). Workforce data indicated modest stabilisation in the tertiary facility after policy introduction, but continued fluctuations in state-managed hospitals. A large majority of respondents (84.1%) expressed willingness to migrate abroad. Although the NPHWM is conceptually comprehensive, its measurable impact on doctor retention remains limited. Strengthening implementation and improving working conditions are necessary for meaningful retention outcomes.

Keywords: Health Workforce Migration, Doctor Retention, Brain Drain, Health Policy, Nigeria, NPHWM.

JEL: I11, I18, J24, J61

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INTRODUCTION

Nigeria's healthcare system, akin to many across sub-Saharan Africa, continues to face serious shortages of health workers, largely driven by the steady migration of doctors and dentists for more attractive opportunities abroad (Falola & Ojebola, 2024; Orhungul et al., 2023). Brain drain, popularly referred to as *Japa* in Nigeria, reflects the search for better pay, improved working conditions, stronger infrastructure, and greater professional fulfilment (Ogbu, 2019). Although the migration of skilled professionals affects many countries globally, its impact is particularly damaging for countries of origin such as Nigeria, where it weakens the health system and worsens workforce shortages (Carrington & Detragiache, 1999; Okwara, 2023). The trend has existed since the 1980s and intensified during economic reforms such as the Structural Adjustment Programme. *Japa* is driven by factors such as poor remuneration, heavy workloads, insecurity, limited career opportunities, and inadequate facilities, as well as the attraction of better opportunities abroad (Akinola & Adekile, 2024; Akinyemi et al., 2022; Ebeye & Lee, 2023; Iloh et al., 2022). The consequences of *Japa* include reduced healthcare capacity, poorer health outcomes, and greater strain on the remaining workforce; problems that became even more visible during the COVID-19 pandemic (Lawal et al., 2022). In response, the Nigerian government introduced the National Policy on Health Workforce Migration (NPHWM) in 2024 to manage migration through eight key intervention areas: incentives and welfare, capacity building and career development, digital health and technology, support for rural and hard-to-reach areas, return and reintegration of diaspora health workers, work-life balance, wellbeing, and safety, ethical recruitment and international cooperation, monitoring, data systems, and governance (Federal Ministry of Health & Social Welfare, 2024). Despite its broad scope, there is still limited empirical evidence on how the policy affects doctor retention. With fewer than half of Nigeria's registered doctors currently practising in the country and the doctor-patient ratio far below recommended levels, evaluating such policy interventions has become increasingly important (Onah et al., 2022; WHO, 2023). The present study's originality lies in its evaluation of the National Policy on Health Workforce Migration shortly after its introduction in 2024. While previous studies have extensively documented the drivers and consequences of health workforce migration in Nigeria, empirical evidence assessing the implementation and retention outcomes of the policy remains scarce. Furthermore, by focusing on public hospitals in Edo State, the study provides context-specific evidence on policy effectiveness at the institutional level, addressing an important gap between national policy formulation and local implementation outcomes. Beyond its relevance to health policy, this study contributes to public administration scholarship by examining how a national workforce policy is translated into implementation outcomes within public institutions. Specifically, it provides empirical evidence on policy implementation, public sector workforce governance, and retention management in a resource-constrained administrative context, thereby extending knowledge on the effectiveness of government interventions aimed at addressing human capital shortages in the public sector.

1. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

1.1 Conceptual review

Doctor retention is conceptualised as the sustained engagement of physicians within a health system and is critical for ensuring continuity of care, reducing recruitment costs, and strengthening system resilience (Darbyshire et al., 2021; De Vries et al., 2023). In low- and middle-income countries such as Nigeria, retention is influenced by a complex interplay of financial factors (e.g., remuneration) and non-financial factors, including career development opportunities, workplace conditions, professional recognition, and work-life balance, highlighting its multidimensional nature (Falola & Ojebola, 2024; Wang et al., 2025).

Health workforce migration, commonly referred to as brain drain or *Japa* in the Nigerian context, involves the movement of skilled health professionals from resource-constrained settings to high-income countries (Ipinnimo et al., 2023). This process is driven by interacting push factors, such as poor working conditions, insecurity, and limited career prospects, and pull factors, including better remuneration and professional opportunities abroad (Umar et al., 2025). The consequences are profound, leading to loss of human capital, increased workload for remaining staff, and widening inequities in healthcare access (Ebeye & Lee, 2023).

Policy interventions in health systems are designed to address these challenges by shaping incentives, institutional structures, and governance mechanisms (Maddox, 2024). In Nigeria, the National Policy on Health Workforce Migration (NPHWM) represents a comprehensive strategy that integrates financial incentives, capacity building, digital health, rural deployment, diaspora engagement, worker safety, and international collaboration (Federal Ministry of Health & Social Welfare, 2024). While the policy is broad and forward-looking, its effectiveness depends on adequate funding, governance capacity, and context-sensitive implementation (Omiyi et al., 2025).

