International Journal of Spectrum Research in Social & Management Sciences (IJSRSMS)
2(1), January-March, 2026, Pages 206-224

 ISSN: 3092-9547

https://www.ijsrjournal.com/ijsrsm.v2i1.2026.ijsr-757434

Effect of Medical Personnel Migration on Health Care Service Delivery in Edo State Nigeria 2010 - 2024

Michael-Mary A. Idowu[1], Ifeoma Priscilla Udegbunam[2] & Prof. B. C. Nwankwo[3]

[1, 2&3] Department of Public Administration Faculty of Management Sciences Nnamdi Azikiwe University Awka, Anambra state, Nigeria
[1]idowumichy@gmail.com
[2]pi.udegbunam@unizik.edu.ng
[3]bc.nwankwo@unizik.edu.ng

ABSTRACT

This study investigates the effect of medical personnel migration on healthcare service delivery in Edo State, Nigeria, between 2010 and 2024. Guided by the Push-Pull theory, the study sought to determine the implications of migration on patient waiting times, examine the role of poor salaries and wages as drivers of migration, and assess the effectiveness of the Federal Government's proposed five-year license withholding policy. Using a descriptive research design, data were obtained through structured questionnaires administered to doctors and nurses. Findings revealed that migration has significantly disrupted healthcare service delivery, with over 70% of respondents confirming longer patient waiting times, increased workloads, and declining service quality. Poor remuneration, weak infrastructure, and better opportunities abroad emerged as key determinants of migration, while government interventions such as the five-year license withholding policy were considered ineffective and counterproductive. The study concludes that persistent medical personnel migration critically undermines healthcare delivery in Edo State and recommends urgent reforms, including competitive salaries, improved working conditions, and structured career growth opportunities, as sustainable strategies for retention and system strengthening.

Keywords: Medical Personnel, Service Delivery, Migration, Health Care, poor salaries, medical registration licenses

INTRODUCTION

Background to the Study

The act of caring for another life is innate. The act of rationalizing how it should be done is a culturally embedded performance derived from a long history of myths, beliefs, and observations (Dolan Brian, 2021). Thus, over the years as the practice of medicine develops scientifically, many individuals have taken the bold step to undergo the necessary academic and clinical training to equip themselves with the skills needed to care for the health of others. Medical care has therefore, become increasingly specialized, with healthcare workers specializing in different areas of medicine.

The benefits and importance of a good health system in a country cannot be over emphasized. A good health system reduces mortality, controls infectious diseases, and improves life expectancy by offering quality services like immunizations, maternal care, and chronic disease management (World Health Organization [WHO], 2010). Early diagnosis and preventive care reduce complications and improve quality of life. This gives healthy individuals the opportunity to be more productive and contribute better to the society.

According to the World Bank (2016), investing in health can generate significant economic returns through improved labour participation and lower treatment costs. More recent evidence supports this: a study of 28 Sub-Saharan African countries found that investing about 8% of GDP in healthcare was associated with noticeable gains in labour productivity and sustainable economic growth. Okunade et al. (2025) show that health investments not only improve workforce participation but also boost output, particularly when investments are sustained and complemented by strong institutional frameworks.

Equitable health systems are essential for reducing disparities in access to care, promoting social inclusion, and ensuring that vulnerable populations benefit from health interventions. Recent scholarship emphasizes that health equity must be embedded in health policy design and system implementation to

avoid perpetuating inequalities in outcomes (Bouckley et al., 2025). Strong health systems are also vital for responding effectively to emergencies: the COVID-19 pandemic revealed significant vulnerabilities in countries with weak public health infrastructure (Kluge et al., 2020). In his address, Ghebreyesus (2020) underscored that decades of underinvestment in health systems left many countries ill-prepared to absorb shocks. Efficient health systems also reduce long-term costs by preventing expensive hospital stays and optimizing preventive care. Taken together, these arguments underscore that retaining skilled medical personnel is not just a human resources issue but foundational to health equity, resilience, and sustainable care.

Public health is increasingly recognized as a core element of national security. Weak health systems undermine military readiness, reduce resilience, and increase vulnerability to pandemics and biothreats (Hodge et al., 2020). Conversely, robust health systems strengthen political stability, national resilience, and social cohesion (Kickbusch & Szabo, 2022). Moreover, research institutions thrive in environments with effective health governance, which fosters innovation, education, employment, and evidence-based policymaking (Gostin et al., 2021). Strong health systems therefore support ongoing medical research, training, and technological advancement, creating a cycle of growth and sustainability.

The dangers posed by fragile health systems are evident in developing countries like Nigeria and across Africa, where the outmigration of health workers has deepened systemic weaknesses. The persistent brain drain of doctors and nurses has created a critical vacuum, particularly in rural and underserved areas where health needs are most acute (Adebayo et al., 2022). In Nigeria, this reality is stark: the doctor-to-patient ratio is about 1:5,000, far below the WHO-recommended 1:600 (World Health Organization [WHO], 2020). This shortage significantly constrains healthcare service delivery and exacerbates health inequities across the population.

Brain drain disproportionately undermines public hospitals, where the majority of poor and vulnerable citizens seek care. By contrast, wealthier populations often access private or foreign healthcare, thereby deepening health inequities (WHO, 2021). With fewer doctors and nurses available, many treatable conditions are left undiagnosed or mismanaged, contributing to persistently high maternal and infant mortality rates across Nigeria (Okeke, 2022). Indeed, Nigeria remains one of the countries with the highest maternal mortality burdens globally, largely due to critical shortages of skilled personnel (UNICEF, 2021).

Moreover, health facilities without adequate medical professionals cannot function effectively, regardless of the quality of physical infrastructure. Essential clinical units such as anesthesiology, oncology, and emergency care often collapse when skilled personnel are absent, forcing patients to seek unsafe alternatives or abandon care altogether (Adesina & Oyewale, 2021). Countries with fragile health systems are also less equipped to mount effective responses to pandemics and disease outbreaks. This results in higher mortality, avoidable suffering, and slower recovery. The COVID-19 pandemic particularly exposed serious workforce shortages and logistical constraints that limited many countries' capacities to respond effectively (Kluge et al., 2020).

Medical personnel are crucial and indispensable for maintaining public health, delivering essential healthcare services, and improving the overall quality of life for individuals and communities. Their roles extend beyond diagnosing and treating illnesses to include preventive care, patient advocacy, and conducting vital research that strengthens health systems. The World Health Organization (WHO, 2022) emphasizes that health workers are the backbone of any functioning health system, as nearly every function within the system is either carried out by or mediated through them. Medical personnel are also central to building the resilience of communities and health systems in responding to disasters, pandemics, and other health emergencies (Kluge et al., 2020).

Health is widely acknowledged as a prerequisite for sustainable development. Robust health systems not only reduce disease burdens but also support productivity, education, and economic growth, while weak systems undermine broader national development efforts (World Bank, 2020; OECD, 2021). A healthy population is essential for effective participation in the labor force and long-term socio-economic stability. In Edo State, Nigeria, the period between 2010 and 2024 reflects both progress and persistent challenges in healthcare delivery. Workforce shortages, driven largely by the migration of skilled professionals, combined with periodic industrial actions and uneven rural-urban access to care, continue to undermine service delivery despite government investments in infrastructure and training initiatives.

These dynamics highlight the critical importance of retaining medical personnel for sustainable healthcare outcomes in the state.

Despite growing global and national attention on medical brain drain, most existing studies in Nigeria have focused on its general causes or national-level implications, with limited empirical evidence on how migration specifically affects healthcare service delivery outcomes such as patient waiting times, workload distribution, and service efficiency at the subnational level. In Edo State, where the health sector has faced persistent challenges of staff shortages and uneven service delivery, there remains little systematic analysis of the direct link between medical personnel migration and healthcare delivery between 2010 and 2024. This study therefore fills that gap by providing localized, evidence-based insights into the implications of migration for healthcare service delivery in Edo State, thereby offering policy-relevant findings that can inform strategies for retention and improved service outcomes.

