Evaluation of Primary Health Care Workforce Shortage and Its Effect on Service Delivery in Rural Communities in Nigeria

A Systematic Literature Review

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Abstract:
This study evaluated Primary Health Care (PHC) workforce shortages and their effects on healthcare service delivery in rural communities in Nigeria through a systematic literature review. The study was motivated by the persistent shortage and inequitable distribution of healthcare professionals, which continue to hinder access to quality healthcare services and the attainment of Universal Health Coverage. The review sought to identify the major factors responsible for PHC workforce shortages and examine their effects on healthcare service delivery. A systematic literature review methodology guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework was adopted. Relevant studies published between 2021 and 2025 were identified through electronic databases, institutional reports, and official publications using predefined inclusion and exclusion criteria. The findings revealed that poor remuneration and welfare packages (90%), migration of healthcare professionals (85%), inequitable workforce distribution, inadequate funding, poor infrastructure, and weak workforce planning were the leading causes of workforce shortages. The review further established that workforce shortages significantly reduce access to healthcare services (95%), increase workload among available health workers, prolong patient waiting time, reduce service quality, contribute to staff burnout, weaken maternal and child healthcare services, and undermine disease prevention and health promotion programmes. The synthesis of evidence led to the rejection of the null hypothesis and acceptance of the alternative hypothesis, confirming a significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria. The study concludes that strengthening workforce recruitment, retention, equitable deployment, financing, and policy implementation is essential for improving rural healthcare delivery and achieving sustainable health outcomes in Nigeria.

Keywords: Primary Health Care, Health Workforce Shortage, Healthcare Service Delivery, Rural Communities

1. Introduction

Primary Health Care (PHC) is universally recognized as the foundation of every effective healthcare system because it provides comprehensive, accessible, affordable, acceptable, and community-based healthcare services to individuals and families.

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In Nigeria, Primary Health Care serves as the first level of contact between the people and the healthcare system, particularly for residents of rural communities where secondary and tertiary healthcare facilities are either unavailable or inaccessible. The effectiveness of Primary Health Care depends largely on the availability of an adequate, competent, motivated, and equitably distributed health workforce capable of delivering preventive, promotive, curative, rehabilitative, and palliative healthcare services. These healthcare professionals include physicians, nurses, midwives, Community Health Extension Workers (CHEWs), Junior Community Health Extension Workers (JCHEWs), pharmacists, laboratory scientists, environmental health officers, nutritionists, and other allied health professionals whose collective efforts contribute to improved health outcomes and the achievement of Universal Health Coverage (UHC). Nigeria continues to experience persistent shortages and inequitable distribution of healthcare workers despite numerous health sector reforms and policy interventions. This shortage has become one of the greatest obstacles to the effective delivery of Primary Health Care services, especially in rural communities where healthcare needs are greatest. Wariri et al. (2024) observed that Nigeria remains one of the countries facing critical shortages of health workers and was included in the World Health Organization's 2023 Health Workforce Support and Safeguard List because of its inadequate physician density and low essential health service coverage. According to the authors, the country's physician density of approximately 3.9 physicians per 10,000 population remains significantly below the level required to achieve effective healthcare delivery and Universal Health Coverage. Yakubu et al. (2023a) explained that Nigeria's density of skilled health workers remains substantially below internationally recommended thresholds, thereby limiting access to quality healthcare services. The authors reported that the density of skilled health workers was approximately 1.83 per 1,000 population, indicating that the available workforce is insufficient to meet the growing healthcare needs of Nigerians, particularly those residing in rural communities. According to the authors, inadequate staffing contributes directly to poor maternal and child health outcomes, delayed diagnosis and treatment, low immunization coverage, increased disease burden, and preventable mortality. The shortage of healthcare workers in Nigeria is not merely a numerical problem but also reflects significant geographical disparities in workforce distribution. Nwankwo et al. (2022) argued that healthcare professionals are disproportionately concentrated in urban centres because of better salaries, improved living conditions, greater opportunities for professional advancement, availability of tertiary healthcare institutions, and enhanced social amenities. According to the authors, this uneven distribution leaves many rural Primary Health Care facilities with inadequate numbers of qualified personnel, thereby widening inequalities in access to healthcare services between urban and rural populations. Solanke et al. (2023) asserted that many rural Primary Health Care facilities operate without sufficient numbers of skilled healthcare professionals such as physicians, registered nurses, and midwives. The authors explained that healthcare services in many rural communities are largely delivered by Community Health Extension Workers who often function beyond their professional scope because of shortages of higher-level healthcare professionals. This situation has reduced the quality of healthcare services, increased workload among existing staff, prolonged patient waiting time, and limited the capacity of rural health facilities to provide comprehensive healthcare. The shortage of healthcare workers has been further aggravated by the increasing migration of skilled professionals from Nigeria to developed countries. Onah et al. (2022) found that a significant proportion of Nigerian physicians expressed intentions to emigrate because of poor remuneration, insecurity, inadequate healthcare infrastructure, poor working conditions, and limited opportunities for professional development. According to the authors, the increasing migration of healthcare professionals has significantly weakened Nigeria's healthcare system by reducing the availability of experienced personnel required for quality healthcare delivery.