Additional conceptual dimensions, including work environment, capacity development, digital health adoption, return migration, work–life balance, and health worker safety, further illustrate that retention outcomes are influenced by both systemic and individual-level factors (Adekoya et al., 2023; Vidani et al., 2024). International collaboration and ethical recruitment frameworks also play a role in moderating migration flows (Aistleithner & Pfabigan, 2016). Overall, the conceptual model emerging from this review emphasises that doctor retention is not solely determined by policy inputs but by the interaction of policy design, implementation processes, and moderating/mediating variables [Figure 1].

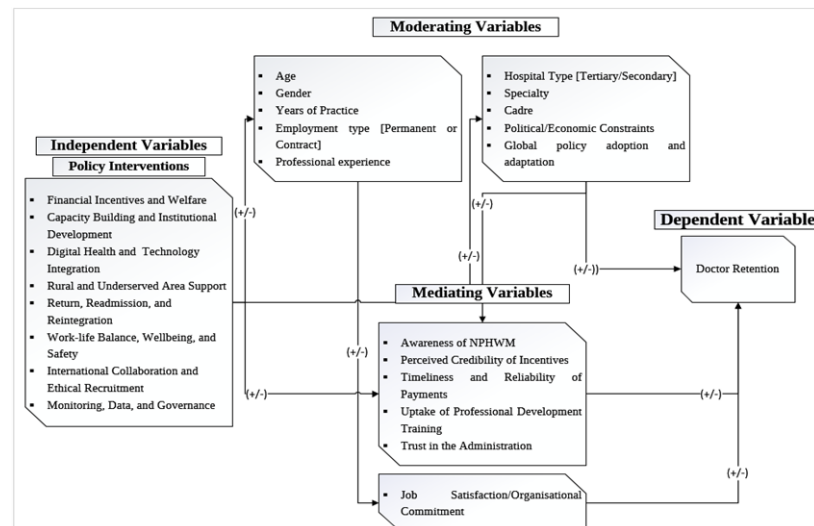


Figure 1. Conceptual Model

Source: Authors' Analysis

The figure above shows the relationships among independent, moderating, and mediating variables and how they interact to influence the dependent (outcome) variable.

1.2 Empirical review

The empirical literature on health workforce migration and retention reveals consistent global, regional, and local patterns shaped by economic, professional, and systemic factors. Across settings, migration intentions among health workers are high and are largely driven by a combination of push factors such as poor remuneration, weak health systems, and limited career opportunities, alongside

pull factors including better working conditions, higher income, and structured professional development abroad (Poudel et al., 2018; Toyin-Thomas et al., 2023). Evidence from countries such as Romania demonstrates that targeted policy interventions, particularly salary increases and improved training opportunities, can significantly reduce emigration rates when sustained over time (Zapata et al., 2025). However, weak implementation frameworks and inadequate monitoring systems often limit the effectiveness of such policies, as observed in Jamaica and other contexts (Murphy et al., 2016).

Within the African context, similar drivers persist, with economic hardship, poor working environments, and limited career advancement opportunities emerging as dominant factors influencing migration decisions (Adam et al., 2025; Oke, 2025). Studies from countries such as Malawi and South Africa show that while financial incentives and workforce policies can reduce migration in the short term, long-term sustainability depends on broader structural reforms, including governance improvements and health system strengthening (Labonté et al., 2015; Vidal, 2015). Importantly, recent evaluations of Nigeria's National Policy on Health Workforce Migration indicate limited impact so far, largely due to implementation and financing challenges (Obianagwa et al., 2025).

In Nigeria, empirical studies consistently report high migration intentions among healthcare workers, driven by poor remuneration, insecurity, inadequate infrastructure, and weak governance systems (Onah et al., 2022; Yakubu et al., 2023). Longitudinal evidence further suggests that migration is not only widespread but increasing, with nearly half of medical graduates emigrating within 15 years (Wariri et al., 2024). Narrative and systematic reviews reinforce the need for multi-dimensional retention strategies that combine financial incentives, improved working conditions, career development opportunities, and diaspora engagement (Samuel & Haruna, 2025; Olorunfemi et al., 2024).

At the sub-national level, particularly in Edo State, studies highlight the direct consequences of migration on healthcare delivery, including increased workload, reduced quality of care, and staffing shortages (Olorunfemi et al., 2020). Evidence also shows that poor working conditions, lack of professional development, and low remuneration significantly predict migration intentions among healthcare workers (Okolo & Iruo, 2021; Esene et al., 2024). Additionally, research on return migration underscores the challenges of reintegration, including stigma, limited job opportunities, and the need for structured support systems to maximise the benefits of returnee expertise (Shaidrova, 2022).

Overall, the empirical literature demonstrates that health workforce migration is a multifactorial and persistent challenge. While policy interventions show potential, their effectiveness depends on coordinated, well-funded, and context-specific implementation strategies that address both systemic weaknesses and individual-level motivations.