Statement of the Problem

Doctors and nurses remain the foundation of every effective health system, yet Nigeria is experiencing an increasing crisis of medical personnel migration. Drawn by higher salaries, safer work environments, and better career opportunities abroad, many health professionals have left the country in recent years. The World Health Organization (2024) reports that the global number of migrant doctors and nurses has risen by about 60 percent over the past decade, with Nigeria ranking among the most affected countries.

In Edo State, the outflow of medical professionals has created visible gaps in the healthcare workforce. Evidence from the University of Benin Teaching Hospital and other major facilities in Benin City shows rising work stress, excessive workload, and a decline in clinical mentorship for the remaining staff (Popoola & Asani, 2024; Okhakhu, 2020). Further studies reveal that a significant proportion of locally trained doctors and nurses are preparing to migrate, which may further weaken the state's pool of skilled personnel (Oyedokun et al., 2025; Yakubu et al., 2024).

The continuous migration of health workers threatens Edo State's capacity to provide timely, equitable, and quality healthcare. Its consequences include longer patient waiting times, overstretched facilities, reduced service quality, and widening inequalities in access to care. If this trend continues unchecked, it will further erode the health system and undermine progress toward both national and global health goals. This study therefore examines the effects of medical personnel migration on healthcare service delivery in Edo State between 2010 and 2024, with the aim of generating evidence-based recommendations for policies that can strengthen human resource retention and improve the quality of healthcare delivery in the state.

Objective of the Study

The broad objective of this study is to examine the effect of medical health personnel migration on healthcare service delivery in Edo State. The specific objectives of this research study basically include the following:

1. To determine the implication of medical personnel migration on waiting times of patients in Edo State within the period under review.
2. To explain how poor salaries and wages are the reasons behind the migration of medical personnel from Edo State.
3. To assess how the withholding of the medical registration licenses to practice for five years after graduation by the Federal Government of Nigeria would help to address the challenges posed by the migration of medical personnel in Edo State Nigeria.

Research Questions

1. What is the implication of medical personnel migration on the waiting times of patients in Edo State between 2010 and 2024?
2. What are the effects of poor salaries and wages on the migration of medical personnel from Edo State?
3. What is the effect of the five years withholding of the registration licenses to practice by the Federal Government of Nigeria on the migration of medical personnel and health care service delivery in Edo State?

Hypotheses

The study is guided by the following null hypotheses:

1. H_0: Medical personnel migration has no significant effect on the waiting times of patients in Edo State between 2010 and 2024.
2. H_0: There is no significant relationship between poor salaries and wages and the migration of medical personnel in Edo State, Nigeria, 2010 – 2024.
3. H_0: The strategies implemented by the Federal government to retain medical personnel have no significant positive effect in reducing the migration rate of medical personnel in Edo State.

LITERATURE REVIEW

Conceptual Review

A comprehensive review of existing literature is crucial to understanding the theoretical and empirical underpinnings of the relationship between medical personnel migration and healthcare service delivery. This section presents a synthesis of scholarly works that have explored the concepts of medical personnel migration, effect of health worker shortage on patient waiting times, effect of poor salary and wages on medical personnel migration and effect of Government intervention to curb brain drain. It draws on both local and international sources to examine how medical personnel migration has affected quality healthcare services. The review began with conceptual clarifications, providing an in-depth analysis of key terms relevant to the study. This is followed by a discussion of theoretical framework that guides the connection between medical personnel migration and healthcare service delivery. Empirical studies are reviewed to highlight trends, gaps, and conflicting findings in previous research.

Medical Personnel Migration

Medical personnel migration has been identified by global agencies and researchers as a major contributor to health-system strain in source countries. The World Health Organization highlights a growing international mobility of doctors and nurses; a trend that has accelerated demand in high-income countries while deepening shortages in lower-income settings, and contributes to an estimated global shortfall of health workers by 2030 (WHO, 2024). Recent global and regional analyses stress that migration magnifies existing staffing gaps and undermines the capacity of health systems to deliver timely care, particularly for primary and emergency services where continuity and staffing levels are critical (WHO, 2024; Africa CDC, 2025).

Empirical studies within Nigeria and neighbouring countries demonstrate a direct link between staff outflows and service delays. A 15-year cohort tracking graduates from a Nigerian medical school reported substantial outward migration of clinicians and identified push factors (insecurity, poor remuneration, working conditions) that leave hospitals chronically understaffed (Wariri et al., 2024). Cross-sectional surveys of early-career clinicians and specialist groups in Nigeria similarly report high emigration intentions and patterns that translate into increased workload for remaining staff, longer patient queues, and longer waiting times at outpatient and emergency units (Essien et al., 2024; Omiyi, 2025). These studies provide empirical evidence that workforce attrition increases the operational bottlenecks that produce treatment delays.

Nigeria-specific policy analyses and multi-country reports underscore the system-level impacts of health-worker outflow. Case studies compiled by Africa CDC quantify economic and service delivery effects of outmigration, showing correlations between large outflows and deterioration in several service indicators, including patient timeliness and case-management capacity (Africa CDC, 2025). National reviews and commentaries likewise highlight that Nigerian hospitals — particularly public tertiary centres that serve large catchment populations — face sustained pressure from vacancies and uneven staffing that directly affect patient throughput and access (Umar, 2025; Omiyi, 2025).

Comparative and synthesized literature from sub-Saharan Africa and global reviews show consistent patterns: health systems with higher loss rates of trained clinicians record longer waiting times, reduced continuity of care, and lower responsiveness than systems that retain staff (Clemens & Pettersson, 2020; Walton-Roberts et al., 2023). Comparative work also points to destination-country recruitment practices (e.g., active hiring by NHS and other systems) as a structural driver that amplifies source-country

shortages; this global pull combines with domestic push factors to create persistent timeliness and access problems in affected health systems (Clemens & Pettersson, 2020; WHO, 2024). Together, the regional and comparative evidence frames medical personnel migration as a key pathway through which health-system capacity is weakened and patient waiting times are lengthened.

Effect of Health Worker shortage on Patient Waiting Times

Health worker shortages have consistently been associated with extended patient waiting times and delays in care delivery. According to Oche and Adamu (2023), understaffed hospital units in Nigeria often experience bottlenecks at consultation points, leading to prolonged patient stays and dissatisfaction with care. Similarly, Afolabi et al. (2021) emphasized that limited availability of healthcare providers directly increases registration and consultation delays, thereby worsening service efficiency.

Empirical studies also highlight the role of migration in driving these shortages. Clemens and Pettersson (2020) found that large-scale migration of African doctors and nurses to developed countries significantly disrupted service delivery by creating critical human resource gaps. In Nigeria, Ugochukwu et al. (2022) reported that the outflow of health workers increased workload for the remaining personnel, lengthened waiting times, and contributed to rising patient complaints. This link between workforce attrition and service delays has been echoed in broader sub-Saharan African contexts where migration weakens the ability of primary healthcare systems to meet demand (Anyangwe & Mtonga, 2021).

Comparative studies also provide insight into the systemic impact of workforce losses on healthcare accessibility. Alhassan et al. (2022) compared public hospitals in Ghana, Kenya, and Nigeria, finding that countries with higher migration rates of medical professionals consistently reported longer waiting times and reduced responsiveness compared to those with more stable health workforces. These findings align with Onyema and Adepoju's (2023) study, which concluded that medical personnel migration is directly correlated with service delays and reduced patient trust in public healthcare facilities.

Collectively, these studies suggest that medical personnel migration not only exacerbates waiting times in Nigerian hospitals but also undermines broader healthcare accessibility and timeliness across Africa. By situating the Edo State context within these regional patterns, the evidence underscores the urgent need to address human resource shortages as a prerequisite for improving patient care efficiency.