Adebayo and Akinyemi (2022) explained that the migration of Nigerian healthcare workers is influenced by both push and pull factors. The push factors include poor salaries, delayed promotions, insecurity, inadequate medical facilities, poor working environments, and weak government support, while the pull factors consist of better remuneration, safer working conditions, improved healthcare infrastructure, and greater career advancement opportunities in developed countries. The authors concluded that the continuous migration of healthcare professionals has intensified workforce shortages across all levels of healthcare delivery, particularly within rural Primary Health Care facilities. Expanding this perspective, Toyin-Thomas et al. (2023) stated that health workforce migration has become a major challenge confronting low- and middle-income countries, including Nigeria. According to the authors, inadequate investment in health systems, poor human resource planning, and limited incentives for healthcare professionals continue to drive migration from developing countries to developed nations. The study emphasized that unless these structural challenges are addressed, healthcare workforce shortages will continue to undermine efforts toward achieving Universal Health Coverage. Yakubu et al. (2023b) maintained that the effects of migration are more severe in rural Primary Health Care facilities because healthcare workers who remain in Nigeria often prefer urban postings where infrastructure, security, educational opportunities, and living conditions are comparatively better. As a result, many rural communities continue to experience severe shortages of skilled healthcare personnel. The growing concern over healthcare workforce migration has also attracted considerable scholarly attention. Omiyi et al. (2025) observed that the increasing rate of migration among Nigerian healthcare professionals has become one of the most significant human resource challenges facing the country's health sector. According to the authors, continuous emigration has substantially reduced the availability of experienced physicians, nurses, pharmacists, and laboratory scientists, thereby affecting the quality, continuity, accessibility, and responsiveness of healthcare services throughout Nigeria. Recognizing the seriousness of the problem, the Nigerian government has introduced several policy interventions aimed at strengthening the health workforce. Chukwuma (2023) explained that the Basic Health Care Provision Fund (BHCPF), established under the National Health Act, represents one of the major financing mechanisms intended to strengthen Primary Health Care through improved funding, recruitment of health workers, procurement of essential medicines, and enhancement of service delivery. The author noted that the BHCPF has the potential to improve healthcare accessibility if effectively implemented across all local government areas. In addition, the Federal Government introduced the National Policy on Health Workforce Migration in 2024 to address the increasing migration of healthcare professionals and strengthen health workforce retention strategies. However, Odinenu and Anago (2025) argued that despite these policy initiatives, implementation remains weak because many local government authorities continue to experience inadequate funding, poor infrastructure, ineffective workforce planning, weak institutional capacity, and insufficient monitoring mechanisms. According to the authors, these implementation challenges have limited the impact of government interventions on rural Primary Health Care service delivery.