1.3 GAPS in literature

Despite the growing body of research on health workforce migration and doctor retention, significant gaps remain in understanding how national policies translate into measurable outcomes, particularly within sub-national health systems. A major gap relates to policy impact, as the National Policy on Health Workforce Migration (NPHWM) outlines comprehensive strategies, including incentives, diaspora engagement, and monitoring mechanisms, yet lacks rigorous empirical evaluation of its effectiveness in improving doctor retention. Existing evidence is largely descriptive or qualitative, with limited quasi-experimental or longitudinal studies assessing actual retention outcomes (Federal Ministry of Health & Social Welfare, 2024; Obianagwa et al., 2025).

Another critical gap lies in the local context, where most studies adopt national or multi-state perspectives, often overlooking facility-level dynamics. There is a paucity of sub-national research, particularly in settings such as Edo State, examining how policies are implemented and experienced

within specific hospitals. This limits the ability to generate context-sensitive insights necessary for refining policy interventions at the meso level.

In terms of policy implementation, while existing studies have extensively documented migration drivers such as poor remuneration, insecurity, and inadequate infrastructure, they rarely assess healthcare workers' awareness, access to, or perceptions of NPHWM interventions. Consequently, there is insufficient micro-level evidence on whether policy components, such as financial incentives, training opportunities, and reintegration mechanisms, effectively influence individual retention decisions (Onah et al., 2022).

Finally, a gap exists in policy adoption and adaptation, as Nigerian studies seldom empirically evaluate the applicability of global best practices, such as bilateral labour agreements and skills partnerships, within the country's unique institutional and fiscal constraints. Although international and regional literature suggests these approaches as viable solutions, there is limited local evidence to guide their adaptation and implementation (Obianagwa et al., 2025).

Overall, these gaps highlight the need for context-specific, methodologically robust studies that bridge policy design and real-world outcomes, particularly at institutional and individual levels.

1.4 Theoretical framework

This study is grounded in two complementary theoretical perspectives: Everett S. Lee's migration theory and Frederick Herzberg's motivation-hygiene theory, both of which provide a structured lens for understanding doctor retention and migration dynamics (Herzberg, 1966; Lee, 1966). Together, these theories explain how external system-level conditions and internal job-related factors interact to influence health workers' decisions to remain or migrate.

Lee's migration theory conceptualises migration as a function of push factors, pull factors, intervening obstacles, and personal factors (Lee, 1966). In the context of health workforce migration, push factors include poor remuneration, insecurity, weak infrastructure, and limited career opportunities, while pull factors encompass better salaries, improved working conditions, and advanced training opportunities abroad. Intervening obstacles, such as immigration policies and financial costs, may either hinder or facilitate migration, while personal characteristics shape how individuals perceive and respond to these factors. The theory also highlights the existence of migration "streams" and "counterstreams", suggesting that movement is dynamic and often cyclical. Within this framework, policy interventions such as the NPHWM can be interpreted as attempts to reduce push factors and strengthen barriers to migration through incentives and improved working conditions. However, the theory implies that such measures alone may not fully curb migration due to its complex and evolving nature [Figure 2].

Herzberg's motivation-hygiene theory complements the preceding by explaining job satisfaction and retention through two categories of factors: motivators (intrinsic) and hygiene factors (extrinsic) (Herzberg, 1966). Motivators, including achievement, recognition, and career advancement, drive job satisfaction and long-term commitment, while hygiene factors, such as salary, working conditions, and organisational policies, primarily prevent dissatisfaction [Figure 3]. Evidence from healthcare settings shows that improving hygiene factors alone may reduce dissatisfaction but is insufficient to ensure retention without corresponding motivators (Alrawahi et al., 2020; Marumahoko et al., 2023; Wang et al., 2017). In Nigeria, persistent weaknesses in hygiene factors, such as delayed salaries, poor infrastructure, and insecurity, often undermine the effectiveness of available motivators (Olowolaju et al., 2025).

In the same way, recent public administration research increasingly recognises job satisfaction and workforce retention as critical determinants of organisational effectiveness. A comprehensive review by Nica and Potcovaru (2024) found that public service motivation and job satisfaction are strongly

associated with employee commitment and retention within public institutions. Similarly, Hur (2024) demonstrated that both intrinsic and extrinsic workplace factors significantly influence job satisfaction among public managers. Within the African context, Vigan and Giauque (2018) reported that workplace conditions and organisational environments are among the strongest determinants of employee retention in public organisations. These findings complement Herzberg's Motivation-Hygiene Theory and reinforce the importance of examining both structural and motivational dimensions of health workforce retention within public sector settings.

Applied to the NPHWM, Herzberg's theory suggests that effective retention requires a simultaneous strengthening of both motivators and hygiene factors, combining financial incentives and improved work environments with opportunities for professional growth and recognition.

Overall, the integration of Lee's migration theory and Herzberg's motivation-hygiene theory provides a comprehensive framework for analysing how policy interventions influence migration and retention decisions. While Lee's model explains the broader structural drivers of migration, Herzberg's theory elucidates the workplace-level factors that shape job satisfaction, making both theories highly relevant for the present study.