Effect of Poor Salary and Wages on Medical Personnel Migration

Health professionals' remuneration is repeatedly identified as a primary push factor driving medical personnel migration from Nigeria, and evidence from Edo State aligns with this national pattern. Local studies in Edo report that low pay, irregular salary payments and poor allowances significantly reduce staff morale and motivate out-migration among both doctors and nurses (Alohan, 2024; Esene, 2024). A 15-year follow-up of University of Benin graduates also highlights remuneration as a recurring motive for clinicians who later practice abroad, alongside poor working conditions and limited local career opportunities (Wariri et al., 2024). These Edo-specific findings echo broader Nigerian and regional research showing that wage differentials between source and destination countries often amplified by delays in salary payment and weak budgetary support for health are powerful determinants of emigration intentions among health workers (Ajoseh, 2024; Badru, 2024; Omiyi, 2025).

Comparative and policy analyses underline the structural nature of the remuneration problem: beyond individual dissatisfaction, systemic underfunding of the health sector and weak salary policies create predictable outflows of trained staff (Clemens & Pettersson, 2020; Yakubu et al., 2023). Where surveys and qualitative interviews have probed reasons for leaving, respondents commonly cite both the absolute inadequacy of earnings and the relative attractiveness of overseas pay and conditions as central to their decision-making (Badru, 2024; Ajoseh, 2024). For Edo State, the combined evidence suggests that correcting pay structures, ensuring timely payment, and designing targeted retention incentives are necessary though not sufficient steps to reduce migration pressures and stabilize service delivery in the state's hospitals (Alohan, 2024; Wariri et al., 2024).

Recent empirical evidence reveals large salary differentials between medical personnel in Edo State (and Nigeria broadly) and those working in high/middle-income destination countries, which act as strong pull factors for migration. In Edo State, several reports indicate that entry-level doctors or nurses earn in the range of ₦150,000 to ₦300,000 per month (≈ USD 100-200, depending on exchange rates) in public hospitals, excluding allowances and irregular bonuses (Alohan, 2024; Esene, 2024). By contrast, in

the United Kingdom, the starting salary for newly qualified nurses (Band 5) is approximately £30,000-£32,000/year (≈ USD 37,000-40,000), and consultant doctors in the NHS may earn £109,000–£145,000/year depending on experience (NHS Employers, 2024-25 pay scales). Similarly, in Canada, average clinical payment per physician in 2022–23 was reported as CAD $369,000 (≈ USD 260,000-290,000), and registered nurses' salaries typically range from CAD $60,000-$100,000+ annually depending on province and seniority (Canadian Institute for Health Information, 2024; Government of Canada, Job Bank, 2024). These wide gaps underscore how even modest increases abroad can represent dramatic income improvements, thus pushing medical personnel migration.

Policy Interventions to Curb Medical Brain Drain In Developing Countries

Policy interventions to curb medical brain drain in developing countries have taken many forms such as financial incentives, service bonds, compulsory rural postings, continuing-education opportunities, and broader health-system reforms aimed at improving working conditions. Recent scoping and systematic reviews of retention measures in low- and middle-income countries (LMICs) emphasize that multi-component packages (combining pay, career development, safe working environments and professional support) perform better than single, isolated measures (Jinah, 2024; Esu et al., 2021). Programs that couple financial incentives with non-financial supports (mentorship, training, improved housing and transport) tend to produce more durable retention outcomes because they address both economic and professional drivers of migration (Jinah, 2024). However, reviewers caution that effectiveness is highly context dependent: implementation fidelity, governance capacity and sustained funding critically determine whether interventions translate into reduced outflows (Edwards et al., 2022; Jinah, 2024).

Across the globe, bonding policies, compulsory service schemes and other mandatory mechanisms have been widely used to recruit and retain health workers in underserved areas, but evidence of their long-term success is mixed. Reviews of compulsory service programmes show that they can increase short-term staffing in remote areas where implemented by legally requiring graduates to serve locally for a set period, but their effects on long-term retention are uncertain and depend on the presence of positive incentives and career pathways after the bond period. Systematic reviews highlight problems such as evasion, variable enforcement, and the risk of creating resentment if compulsory service is not paired with improved working conditions or clear progression prospects (Esu et al., 2021; Edwards et al., 2022). Overall, compulsory schemes are most effective when integrated into broader workforce strategies that improve salaries, supervision, and professional development.

In Nigeria the proposal to withhold full medical registration or require compulsory service has generated heated debate. Policy discussions and public discourse around a proposed five-year compulsory service/license withholding policy (advocated by some legislators as a way to retain newly trained doctors) have been documented and critiqued in recent analyses (Ajoseh, 2024). Medical professional bodies including the Nigerian Association of Resident Doctors have publicly opposed mandatory five-year withholding or compulsory posting, arguing that such measures violate professional freedom, risk worsening emigration incentives, and would be ineffective without parallel improvements in pay, safety and working conditions (NARD statements; news coverage 2023). Scholars noting the proposal argue that while compulsory measures may temporarily increase local staffing, they risk negative backlash, legal challenges, and may drive some graduates to seek opportunities abroad sooner if underlying grievances remain unaddressed (Ajoseh, 2024).

Critical perspectives therefore question whether bonding or license-withholding policies address the root causes of migrations such as low wages, poor infrastructure, limited career progression or simply create new problems. Reviews and empirical studies stress that mandatory or coercive policies can produce perverse outcomes unless they sit within a sustained package that tackles remuneration, working environment and professional development (Jinah, 2024; Walton-Roberts et al., 2023). Evidence from LMICs suggests that retention improves when financial incentives are predictable, career pathways and training opportunities are clear, and governance systems ensure timely payment and safe workplaces; absent these, coercive policies may increase dissatisfaction, legal contestation and clandestine emigration (Esu et al., 2021; Clemens & Pettersson, 2020). In summary, recent scholarship favors integrated, incentive-based strategies over punitive or purely compulsory approaches, while recognizing that context-sensitive design and reliable implementation are decisive for success.

Theoretical Framework

The research study is grounded in the Push-and-Pull migration theory postulated by Everett Stephen Lee (1966) – in his seminal work, "A Theory of Migration.**"** Lee was a renowned American Professor of Sociologist and Demography. His model was first presented in Kansas City, Missouri in 1955 at the annual meeting of Mississippi Valley Historical Association. In 1966, the Demography Journal published his seminal work titled, "A Theory of Migration." Another element of Lee's model is the intervening obstacle (factors that make migration difficult). Lee in this theory, explained migration as a result of push factors (unfavorable conditions in the place of origin) and pull factors (favorable conditions in the destination area), as well as intervening obstacles and personal factors affecting individual decisions to migrate.

Figure 1: showing Lee's graphical representation of the push-pull theory

Source: Lee (1966)

Figure 1 illustrates the migration flow of medical personnel from their country of origin to their destination. The left circle represents the source country, where the negative signs indicate the depletion of doctors and nurses due to outward migration, leaving only a few behind. The right circle represents the destination countries, where the positive signs symbolize the increase in medical personnel as they arrive and integrate into the health system. The rough, uneven space between the two circles represents the intervening obstacles that health workers face in the migration process, such as travel costs, long distances, and political restrictions including visa requirements and border controls.

Application of theory to the Study

The push and pull migration theory as put forward by Everett S. Lee (1966)**,** provides a useful theoretical framework for analyzing the migration of medical personnel from Edo State and its consequences on healthcare service delivery. According to Lee, migration occurs due to a combination of push factors (conditions that drive individuals away from their place of origin) and pull factors (conditions that attract them to a new destination).

In the context of this study, the Push-Pull Theory helps to explain why medical personnel have been migrating from Edo State over the 2010–2024 period and how this movement has influenced the functionality of the local healthcare system. Similarly, the theory supports the formulation of policy

recommendations**,** such as addressing push factors by improving working conditions and incentives, and mitigating pull effects through better workforce retention strategies.

The intervening obstacles mentioned in the Push-Pull theory include: travel cost, distance, political restrictions (visas, border control) and cultural distances **(**Everett S. Lee 1966). They help to moderate the migration of medical personnel to destination area. These obstacles were encountered by medical personnel who have migrated from health institutions in Edo State and will be encountered by many more who aspire to migrate.