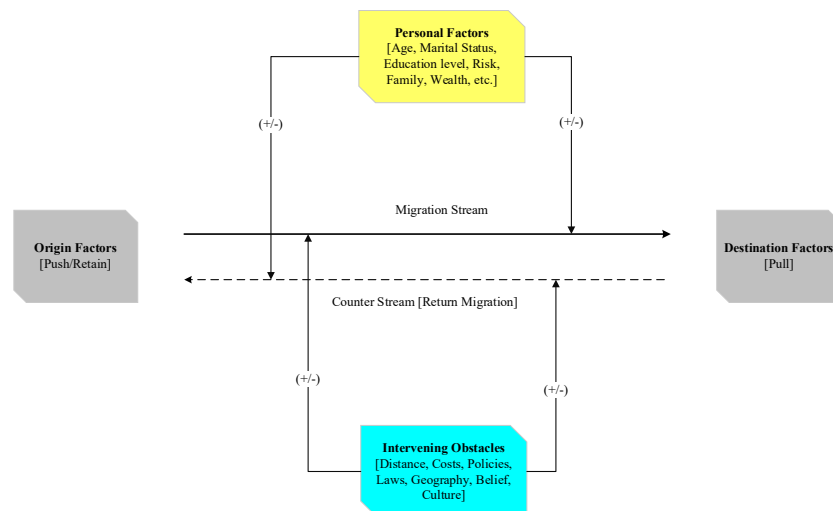


Figure 2. An illustration of the Relationships of the Central Concepts in Lee's Theory of Migration

Source: Authors' Analysis, 2026

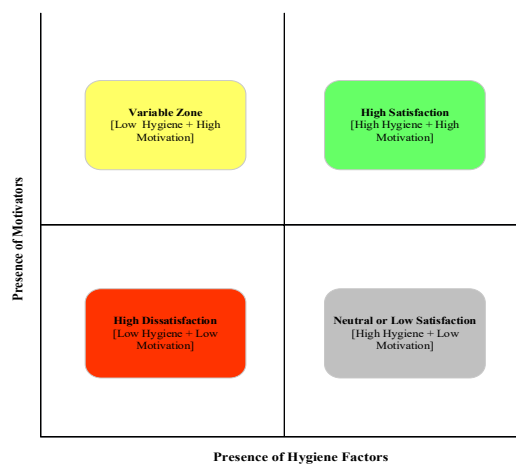


Figure 3. An illustration of the relationships of the central concepts in Herzberg's Motivation-Hygiene Theory

Source: Authors' Analysis, 2026

2. RESEARCH METHODOLOGY

2.1 Research questions and hypothesis

Research questions

1. How do annual retention rates of doctors in selected public hospitals compare between the pre-NPHWM period (2022 – 2023) and the post-NPHWM period (2024 – 2025)?
2. What is the strength of the association between each core NPHWM intervention and doctors' decisions to remain in public service?
3. What actionable strategies and policy refinements can be recommended to enhance the effectiveness of the NPHWM in improving retention based on the present study?

Research hypothesis

H₀ 1: There is no statistically significant relationship between any NPHWM intervention and doctors' decisions to remain in public service.

2.2 Research philosophy

The study was grounded in the pragmatic philosophical paradigm (Creswell & Creswell, 2023). Pragmatism enables the integration of quantitative and qualitative evidence to address real-world policy questions.

2.3 Research design

A convergent mixed-methods design was employed, with both open-ended and closed-ended survey items. In line with convergent mixed-method principles described by Creswell and Creswell (2023), both data domains were collected concurrently and analysed to provide complementary perspectives. The quantitative domain enabled systematic measurement of awareness, perception, and self-reported retention outcomes. The qualitative domain allowed respondents to articulate policy improvement suggestions beyond structured response categories.

2.4 Population and area of the study

The study was conducted in Edo State, an inland state in southern Nigeria bordered by Kogi, Anambra, Delta, Ondo, and the River Niger (Britannica Editors, 2025). The capital, Benin City (6°26'N, 5°41'E), is historically renowned for its classical brass artistry dating back to the 13th century (Ben-Amos, 2018). The study population comprised over 1500 medical doctors and dental surgeons working across thirty-three secondary healthcare facilities under the Edo State Hospitals Management Agency (HMA) and three tertiary facilities, the University of Benin Teaching Hospital, Military Hospital, and Irrua Specialist Teaching Hospital. Eligible participants included consultants, resident doctors, and medical/dental officers who had served for at least twelve consecutive months in their current institution. This population frame ensured representation of both tertiary and secondary service delivery levels within the state's public health system.

2.5 Sample size and sampling technique

2.5.1 Sample size determination

Sample size estimation was performed using G*Power version 3.1.9.7, developed by Faul et al. (2009). Assuming a two-tailed test, effect size parameters ($pH_1 = 0.50$; $pH_0 = 0.25$), $\alpha = 0.05$, and power $(1-\beta) = 0.80$, the minimum required sample size was calculated to be 93.

2.5.2 Sampling technique

A multistage sampling strategy was employed for this study. In the first stage, a purposive sampling approach was used to select the study facilities. All thirty-three secondary hospitals under the Edo State Hospitals Management Agency and the three tertiary hospitals in the state were included because of their strategic relevance and the high concentration of medical personnel within these institutions. In the second stage, proportional allocation was used to distribute the sampling units based on each facility's staff strength. This ensured that the number of participants drawn from each hospital reflected its workforce size and helped maintain representativeness across health facility categories. In the third stage, convenience recruitment was used to enrol eligible doctors. Participants were reached through official hospital WhatsApp groups, as ethical restrictions prevented access to individual staff registry data. To minimise potential selection bias associated with this approach, the survey links were circulated widely at different times, supported by bulk messaging and an extended data collection period to accommodate doctors working varied clinical duty schedules.

2.5.3 Inclusion and exclusion criteria

Participants eligible for inclusion in this study were doctors and dentists who had completed at least 12 months of continuous service in either the secondary hospitals under the Edo State Hospitals Management Agency or the tertiary hospitals under study. Only permanently employed doctors were considered eligible, and participation required informed consent.

Doctors working outside the specified institutional framework were excluded from the study. This included those practising in private health facilities and primary healthcare centres. In addition, house officers, National Youth Service Corps members, locum physicians, and dentists were not included in the study population. Doctors who were on prolonged leave or otherwise unavailable during the data collection period were also excluded, as were individuals who declined to provide consent to participate.

2.6 Research instrument

Data were collected using a semi-structured, self-administered questionnaire. The instrument comprised five sections: Section A: Socio-demographic characteristics; Section B: Awareness and perception of the NPHWM; Section C: Assessment of NPHWM interventions; Section D: Retention and migration intention indicators; and Section E: Open-ended recommendations. Items were rated on a five-point Likert scale (Strongly Agree = 5 to Strongly Disagree = 1). Higher scores reflected stronger awareness, more favourable perceptions, or greater perceived effectiveness of policy interventions.

2.7 Validity and reliability

Validity

Face and content validity were assessed through expert review by a public policy specialist.

Reliability

A pilot study involving 17 doctors stationed outside Edo State evaluated internal consistency. The Cronbach's alpha coefficient was 0.955, indicating excellent reliability and strong internal consistency across instrument domains.

2.8 Method of data analysis

Quantitative data were analysed using IBM SPSS Statistics version 20 (IBM Corp., 2011), while qualitative responses were analysed using R-based qualitative data analysis (RQDA) software version 0.3.1 within the R (version 3.6.1) environment (Huang, 2018). Descriptive statistics such as

frequencies, percentages, means/medians, and standard deviations/interquartile ranges summarised demographic characteristics and policy domains. Domain scores were computed by summing item responses within each section.

Given the ordinal nature of Likert data, non-parametric tests were applied. Spearman's rank correlation assessed associations between intervention domains and retention outcomes. Binary logistic regression examined predictors of retention intention. Statistical significance was set at $p < 0.05$. Pre- and post-policy retention comparisons were conducted using descriptive metrics to identify observable trends.

2.9 Ethical considerations

Ethical approval (HA/737/25/C/12011023) was obtained from the Edo State Ministry of Health Research Ethics Committee. Participants were informed about the study's objectives, confidentiality assurances, and voluntary participation. No personal identifiers were collected, and respondents retained the right to withdraw without consequence. The study adhered to the ethical principles of autonomy, beneficence, non-maleficence, and justice throughout its conduct.

3. RESULTS

Of the 93 sample units, 82 responded; making for a response rate of 88%.

3.1 Data presentation

3.1.1 Sociodemographic characteristics of respondents

Table 1 summarises the socio-demographic characteristics of the 82 respondents. The mean and median ages were 40.98 (SD = 8.04) and 40.00 (IQR = 9.50) years, respectively. The majority (67, 81.7%) were male, and 15 (18.3%) were female. Most respondents were married (84, 75%) and held MBBS/BDS qualifications (64, 65.9%). In terms of cadre, most respondents were Residents (49, 59.8%), with fewer Consultants (20, 24.4%), Dental Officers (3, 3.7%), and Medical Officers (10, 12.2%). All respondents (82, 100%) had been in their current employment for more than 12 months, and 43 (52.4%) had 1–5 years of professional service. More than seventy percent of respondents (63, 76.8%) worked at a tertiary facility.