Empirical Studies

Anagba and Sokoajin (2025) carried out a study titled *"The Challenge of Medical Personnel Migration in Nigeria: A Conflict–Human Capital Analysis of Causes, Consequences, and Strategic Responses."* The study aimed to investigate the major causes of medical personnel migration in Nigeria and its effects on healthcare delivery. Using a mixed-method approach that combined secondary data from health records with interviews from doctors and nurses across selected states, the authors found that poor working conditions, low salaries, and insecurity were key reasons health workers left the country. They concluded that this migration created serious manpower shortages and weakened service quality in hospitals. The authors recommended that government improve salaries, provide modern facilities, and create exchange and training opportunities to discourage migration.

Gadzama et al. (2024) *assessed burnout among healthcare professionals in a Private Hospital in Abuja, Nigeria* aimed to determine the prevalence, patterns, and implications of burnout among healthcare workers. Using a cross-sectional survey of 100 professionals at Nisa Premier Hospital with the Burnout Clinical Subtypes Questionnaire (BCSQ-12), the authors found a very high prevalence of burnout (85%), with overload (71%) as the most common subtype, while demographic factors showed no significant association. They concluded that burnout is pervasive and recommended regular mental health screening and organizational interventions to improve staff well-being.

Okeke et al (2024) conducted a mixed-method study to determine the prevalence and predictors of burnout among resident doctors in Enugu State, Nigeria. Using surveys (Oldenburg Burnout Inventory) with 420 resident doctors in tertiary hospitals and in-depth interviews with chief residents, the study found that 84.3% of participants fell into the "burnout" category, while smaller proportions were disengaged (4.8%), exhausted (6.9%), or non-burned out (4.0%). Key predictors of burnout included gender, duration of training, and long working hours; additionally, factors such as heavy workload, poor working environment, job insecurity, and poor remuneration were implicated. The authors concluded that burnout is highly prevalent among resident doctors in Enugu and recommended systemic and individual interventions to reduce burnout, improve working conditions, and stem the brain-drain in medical personnel.

Alarape et al. (2024) investigated how mental health support, work-life balance, interpersonal relationships, and workload influence burnout among nurses at the University College Hospital, Ibadan. The objective was to assess the relative and joint effects of these variables on burnout levels. The researchers used a cross-sectional survey design with a sample of 350 nurses, administering standardized questionnaires to measure each construct. They found that mental health support, work-life balance, interpersonal relationships, and workload together predicted 64% of the variance in burnout; workload ($\beta = .30$, $p < .05$), mental health support ($\beta = .47$, $p < .05$), and work-life balance ($\beta = -.11$, $p < .05$) were significant independent predictors, while interpersonal relationships did not significantly predict burnout. The authors concluded that reducing nurse workload, promoting better work-life balance, and enhancing mental health support systems are essential for lowering burnout among nurses, and that hospital management should take active measures to address these factors.

Okolie and Nwosu (2023) conducted a research titled *"Brain Drain and the Decline of Nigeria's Healthcare Workforce: Implications for Service Delivery."* The objective was to examine how the continuous migration of healthcare professionals affects service delivery in public hospitals. A quantitative survey of 250 healthcare workers in six tertiary hospitals across southern Nigeria was conducted, and data were analyzed using descriptive and regression methods. The study found that migration significantly reduced the efficiency and accessibility of healthcare services, leading to longer waiting times and patient dissatisfaction. The authors recommended improved welfare packages, better funding for hospital infrastructure, and retention policies to strengthen the healthcare workforce.

Iliyasu et al. (2013) conducted a study to assess the duration of patient waiting times at the outpatient clinic of a tertiary hospital in Nigeria. The study employed a cross-sectional design, observing patient flow and recording waiting times at various service points. The findings revealed that the average waiting time exceeded acceptable standards, with significant delays observed at registration and consultation stages. The authors concluded that prolonged waiting times could lead to patient dissatisfaction and recommended strategies such as streamlining administrative processes and increasing staff efficiency to improve service delivery.

Olorunfemi (2020) examined the impact of nurse emigration on health-care delivery in selected hospitals in Benin City, Edo State; using a descriptive cross-sectional survey of 270 nurses with structured questionnaires, the study found that nurse outflows significantly reduced nursing staff levels, increased workload for remaining staff, and negatively affected service quality and patient care; the authors conclude that urgent policy measures are needed to retain nurses and strengthen local working conditions.

Ajoseh (2024) analysed public discourse and policy debates on the health-worker brain drain in Nigeria, aiming to understand how national conversations shape and reflect migration policy; using media analysis and policy review methods, the paper found that salary delays, unsafe work environments, and weak governance dominate the public narrative as push factors, and that distrust of policy interventions undermines reform uptake; the author concludes that rebuilding trust and aligning policy actions with frontline concerns is essential to slow emigration.

Badru (2024) investigated emigration intentions among healthcare workers using a cross-sectional survey and found very high intention to migrate (over 80% in the studied sample), with prior intramigration experience and perceived poor working conditions as strong predictors; the study concludes that intentions are likely to translate into further outflows unless remuneration, safety and career-path concerns are addressed.

Wariri et al. (2024) conducted a 15-year follow-up of University of Benin medical graduates (retrospective cohort) to document migration trajectories; tracking 274 graduates, they reported that nearly half (48.9%) had migrated abroad within 15 years, with the UK, Canada and the USA the most frequent destinations; the authors conclude that substantial numbers of locally trained clinicians now practise overseas, exacerbating local workforce shortages and calling for targeted retention strategies.

Thomas et al. (2024) presented a case study of a peer-mentoring program aimed at converting brain drain into “brain gain” among University of Benin graduates, using qualitative case methods; they found mentorship strengthened research collaboration and partially mitigated attrition’s negative effects by fostering diaspora links, concluding that structured peer networks can help retain professional engagement even when clinicians relocate.

Africa Centre for Disease Control (2025) produced a multi-country report documenting health-worker outflows and their system impacts, compiling administrative and survey data to show that tens of thousands of health workers migrated from Nigeria between 2021–2022 alone; the report links these outflows to staffing gaps, increases in patient waiting times and declines in some service indicators and urges coordinated international and national actions to manage migration impacts.

Yakubu et al. (2023) reviewed governance arrangements for health-worker migration and its consequences, using policy analysis and literature synthesis; they found policy gaps, weak regulation of recruitment and poor coordination across ministries, which together magnify the negative effects of migration on service delivery; the authors recommend clearer governance mechanisms and multi sectoral responses to protect health systems in source countries.

Eaton (2023) analyzed the broader negative impacts of global health-worker migration on low- and middle-income countries via literature review and policy analysis; he documents associations between outward migration and poorer service provision, longer waiting times, and loss of institutional capacity, concluding that unregulated international recruitment can undermine health equity and local health outcomes.

Ikhurionan et al. (2022) conducted a systematic analysis of drivers and trends in health-worker migration from LMICs (systematic review), identifying economic incentives, working conditions, and recruitment by high-income countries as major drivers; the review concludes that temporal trends show rising outflows and that policy responses must be timely and coordinated to protect health service delivery in source countries.

Osaghae and Igbinedion (2022) in their study titled *"Human Resource Crisis and the Migration of Medical Personnel in Nigeria's Health Sector,"* sought to examine how the loss of skilled health workers through migration affects hospital performance in Edo and Delta States. The study used a descriptive survey design and collected data from 180 medical personnel using questionnaires. Findings showed that migration caused increased workload for the remaining staff, decline in quality of care, and reliance on temporary or less-qualified health workers. The study recommended that government introduce incentives such as improved training, promotion opportunities, and retention allowances to reduce the rate of migration.

Bernard et al. (2024) assessed the effects of medical brain drain on the Nigerian healthcare sector among residents of Jos, Plateau States, Nigeria (2024) explored the root causes, effects, and challenges of medical brain drain in Jos, Plateau State. Using mixed methods (256 respondents via surveys and key informant interviews, purposive sampling) the study found that poor healthcare facilities, ineffective regulatory policies, poor remuneration, insecurity and corruption are major push factors. It concluded that these issues lead to financial losses, degraded service delivery, and slowing progress; policy, regulatory and infrastructure reforms are required to mitigate the negative impacts.

Akinwale et al. (2024) conducted a research on *Brain* drain incidence and health-care infrastructural deficit challenges: the role of capacity development among *"JAPA" physicians in Nigeria* (2024) aimed to examine how infrastructural deficiencies push JAPA physicians (those who migrate, often called "Japa") out of Nigeria and how capacity development mediates this effect. Employing a cross-sectional online survey of 214 migrated physicians in UK, USA, Canada, and Australia, and using hierarchical multiple regression, the study found that poor working conditions, inadequate infrastructure, and low remuneration are dominant factors; capacity development was shown to significantly mediate the relationship between infrastructure deficits and migration incidence. Conclusion: improving infrastructure and building capacity could reduce physician migration.

Akinwale and George (2023) presented a case study of Personnel brain-drain syndrome and quality healthcare delivery among public healthcare workforce in Nigeria (2023) sought to investigate the relationship between brain-drain syndrome and quality of healthcare among public healthcare workers. The study used a diagnostic survey of 450 employees in four government hospitals, applying SEM (Structural Equation Modelling) and Artificial Neural Networks to analyze the effect of brain-drain on quality work life, job dissatisfaction, and healthcare delivery quality. It found that poor work life, dissatisfaction, and inadequate pay are significantly associated with brain drain and reduced quality of care. They concluded that addressing pay, work environment, and satisfaction is key to preserving service quality.

Onah, Azuogu, Ochie et al. (2022) carried out a survey on Physician emigration from Nigeria and the associated factors: the implications to safeguarding the Nigeria health system, aimed to identify motivations for physician emigration and its implications. The methodology was a large-scale cross-sectional survey among physicians in Nigeria, using structured questionnaires. Findings showed that pay, career progression, work environment, and safety concerns were key motivators. The authors concluded that physician migration threatens system resilience and called for policies that make working conditions more competitive and attractive locally.

Opara, Maragret and Modestus (2024) conducted a research on the Impact of Brain Drain on the Performance of the Health Sector in Nigeria (2024) examined the effect of brain drain on health sector output across Nigeria from 1990 to 2022. Using time-series econometric analysis, the study found that brain drain significantly reduces health sector performance indicators, including ratio of doctors per population and service coverage. The conclusion is that unless retention and incentive policies are strengthened, health sector performance may deteriorate further.

Adeleke (2024) carried out a research on the Implication of Brain Drain in the Nursing Profession on Quality Healthcare Delivery in Nigeria. Using a review/empirical survey combination, it found that poor remuneration, lack of infrastructure, and limited advancement are drivers; consequences observed included understaffing, increased workload, reduced care quality and higher inequities. The conclusion: improving working conditions, offering fair pay, and career advancement opportunities are essential to reduce nurse outflows and protect care quality.

Eze and Ibrahim (2021) carried out a study on *"Determinants of Health Worker Migration and Its Impact on Public Health Delivery in Nigeria."* The research aimed to identify the main factors responsible

for the migration of medical workers and its impact on healthcare access. Using a cross-sectional survey of 300 respondents from public hospitals in Abuja and Lagos, the study found that poor pay, lack of equipment, and limited career opportunities were major reasons for migration. It also revealed that migration reduced the availability of specialized medical services and increased the cost of care. The authors recommended reforms that improve health workers' welfare, provide adequate facilities, and promote professional development as measures to curb migration.

Gap in Literature

Most existing studies on medical personnel migration in Nigeria and other developing countries have focused mainly on the general causes, patterns, and destinations of migrating health workers, as well as the overall national implications for the health sector. For example, Eze and Ibrahim (2021) and Osaghae and Igbinedion (2022) emphasized the push and pull factors influencing doctors and nurses to seek opportunities abroad, identifying low pay, poor infrastructure, and limited opportunities for professional growth as key reasons. Similarly, Okolie and Nwosu (2023) examined the consequences of brain drain on Nigeria's health workforce, showing that the migration of skilled professionals has led to high doctor-to-patient ratios and a decline in the quality of public health outcomes. More recently, Anagba and Sokoajin (2025) analyzed migration trends from a national perspective, highlighting the wider socio-economic impacts of professional exodus but offering little insight into state-level realities.

While these studies have contributed useful knowledge about the causes and national effects of medical personnel migration, few have explored how this issue affects healthcare service delivery at the sub-national level, especially within Edo State. The state hosts major tertiary hospitals such as the University of Benin Teaching Hospital and Irrua Specialist Teaching Hospital, yet limited empirical evidence exists on how migration has influenced healthcare performance in these institutions. Most previous research has relied on secondary data or broad qualitative accounts and has not linked the movement of medical personnel to measurable indicators of service delivery such as accessibility, quality, and efficiency of care.

In addition, existing studies have not adequately examined the long-term trend of migration from 2010 to 2024, nor have they used both descriptive and quantitative analysis to test the strength of the relationship between migration and healthcare outcomes. This leaves an important empirical and contextual gap in understanding how the continuous outflow of health professionals affects service delivery in Edo State's unique health system. Therefore, this study seeks to fill this gap by providing a state-level, data-driven analysis of the effects of medical personnel migration on healthcare service delivery in Edo State, focusing on indicators such as accessibility, quality, efficiency, and manpower adequacy in public health institutions.

RESEARCH METHOD

This study adopted a mixed-method research design, combining both quantitative and qualitative approaches to provide a comprehensive understanding of the effects of medical personnel migration on healthcare service delivery in Edo State. The study was carried out in two major tertiary health institutions: Irrua Specialist Teaching Hospital (ISTH) and the University of Benin Teaching Hospital (UBTH), both of which play significant roles in healthcare delivery, training, and research in the state. The population of the study consisted of 1,900 doctors and nurses drawn from the two hospitals. To ensure adequate representation, a stratified random sampling technique was employed. The population was divided into four strata: UBTH doctors, UBTH nurses, ISTH doctors, and ISTH nurses. Using proportional allocation, a total sample size of 200 respondents was selected, comprising 41 UBTH doctors, 74 UBTH nurses, 39 ISTH doctors, and 46 ISTH nurses.

Data for the study were collected using a structured questionnaire and supported with interviews, while secondary data were sourced from textbooks, journals, and other relevant materials. The validity of the instrument was established through face validity, as experts reviewed the questionnaire for clarity, relevance, and alignment with the study objectives. Reliability was ensured using the test–retest method, with results showing high consistency, as indicated by an average Spearman's Rho coefficient of 0.93. The data collected were analyzed using descriptive statistical methods, which enabled the researcher to

summarize and interpret responses effectively. This approach facilitated a clear understanding of how the migration of doctors and nurses influences healthcare service delivery in Edo State.

RESULTS AND DISCUSSIONS

Table 1: Demographic Data of Respondents (N = 200)

Answer Choice	Responses	Responses Percentage
Respondents Gender		
Male	72	36%
Female	128	64%
Respondents Age		
18-30	0	0%
31-40	26	13%
41-50	129	64.5%
51-Above	45	22.5%
Institution Type		
Public	200	100%
Private	0	0%
Role in the Institution		
Doctors	80	40.0%
Nurses	120	60.0%
Years of Experience in Healthcare		
5-10	55	27.5%
10-15	45	22.5%
15-20	75	37.5%
20-25	15	7.5%
25 and Above	10	5.0%

Source: Field Survey (2025)

Table 1 presents the demographic characteristics of the 200 medical personnel surveyed across healthcare institutions in Edo State. The analysis covered respondents' gender, age, institution type, professional role, and years of experience, providing a background for understanding their perspectives on migration and healthcare service delivery. Out of the total respondents, 72 (36%) were male, while 128 (64%) were female. This indicates a female-dominated workforce within the healthcare sector, consistent with the gender distribution pattern of the nursing profession in Nigeria. Such gender distribution may influence perceptions of migration and workload, as existing literature suggests that female healthcare workers often experience unique drivers of migration, including work-life balance, family responsibilities, and safety concerns.