Table 1. Socio-Demographic Information of the Study Respondents (n = 82)

Variable	Category	Frequency (%)
Age (years)	Mean (SD)	40.98 (8.04) *
	Median (IQR)	40.00 (9.50) **
Gender	Male	67 (81.7)
	Female	15 (18.3)
Civil state	Married	60 (73.2)
	Single	22 (26.8)
Highest qualification	MBBS/BDS	54 (65.9)
	Fellowship	22 (26.8)
	Master's	5 (6.1)
	PhD	1 (1.2)

Assessment of the National Policy on Health Workforce Migration

Cadre	Resident	49 (59.8)
	Consultant	20 (24.4)
	Dental Officer	3 (3.7)
	Medical Officer	10 (12.2)
Duration of current employment	> 12 months	82 (100.0)
	< 12 months	0 (0.0)
Years in Professional Service	1–5 years	43 (52.4)
	6–10 years	20 (24.4)
	11–15 years	7 (8.5)
	> 15 years	12 (14.6)
Respondents' Facility	Tertiary Facilities	63 (76.8)
	Edo State HMA Facilities	19 (23.2)

*SD: Standard Deviation; **IQR: Inter-quartile Range

Source: Authors' Analysis, 2026

3.1.2 Awareness and perception of respondents to NPHWM

Regarding respondents' awareness of the National Policy on Health Workforce Migration (NPHWM), 54 respondents (65.9%) reported being unaware of the policy, whereas slightly over one-third, 28 (34.1%), indicated awareness of its existence. Respondents' awareness and perception scores, measured on a scale with a maximum attainable score of 40, had a mean of 16.85 (SD = 5.06) and a median of 17.50 (IQR = 8.25).

3.1.3 NPHWM interventions

Mean and median scores for the assessed policy intervention domains, out of a maximum attainable score of 25, are presented as follows. The incentives and welfare domain recorded a mean of 8.04 (SD = 4.11) and a median of 6.50 (IQR = 5.00). Capacity building and professional development had a higher central tendency, with a mean of 11.04 (SD = 4.33) and a median of 11.50 (IQR = 7.00). Similarly, digital health and technology integration yielded a mean of 11.83 (SD = 4.50) and a median of 10.50 (IQR = 7.00). Work–life balance, wellbeing, and safety recorded a mean of 9.33 (SD = 3.94) and a median of 9.00 (IQR = 7.00). The return, readmission, and diaspora engagement domain had a mean of 10.46 (SD = 3.12) and a median of 10.00 (IQR = 3.00). International collaboration and ethical recruitment recorded a mean of 10.83 (SD = 4.28) and a median of 11.00 (IQR = 7.50). Finally, rural and underserved area support recorded comparatively lower scores, with a mean of 8.43 (SD = 4.12) and a median of 7.00 (IQR = 5.00).

3.1.4 Doctor retention and intention to migrate

On a maximum score of 31, the doctor retention and intention to migrate scale recorded a mean of 11.05 (SD = 4.61) and a median of 11.00 (IQR = 6.25). On dichotomising the doctor retention and intention to migrate scale by score, the majority (69, 84.1%) were more amenable to migrating, compared with the smaller group (13, 15.9%) who were more open to remaining in employment and in Nigeria.

3.2 Data analysis

3.2.1 Research question 1

How do annual retention rates of doctors in selected public hospitals compare between the pre-NPHWM period (2022-2023) and the post-NPHWM period (2024-2025)?

Employment figures for doctors reveal distinct and contrasting trends between one of the studied tertiary hospitals (University of Benin Teaching Hospital [UBTH]) and hospitals under the Edo State Hospitals Management Agency (HMA) between 2022 and 2025. At UBTH, employment patterns indicate a generally concerning contraction of the medical workforce over the study period, although there are signs of recent stabilisation. The number of employed doctors declined from a baseline of 706 in 2022 to 579 in 2023, before recovering to a projected 600 doctors in 2025 (UBTH, 2025). The most pronounced reduction occurred between 2022 (706) and 2023 (579), representing a 17.99% decline within a single year, largely preceding the activation of the National Policy on Health Workforce Migration (NPHWM). While the introduction of the NPHWM in 2024 did not immediately reverse workforce losses, it coincided with a moderation of the downward trend. The rate of decline slowed to 3.63% between 2023 and 2024, followed by a 7.52% increase in retention between 2024 and 2025, reflecting a modest rebound in the number of doctors.

A comparison of net retention rates before and after the implementation of the NPHWM further highlights this shift. Whereas a substantial 17.99% decrease was recorded in the pre-policy period (2022–2023), the post-policy period (2024–2025) shows a positive retention rate, with a 3.89% increase.

Table 2. UBTH Employment and Annual Retention Rate (2022–2025).

Year	Number of Doctors [UBTH]	Mean	Annual Retention Rate (%)
2022	706		NA
2023	579	Pre-NPHWM ≈ 643	↓ 17.99%
2024	558		↓ 3.63%
2025	600	Post-NPHWM 579	↑ 7.52%

*UBTH: University of Benin Teaching Hospital

Source: Author's Analysis, 2026

Employment figures for the Edo State Hospitals Management Agency (HMA) are highly volatile, with pronounced year-to-year fluctuations throughout the study period. This instability is particularly noteworthy given that the National Policy on Health Workforce Migration (NPHWM) was designed to reduce such variability through improved welfare provisions and working conditions.