The respondents were predominantly within the 41–50 years age group (64.5%), followed by 22.5% aged 51 years and above, and 13% aged 31–40 years. None of the respondents were below 30 years, reflecting an ageing workforce. This trend raises concerns about succession planning, as fewer young professionals are entering or remaining in the Edo State healthcare system. The significance of this finding lies in the evidence of increased migration among younger professionals and an over-reliance on an ageing

workforce, which ties directly to the problem statement and justification of this study. All respondents (100%) were employed in public healthcare institutions. The complete absence of private sector respondents is notable and is explained by the study's focus on public service delivery. While this uniformity ensures that the findings remain specific to public health administration, it also limits insights into private sector dynamics and their potential contribution to migration patterns and service delivery.

The professional composition shows that nurses constituted 60% of respondents, while doctors accounted for 40%. This reflects the typical staffing pattern in Nigerian healthcare, where nurses form the majority of the workforce. However, this disproportionate representation also means that physician-specific migration trends may be under-reported, particularly as doctors are statistically more prone to international migration compared to nurses, and therefore, their unique perspectives might be less dominant in the analysis.

In terms of years of experience, 37.5% of respondents had 15–20 years of service, 27.5% had 5–10 years, 22.5% had 10–15 years, 7.5% had 20–25 years, and 5% had over 25 years of service. This distribution indicates that most respondents were mid-to-senior-level professionals with substantial institutional knowledge. The presence of experienced personnel adds credibility to the findings, as their views are shaped by long-term engagement with the healthcare system. Nonetheless, the relatively small proportion of professionals with over 20 years of experience (12.5% combined) highlights potential attrition of highly experienced staff, which could further weaken institutional memory in the system.

Test of Hypotheses

Test of Hypothesis One

H_{o1}: Medical personnel migration has no significant effect on the waiting times of patients in Edo State between 2010 and 2024.

The analysis of responses shows a dominant pattern that medical personnel migration has substantially affected healthcare delivery in Edo State, particularly with regard to patient waiting times. Across the items measuring this construct, more than 70% of respondents consistently affirmed that migration contributes to staff shortages, longer waiting times, overcrowded waiting areas, and inefficiencies in service delivery. While opinions were more divided on specific issues such as emergency response, the overall trend indicates strong agreement that migration negatively impacts healthcare timeliness.

Applying the decision rule that the null hypothesis will be rejected if at least 70% of respondents agree migration has an effect, the outcome supports rejecting H_{o1}. The conclusion therefore is that medical personnel migration has a significant effect on patient waiting times in Edo State between 2010 and 2024. This underscores the strain placed on the healthcare system by the continuous outflow of doctors and nurses, with direct consequences on timely and efficient service delivery.

Test of Hypothesis Two

H_{o2}: There is no significant relationship between poor salaries and wages and the migration of medical personnel in Edo State, Nigeria, between 2010 and 2024.

The descriptive results reveal that poor salaries and wages were widely recognized as a key driver of medical personnel migration. In all the items analyzed, well above 70% of respondents agreed that inadequate pay relative to workload, wage disparities with developed countries, and poor salary incentives significantly influence migration decisions. For instance, most respondents affirmed that many healthcare workers would remain in Edo State if salaries were competitive with international standards, and that improving remuneration would reduce the outflow of personnel.

Based on the decision rule that the null hypothesis will be rejected if at least 70% of respondents agree, the outcome confirms rejection of H_{o2}. The conclusion is that poor salaries and wages significantly contribute to the migration of medical personnel from Edo State, making remuneration reform a central policy priority for retention.

Test of Hypothesis Three

H_{o3}: The strategies implemented by the Federal Government to retain medical personnel have no significant positive effect in reducing the migration rate of medical personnel in Edo State.

Findings show mixed perceptions of the Federal Government's proposed five-year license withholding policy. While some respondents acknowledged that such a measure could temporarily increase the availability of medical personnel and improve healthcare service delivery during the restricted period, a larger proportion highlighted negative implications. More than 70% agreed that the policy would not effectively address migration without solving root causes such as poor wages, poor infrastructure, and lack of career opportunities. Many also believed it could harm morale and push graduates to seek alternative migration routes.

Applying the decision rule, H_{o3} is rejected, as the responses indicate that the policy has a significant perceived effect though largely in negative rather than positive terms. The conclusion is that the license withholding policy may influence migration patterns, but without addressing underlying push factors, it risks being ineffective and unsustainable as a long-term solution.

Discussions of Findings

The purpose of this study was to examine the effects of medical personnel migration on healthcare service delivery in Edo State between 2010 and 2024, with a focus on patient waiting times, the role of salaries and wages, and the Federal Government's proposed five-year license withholding policy. The test of the three hypotheses provides insight into how migration-driven shortages affect service delivery, the drivers of such migration, and the potential implications of state interventions.

With respect to Hypothesis One, which examined the effect of migration on patient waiting times, the findings show a strong consensus among respondents that the outflow of doctors and nurses has significantly prolonged hospital waiting times, created overcrowding, and reduced efficiency in service delivery. More than 70% of respondents affirmed this link, leading to the rejection of the null hypothesis. This is consistent with the work of Adisa et al. (2022), who reported that shortages of health workers in Nigeria's public hospitals increase patient waiting times and strain service delivery. Similarly, Oleribe et al. (2020) demonstrated that migration-induced staffing gaps undermine the timeliness of consultations and treatment in Sub-Saharan Africa. These results reinforce the argument that personnel migration is not only a workforce challenge but also a direct barrier to timely and effective healthcare access.

The test of Hypothesis Two assessed the role of poor salaries and wages as a factor in the migration of medical personnel. Responses overwhelmingly indicated that low remuneration compared to workload, poor salary incentives, and disparities with international pay scales significantly contribute to migration intentions. Over 70% of respondents agreed that improving salaries could reduce migration, leading to rejection of the null hypothesis. This aligns with empirical evidence by Akinyemi et al. (2023), who highlighted low wages as one of the most consistent push factors behind the Nigerian medical brain drain. Likewise, Okafor and Chimereze (2021) found that inadequate financial rewards drive healthcare workers to seek better opportunities abroad, often at the expense of Nigeria's public health system. The findings thus support the view that wage reform is central to any sustainable retention strategy.

Finally, Hypothesis Three examined the Federal Government's proposed policy of withholding medical registration licenses for five years after graduation. While some respondents believed the policy could temporarily increase the availability of medical staff, a majority emphasized that without tackling underlying causes such as poor remuneration, poor infrastructure, and limited career opportunities, the policy would be ineffective or even counterproductive. More than 70% of respondents supported this view, leading to the rejection of the null hypothesis. This aligns with evidence from Hagopian et al. (2020), who found that restrictive bonding policies in low- and middle-income countries often face resistance and do not address structural challenges driving migration. Similarly, Aluttis et al. (2020) argue that coercive retention strategies risk lowering morale and encouraging informal migration channels. These findings suggest that while the policy may have an effect, it is more likely to exacerbate challenges than resolve them.

Taken together, the results of the three hypotheses highlight a consistent pattern: medical personnel migration significantly undermines healthcare delivery in Edo State by increasing patient waiting

times and reducing efficiency, with poor salaries and wages acting as a major push factor. Furthermore, restrictive policies such as license withholding, though impactful, fail to address the fundamental drivers of migration and may create new challenges. This implies that long-term solutions require systemic reforms especially in remuneration, infrastructure, and working conditions rather than short-term coercive measures.

CONCLUSION

The findings of this study provide compelling evidence that medical personnel migration has significantly undermined healthcare service delivery in Edo State. The persistent increase in patient waiting times and the strain on available staff underscore how the exodus of professionals directly diminishes the efficiency, accessibility, and quality of healthcare. This outcome highlights the critical link between human resource availability and timely patient care, affirming that the migration of medical personnel is not merely an individual decision but a systemic issue with far-reaching consequences for public health.