Three distinct phases are evident. First, during the pre-policy period (2022–2023), the HMA recorded a substantial increase in employment, with the number of doctors rising from 172 to 236, representing a 37.21% increase. Second, this expansion was abruptly reversed during the policy intervention phase (2023–2024), when employment fell sharply from 236 to 189, a 19.92% decline (Edo State Hospital Management Agency, 2025). Notably, this period of pronounced attrition coincided with the anticipated commencement and early implementation of the NPHWM in 2024, suggesting a limited immediate policy effect. Finally, the post-contraction period (2024–2025) was characterised by a rapid rebound, as employment rose from 189 to 215, corresponding to a 13.76% increase.

A comparison of net retention rates before and after the implementation of the NPHWM further reinforces this pattern, with a 37.21% increase observed in 2022–2023, contrasted with a notable 6.16% decline in 2024–2025.

Table 3. Edo State HMA Doctor Employment and Annual Retention Rate (2022-2025)

Year	Number of Doctors [HMA]	Mean	Annual Retention Rate (%)
2022	172		NA
2023	236	Pre-NPHWM 204	↑ 37.21%
2024	189		↓ 19.92%
2025	215	Post-NPHWM 202	↑ 13.76%

*HMA: Edo State Hospital Management Agency.

Source: Author's Analysis, 2026

3.2.2 Research question 2

What is the strength of the association between each core NPHWM intervention and doctors' decisions to remain in public service?

On computing Spearman's correlation analysis between the following variables: incentives and welfare, capacity building and development, digital health and technology integration, work-life balance, wellbeing and safety, return, readmission, and diaspora engagement, international collaboration and ethical recruitment, rural and underserved area support, awareness and perception of the policy, and the doctor's decision to remain in public service, all interventions, including incentives and welfare ($p = 0.42$; < 0.01), capacity building and development ($p = 0.45$; < 0.01), digital health and technology integration ($p = 0.41$; < 0.01), work-life balance, wellbeing and safety ($p = 0.62$; < 0.01), return, readmission, and diaspora engagement ($p = 0.45$; < 0.01), international collaboration and ethical recruitment ($p = 0.57$; < 0.01), rural and underserved area support ($p = 0.42$; < 0.01), were noted to positively increase in magnitude as the doctor's decision to remain in public service increased. In addition, doctors' awareness and perception of the policy increased in magnitude as their likelihood of remaining in service increased ($p = 0.38$; < 0.01).

The strength of the association between the above NPHWM interventions and doctors' retention decision ranges from moderate to strong, in line with Quinnipiac University's interpretation of Spearman's correlation coefficient (Akoglu, 2018).

3.2.3 Research question 3

What actionable strategies and policy refinements can be recommended to enhance the effectiveness of the NPHWM in improving retention based on the present study?

A thematic analysis of respondents' suggestions and recommendations regarding the policy was conducted. Key themes identified included adequate policy implementation and monitoring, appropriate stakeholder engagement and policy review, securing bilateral and multilateral agreements, general economic and infrastructural improvement, overseas training for doctors, policy homing by individual states, remuneration, workplace and staff security improvements, rural posting incentives, staff for staff replacement during staff and strong political will to implement policy objectives. The Fruchterman-Reingold network diagram illustrates the relationships among the key

and ethical recruitment, rural and underserved area support, and awareness and perception of the policy.

The overall logistic regression model was statistically significant, $\chi^2 (7) = 21.29$, $p = 0.006$, indicating that the predictors collectively distinguished between doctors who remained in employment and those who did not. The model explained between 22.9% (Cox & Snell R^2) and 39.2% (Nagelkerke R^2) of the variance in doctor retention outcomes.

The Hosmer–Lemeshow goodness-of-fit test was statistically significant ($\chi^2 = 20.78$, $p < 0.009$), indicating some discrepancy between observed and predicted probabilities. However, this test is known to be sensitive to sample size. Other diagnostic indicators, including the significant Omnibus test and the magnitude of the pseudo- R^2 values, indicate that the model retains adequate explanatory utility.

At the individual predictor level, international collaboration and ethical recruitment significantly predicted doctors' retention decisions (OR = 0.71, 95% CI: 0.51–0.97, $p < 0.035$).

The remaining intervention domains did not significantly predict doctor retention: incentives and welfare (OR = 0.97, 95% CI: 0.76–1.24, $p > 0.80$), capacity building and development (OR = 1.18, 95% CI: 0.87–1.60, $p > 0.29$), digital health and technology integration (OR = 1.10, 95% CI: 0.86–1.41, $p > 0.43$), work–life balance, wellbeing and safety (OR = 0.85, 95% CI: 0.62–1.16, $p > 0.30$), return, readmission, and diaspora engagement (OR = 0.99, 95% CI: 0.67–1.45, $p > 0.95$), and rural and underserved area support (OR = 1.06, 95% CI: 0.83–1.36, $p > 0.62$); awareness and perception of the policy was also not statistically significant (OR = 0.85, 95% CI: 0.68–1.05, $p > 0.12$).

Given that at least one NPHWM policy intervention, specifically international collaboration and ethical recruitment, was a statistically significant predictor of doctors' retention, the null hypothesis (H_0 1), which states that there is no statistically significant relationship between any NPHWM intervention and doctors' decisions to remain in public service, can be rejected, and the alternative hypothesis that specific NPHWM interventions are associated with doctors' decisions to remain in public service can be accepted.

4. DISCUSSION

This study provides important insights into the dynamics of doctor retention and migration intentions within public hospitals in Edo State in the context of the National Policy on Health Workforce Migration (NPHWM). The findings indicate that the public-sector medical workforce is largely composed of early-to mid-career physicians, with resident doctors forming the majority of respondents and most having between one and five years of professional experience. This demographic pattern is significant because clinicians at this stage of their careers are typically the most internationally mobile and therefore particularly susceptible to migration pressures, a trend previously reported among the Nigerian health workforce (Falola & Ojebola, 2024; Orhungul et al., 2023). A major observation from the study is the low level of awareness of the NPHWM among doctors, with nearly two-thirds of respondents reporting that they were unaware of the policy. Although awareness and perception of the policy were positively associated with retention intentions, awareness alone did not predict retention decisions, suggesting that the policy's visibility at the facility level remains limited.

Institutional differences also emerged in retention trends between the federal tertiary facilities and state-managed hospitals. While the University of Benin Teaching Hospital (UBTH), for example, experienced an initial decline in retention prior to the policy's introduction, this trend moderated and eventually showed signs of recovery in the post-policy period. In contrast, hospitals under the Edo State Hospitals Management Agency exhibited more volatile patterns, including a significant post-policy decline before partial recovery. These variations suggest that the effectiveness of the NPHWM

may be shaped by institutional context, particularly differences in funding structures, administrative capacity, and alignment with national policy frameworks. The analysis of policy intervention domains further revealed that several components, especially work–life balance, staff wellbeing and safety, and international collaboration, were positively associated with retention intentions. However, when the domains were examined simultaneously through logistic regression, only international collaboration and ethical recruitment remained a significant predictor of doctors' decisions to remain in public service. This finding implies that structured global engagement frameworks may influence retention more strongly than domestic incentive promises that are perceived as inconsistently implemented.

Despite the introduction of the NPHWM, migration intentions remained high among respondents, with a substantial majority expressing greater willingness to migrate than remain in public service. The relatively low scores recorded across several intervention domains, particularly incentives, welfare provisions, and rural support measures, indicate that many of the structural push factors driving migration remain largely unresolved. From the perspective of migration theory, policies must significantly reduce push factors or introduce effective barriers to outward movement in order to alter migration patterns (Lee, 1966). Similarly, Herzberg's Motivation–Hygiene Theory suggests that improvements in hygiene factors such as remuneration, safety, and working conditions are necessary to reduce dissatisfaction, yet these improvements alone may not guarantee long-term retention without broader systemic reform. Qualitative findings reinforced these conclusions, with respondents emphasising the need for stronger policy implementation and monitoring, improved remuneration and welfare, enhanced workplace security, incentives for rural postings, structured staff replacement mechanisms during turnover, and stronger political commitment to policy execution. The thematic network analysis further highlighted the interconnected nature of these recommendations, with implementation and remuneration as central themes that link multiple subthemes.

From a public policy perspective, the findings extend current understanding of implementation effectiveness by demonstrating that the existence of a comprehensive policy framework does not necessarily translate into immediate behavioural or organisational outcomes. The results suggest that implementation capacity, institutional context, and stakeholder awareness may exert a stronger influence on policy outcomes than policy design alone. Consequently, the study contributes to policy implementation literature by highlighting the importance of administrative capability and frontline engagement in translating policy objectives into measurable workforce retention outcomes.

5. CONCLUSIONS

This study presents one of the earliest empirical evaluations of the National Policy on Health Workforce Migration in Edo State, Nigeria. Although the policy is broad in scope and conceptually robust, its practical influence on doctor retention in Edo State appears limited. Some stabilisation in workforce numbers was observed at the University of Benin Teaching Hospital, but state-managed facilities continued to experience fluctuations. Awareness of the policy among doctors was generally low, and most intervention areas did not significantly predict retention decisions. Notably, international collaboration and ethical recruitment was the only factor that independently predicted doctor retention decision, suggesting that transparent and structured governance frameworks may be more persuasive to doctors than policy promises alone. Overall, the policy has yet to counterbalance the persistent push factors driving migration, as reflected by the high proportion of doctors still considering relocation abroad. For meaningful retention gains to occur, stronger emphasis must be placed on effective implementation, sustained funding, improved working conditions, and consistent engagement with frontline health workers.

AUTHORS' CONTRIBUTION

Osadolor, AJ: Study conception and design, data analysis and interpretation of results, draft manuscript preparation, final approval of manuscript, and corresponding author; **Okpalaugo, PN:** Study design, data collection, analysis and interpretation of results, draft manuscript preparation, and final approval of manuscript; **Osadolor, OO:** Analysis and interpretation of results, draft manuscript preparation and finalization of manuscript, and manuscript review; **Okpalaugo, CM:** Analysis and interpretation of results, draft manuscript preparation and finalization of manuscript, and manuscript review.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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