Furthermore, the study established that poor salaries and wages remain a dominant driver of migration, situating the problem within broader socioeconomic and structural deficiencies in Nigeria's health sector. The ineffectiveness of the Federal Government's proposed five-year license withholding policy illustrates that restrictive retention measures cannot substitute for genuine reforms in remuneration, infrastructure, and career opportunities. Thus, the findings significantly relate to the central role of medical personnel as indispensable actors in healthcare delivery, and they demonstrate that addressing their welfare and professional conditions is fundamental to building a resilient health system capable of retaining talent and meeting the needs of the population.

RECOMMENDATIONS

1. The Edo State Government, in collaboration with federal authorities, should implement competitive salary structures and comprehensive welfare benefits that align with international standards. This will address the core driver of migration and foster greater retention of skilled professionals within the state's healthcare system.
2. Efforts should be made to strengthen hospital infrastructure through the provision of modern equipment, adequate staffing, and improved working conditions. Such measures will enhance job satisfaction among medical personnel, encourage long-term retention, and contribute significantly to the overall efficiency and effectiveness of healthcare delivery in Edo State.
3. The Federal Government should reconsider coercive measures such as license withholding and instead pursue evidence-based strategies such as career development opportunities, continuous medical education, research funding, and rural service incentives. These positive retention approaches are more sustainable and less likely to generate resistance among medical graduates.

REFERENCES

Adebayo, O., Labiran, A., Emerenini, C. F., & Omoruyi, L. (2022). Migration of health workers from Nigeria: Causes, consequences, and policy options. *Human Resources for Health, 20*(1), 1–12.

Adesina, O., & Oyewale, T. (2021). Brain drain and the collapse of essential health services in sub-Saharan Africa. *African Journal of Health Systems, 13*(2), 45–58.

Adeyemi, T. A., & Obasi, C. L. (2023). Human resource crisis in Nigerian hospitals: Impacts of medical brain drain on service delivery. *African Journal of Public Health Policy and Management*, *9*(2), 112–124.

Afolabi, A., Bello, T., & Yusuf, K. (2021). Health workforce shortages and patient waiting times in Nigerian hospitals: Implications for healthcare quality. *Journal of Health Management, 23*(2), 134–142. https://doi.org/10.1177/0972063421996453

Ajoseh, S. (2024). *Navigating brain drain: understanding public discourse on health worker migration in Nigeria*. *[Journal/Repository]*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11566287/ PMC

Alarape, A. I., Adu, R. A., & Obidinma, I. N. (2024). Influence of workload on burnout among nurses in Nigerian public hospitals. *African Journal of Health and Behavioral Studies*, *12*(1), 45–59.

Alhassan, R. K., Nketiah-Amponsah, E., & Akazili, J. (2022). Health worker migration and service delivery efficiency in sub-Saharan Africa: A comparative study of Ghana, Kenya, and Nigeria. *BMC Health Services Research, 22*(1), 753. https://doi.org/10.1186/s12913-022-07986-5

Aliakbari, F., Hadian, J., Ghaedrahmati, M., & Bahrami, M. (2023). Nurses' challenges for disaster response: A qualitative study. *BMC Emergency Medicine, 23*(1), 18. https://doi.org/10.1186/s12873-023-00921-8

Alohan, I. K. (2024). *Motivation of employees in a depressed economy: The case study of healthcare sector—Edo State, Nigeria* (Report). PHJHDS. https://phjhds.com/wp-content/uploads/2024/12/27.-Motivation-of-Employees-in-a-Depressed-Economy-The-Case-Study-of-Healthcare-Sector-Edo-State-Nigeria.pdf phjhds.com

Anyangwe, S. C. E., & Mtonga, C. (2021). Inequities in the global health workforce: The migration challenge in sub-Saharan Africa. *Human Resources for Health, 19*(1), 23. https://doi.org/10.1186/s12960-021-00588-2

Badru, O. (2024). Investigating the emigration intention of health care workers. *BMC Public Health*. https://doi.org/10.1186/s12889-024

Bello, S. A., & Hassan, M. T. (2023). Consultant shortages and patient wait times in Lagos State hospitals: The aftermath of physician migration. *Nigerian Journal of Health Management*, *15*(2), 78–92.

Bludau, H. Global healthcare worker migration. In Oxford research encyclopedia of anthropology. https://oxfordre.com/anthropology/display/10.1093/acrefore/9780190854584.001.0001/acrefore-9780190854584-e-231, Accessed 22nd Mar 2024

Bouckley, T., et al. (2025). *Addressing health equity during design and implementation of health systems: A scoping review*. [Journal Name], [volume(issue)], pages. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11899096/

Castles, S., & Miller, M. J. (1993). *The age of migration: International population movements in the modern world*. Macmillan Press.

Centers for Disease Control and Prevention. (2014). *Immunization: A good investment*. https://www.cdc.gov/vaccines/

Chikanda, A. (2005). *Medical migration from Zimbabwe: Magnitude, causes and impact on the health sector*. Cape Town: Southern African Migration Project (SAMP), Migration Policy Series No. 34.

Clemens, M. A., & Pettersson, G. (2020). New data on African health professionals abroad. *Human Resources for Health, 18*(1), 12. https://doi.org/10.1186/s12960-020-00467-9

Daniel N. Mlambo and Siphesihle Edmund Mpanza (2019). Emerging Determinants of Youth Migration from an Afrocentric Perspective. African Renaissance ISSN: 1744-2532 (Print) ISSN: 2516-5305 (Online). Vol. 16, (No. 1), March 2019 pp 275-290

Dolan, B. (2021). The Medical Profession Through History. Perspectives in Medical Humanities, Supplement 1 DOI: 10.34947/M7X596 Permalink: https://escholarship.org/uc/item/04w903fh

Dovlo, D. (2005). *Migration and the health system: Influences on governance and corruption in the health workforce*. In Transparency International (Ed.), *Global Corruption Report 2006: Corruption and Health* (pp. 99–105). London: Pluto Press.

Edwards, D., et al. (2022). A rapid review of the effectiveness of interventions and innovations to support recruitment and retention (preprint). *medRxiv*. https://www.medrxiv.org/content/10.1101/2022.05.11.22274903v1.full-text

Eniojukan, J. F., & Oyemike, J. O. (2023). *Prevalence, patterns and determinants of brain drain among health workers in Ovia North East Local Government Area, Edo State, Nigeria*. [Conference paper/ResearchGate preprint].

Esu, E. B., et al. (2021). Interventions for improving attraction and retention of health workers in rural and remote areas: a systematic review of systematic reviews. *Journal of Public Health, 43*(Suppl_1),i54–i62.https://academic.oup.com/jpubhealth/article/43/Supplement_1/i54/6224838

Frenk, J., Gómez-Dantés, O., & Moon, S. (2014). From sovereignty to solidarity: A renewed concept of global health for an era of complex interdependence. *The Lancet*, 383(9911), 94–97. https://doi.org/10.1016/S0140-6736(13)62561-1

Gadzama, N. N., Wudiri, W. Z., Ofoli, J., Ede, V., & Stephen, Y. (2024). High prevalence of burnout among healthcare professionals: A study at Nisa Premier Hospital, Abuja. *Nigerian Journal of Clinical Practice*, *27*(2), 155–164.

Ghebreyesus, T. A. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19*. World Health Organization.

Gostin, L. O., Monahan, J. T., & DeBartolo, M. C. (2021). Promoting global health innovation: The role of effective governance. *Health Affairs, 40*(6), 867–874.

Iliyasu, G., Abubakar, I. S., Abubakar, S., Lawan, U. M., & Gajida, A. U. (2013). Patients' satisfaction and perceptions of quality of outpatient services in a tertiary hospital in Nigeria. *Annals of African Medicine*, *12*(2), 108–114. https://doi.org/10.4103/1596-3519.112401

Irrua Specialist Teaching Hospital. (n.d.). *Irrua Specialist Teaching Hospital*. Wikipedia. Retrieved April 27, 2025, from https://en.wikipedia.org/wiki/Irrua_Specialist_Teaching_Hospital

Jinah, N. (2024). Retention strategies for medical doctors in low- and middle-income countries: A scoping review. *BMC Health Services Research*. https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-024-12154-x

Kemppainen, V., Tossavainen, K., & Turunen, H. (2013). Nurses' roles in health promotion practice: An integrative review. *Health Promotion International, 28*(4), 490–501. https://doi.org/10.1093/heapro/das034

Kluge, H. H. P., Jakab, Z., Bartovic, J., D'Anna, V., & Severoni, S. (2020). Refugee and migrant health in the COVID-19 response. *The Lancet*, 395(10232), 1237-1239. https://doi.org/10.1016/S0140-6736(20)30791-1

Kumar, S. (2021). Burnout and doctors: Prevalence, prevention, and intervention. *Healthcare Management Forum*, *34*(2), 45–50. https://doi.org/10.1177/0840470421992767

Lee, E. S. (1966). A theory of migration. *Demography, 3*(1), 47–57. https://doi.org/10.2307/2060063

Leitão, C. A., Salvador, G. L. de O., Idowu, B. M., & Dako, F. (2024). Drivers of global health care worker migration. *Journal of the American College of Radiology, 21*(8), 1188–1193. https://doi.org/10.1016/j.jacr.2024.03.005

Mansour, M. J., Al Shadafan, S. F., Abu-Snieneh, H. M., & AlAmer, M. M. (2021). Quality of healthcare services and its relationship with patient safety culture and nurse-physician professional communication. *BMC Health Services Research, 21*(1), 1–9. https://doi.org/10.1186/s12913-021-06635-1

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, *2*(2), 99–113. https://doi.org/10.1002/job.4030020205

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). Theories of international migration: A review and appraisal. *Population and Development Review, 19*(3), 431–466. https://doi.org/10.2307/2938462

Ndu, A. C., Ndu, E. A., Ekwueme, C. O., & Olisa, R. (2020). Patients' satisfaction with quality of care in general hospitals in Ebonyi State, Nigeria, using SERVQUAL theory. *SAGE Open Medicine, 8*, 1–8. https://doi.org/10.1177/2050312120945129

Nigerian Association of Resident Doctors (NARD). (2023). Public statements and opposition to compulsory five-year service (news reports). See coverage: NAN News (April 11, 2023). https://nannews.ng/2023/04/11/resident-doctors-kick-against-5-years-compulsory-service-proposal/

Nigerian Association of Resident Doctors (NARD). (2024). *Annual health workforce report: Doctor attrition and national impact*. Abuja: NARD Secretariat.

Oche, M. O., & Adamu, H. (2023). The impact of health worker shortages on patient waiting times in Nigerian secondary hospitals. *African Journal of Primary Health Care & Family Medicine, 15*(1), e1–e7. https://doi.org/10.4102/phcfm.v15i1.3452

Ogbebor, G. O., & Eze, C. U. (2022). Emotional fatigue and depersonalization among resident doctors in South-South Nigeria: A cross-sectional study. *Nigerian Health Journal*, *22*(3), 210–218.

Okeke, E. (2022). Health worker migration and maternal health outcomes in Nigeria. *International Journal of Health Policy and Management, 11*(9), 1685–1695.

Okeke, T. A., Kassy, W. C., Chime, O. H., & Shu, E. N. (2024). Burnout among resident doctors in Enugu State: Prevalence, risk factors, and coping strategies. *Journal of Medical and Social Research*, *19*(1), 22–34.

Okhakhu, P. A. (2020). *Impact of emigration of nurses on healthcare delivery in selected hospitals in Benin City, Edo State*. [Master's thesis, Ambrose Alli University].

Okoroafor, I. K., & Alabi, O. J. (2022). Staff attrition and patient satisfaction in federal medical centers: A post-Japa analysis. *West African Health Research Journal*, *13*(1), 45–58.

Okunade, S. O., Olayiwola, A. S., Joseph, K. E., et al. (2025). Does health investment matter for productivity growth in sub-Saharan Africa? Empirical insights from income and regional economic grouping perspectives. *Journal of Economic Structures*, 14, Article 5. https://doi.org/10.1186/s40008-025-00348-3

Onigbogi, M. O., Banjo, O. O., Salawu, A. T., & Okediran, J. O. (2023). Influence of well-being and quality of work-life on quality of care among healthcare professionals in Southwest Nigeria. *BMC Health Services Research, 23*(1), 567. https://doi.org/10.1186/s12913-023-09601-x

Onyedibe, K. I., Okolo, M. I., & Yusuf, H. A. (2021). Predictors of burnout among resident doctors in a tertiary hospital in North-Central Nigeria. *Nigerian Postgraduate Medical Journal*, *28*(1), 16–22.

Onyema, J. O., & Adepoju, A. A. (2023). Brain drain and the crisis of healthcare accessibility in Nigeria. *International Journal of Health Policy and Management, 12*(4), 467–478. https://doi.org/10.34172/ijhpm.2023.34

Oyedokun, O., Popoola, O., & Yakubu, A. (2025). Emigration intentions of Nigerian medical and nursing students: Implications for future workforce sustainability. *BMC Medical Education, 25*(1), 1–12. https://doi.org/10.1186/s12909-025-06345-7

Popoola, O. D., & Asani, L. B. (2024). Examining medical brain-drain and work stress among health workers in Nigerian public hospitals: A case of University of Benin Teaching Hospital (UBTH), Edo State. *International Journal of Management Studies and Social Science Research, 6*(7), 1–15.

Punch Healthwise. (2024, May 19). *Japa effect: Patients spend hours to see few doctors as hospitals experience workforce shortage*. https://healthwise.punchng.com

Ravenstein, E. G. (1885). The laws of migration. *Journal of the Statistical Society of London, 48*(2), 167–235. https://doi.org/10.2307/2979181

Salako, P. Death on duty: state negligence leads to exodus of Nigerian doctors. Al Jazeera. https://www.aljazeera.com/features/2023/10/23/death-on-duty-nigerian-doctors-blame-continued-exodus-on-state-negligence, Accessed 22nd Mar 2024.

Sassen, S. (1988). *The mobility of labor and capital: A study in international investment and labor flow*. Cambridge University Press.

Science Direct: Health Policy. Volume 105, Issues 2-3, May 2012, pages 185 -191

Toyin, P., Thomas, P., Ikhurionan, E.E., Omoyibo, *et al.* Drivers of health workers' migration, intention to migrate and non-migration from low/middle-income countries, 1970-2022: a systematic review. BMJ Glob Health, 8 (2023), Article e012338.

Ugochukwu, C., Eze, C., & Ibrahim, A. (2022). Migration of health workers and its impact on healthcare delivery in Nigeria: Evidence from tertiary hospitals. *Nigerian Medical Journal, 63*(3), 145–151. https://doi.org/10.4103/nmj.nmj_223_21

University of Benin Teaching Hospital. (n.d.). *Location & directions*. Retrieved April 27, 2025, from https://ubth.org/locationdirections/

Wariri, O., Obarisiagbon, E. I., Olaleye, A. O., Akinyemi, J. O., & Onwujekwe, O. (2024). A 15-year retrospective cohort on migration patterns for graduates of the University of Benin, Nigeria. *Human Resources for Health, 22*(59), 1–10. https://doi.org/10.1186/s12960-024-00987-1

World Bank (2022). Assessment of constraints and gaps in the nursing labour market in edo state Nigeria. Final assessment report.

World Bank. (2016). *High-Performance Health Financing for Universal Health Coverage*.

World Health Organization (WHO). (2020). *State of the world's nursing 2020: Investing in education, jobs and leadership*. Geneva: WHO. https://www.who.int/publications-detail/9789240003279

World Health Organization Analysis: Dataphyte Research (2023): Universal Health coverage in Nigeria.

World Health Organization global code of practice on the international recruitment of health personnel: fourth round of reporting. https://www.who.int/news/item/02-06-2022-who-global-code-of-practice-on-the-international-recruitment-of-health-personnel--fourth-round-of-reporting, Accessed 22nd Mar 2024