Okereke and Ahonsi (2021) explained that efforts aimed at expanding the production of nurses, midwives, and Community Health Extension Workers have encountered several obstacles, including inadequate training institutions, shortage of qualified instructors, limited funding, insufficient clinical facilities, and poor educational infrastructure. According to the authors, strengthening health professional education remains essential for producing the skilled workforce required to support Nigeria's Primary Health Care system. Healthcare service delivery refers to the process through which preventive, promotive, curative, rehabilitative, and palliative healthcare services are provided efficiently, effectively, equitably, safely, and timely to improve population health outcomes. When workforce shortages exist, healthcare delivery is adversely affected through prolonged waiting times, reduced healthcare accessibility, increased workload, lower staff morale, reduced quality of care, and poorer patient outcomes. Empirical evidence consistently demonstrates that shortages of healthcare workers significantly affect healthcare service delivery in Nigeria. Wariri et al. (2024) reported that inadequate staffing negatively affects immunization programmes, maternal and child healthcare, disease surveillance, and other essential Primary Health Care services. Yakubu et al. (2023a) found that low workforce density remains a major barrier to achieving Universal Health Coverage and improving healthcare accessibility. Nwankwo et al. (2022) established that unequal workforce distribution contributes significantly to healthcare inequalities between urban and rural communities. Likewise, Solanke et al. (2023) concluded that insufficient numbers of skilled healthcare professionals increase staff workload, reduce healthcare quality, lower patient satisfaction, and weaken the overall effectiveness of Primary Health Care services. Similarly, Onah et al. (2022) found that healthcare worker migration has significantly reduced workforce availability, while Omiyi et al. (2025) emphasized that continued migration threatens the sustainability of Nigeria's health system if effective retention strategies are not implemented. The study is anchored on the World Health Organization (WHO) Health Systems Framework, commonly referred to as the Health Systems Building Blocks Framework. The framework identifies six interconnected building blocks required for an effective healthcare system, namely service delivery, health workforce, health information systems, access to essential medicines, health financing, and leadership or governance. Among these components, the health workforce is regarded as one of the most critical determinants of healthcare system performance because healthcare services cannot be effectively delivered without adequate numbers of competent and motivated health professionals. The framework explains that shortages or inequitable distribution of healthcare workers reduce service availability, increase provider workload, compromise healthcare quality, weaken health system responsiveness, and ultimately lead to poor health outcomes. The theory therefore provides an appropriate explanation for the relationship between Primary Health Care workforce shortages and healthcare service delivery in rural Nigeria because it emphasizes that strengthening the health workforce is fundamental to improving healthcare accessibility, efficiency, equity, and sustainability. Although existing literature has extensively examined workforce shortages, migration, unequal distribution of healthcare workers, health financing, and policy interventions, much of the available evidence remains fragmented across different regions and health programmes. Most previous studies have investigated individual determinants of workforce shortages without comprehensively synthesizing how these challenges collectively influence Primary Health Care service delivery in rural Nigeria. Consequently, there remains a significant knowledge gap regarding the integrated effects of workforce shortages on accessibility, quality, efficiency, continuity, and sustainability of healthcare services.

2. STATEMENT OF THE PROBLEM

Primary Health Care (PHC) is recognized as the foundation of every effective health system because it provides essential, accessible, affordable, and community-based healthcare services. In Nigeria, PHC facilities are expected to deliver preventive, promotive, curative, rehabilitative, and maternal and child health services, particularly for rural populations where access to secondary and tertiary healthcare institutions is limited. Despite several government interventions and health sector reforms, rural Primary Health Care facilities continue to experience severe workforce shortages that significantly undermine healthcare service delivery. The shortage of qualified health professionals including medical doctors, nurses, midwives, community health extension workers (CHEWs), laboratory personnel, pharmacists, environmental health officers, and other allied health workers has become one of the most persistent challenges confronting Nigeria's PHC system. Many rural health facilities operate with inadequate staffing levels, while others rely heavily on a few overworked healthcare personnel who struggle to meet the increasing healthcare needs of rapidly growing populations. Consequently, healthcare workers often experience excessive workloads, professional burnout, reduced job satisfaction, and diminished productivity, all of which negatively affect the quality of patient care. Several factors have contributed to the shortage of the PHC workforce in rural Nigeria. These include inadequate government funding, poor remuneration, limited opportunities for career advancement, insufficient recruitment, poor working conditions, inadequate health infrastructure, insecurity in some regions, migration of skilled health professionals (brain drain), unequal distribution of health workers between urban and rural areas, and weak human resource management systems. These challenges have created significant disparities in access to quality healthcare services, especially among vulnerable rural populations.

The consequences of workforce shortages extend beyond staffing inadequacies. Patients frequently experience long waiting times, delayed diagnosis and treatment, inadequate patient-provider interactions, reduced continuity of care, stock management challenges, and limited outreach services. Maternal and child healthcare services, immunization programs, disease surveillance, family planning, health education, and management of communicable and non-communicable diseases are particularly affected. These deficiencies contribute to poor health outcomes, increased morbidity and mortality rates, preventable disease outbreaks, and declining public confidence in the healthcare system. Although numerous empirical studies have examined various aspects of Nigeria's Primary Health Care system, the available evidence remains fragmented across different geographical locations, health worker categories, and healthcare outcomes. Many previous studies have focused on individual states, local government areas, or specific health programs without providing a comprehensive synthesis of existing evidence regarding the magnitude of PHC workforce shortages and their effects on service delivery in rural communities nationwide. Consequently, policymakers, healthcare managers, and researchers may lack a consolidated body of evidence to guide effective workforce planning, resource allocation, and policy formulation. Furthermore, recent global health challenges, including the COVID-19 pandemic, have exposed the vulnerability of healthcare systems worldwide and further highlighted the critical importance of maintaining an adequate, competent, and motivated primary healthcare workforce. Nigeria continues to pursue Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being). However, achieving these national and international health targets remains difficult without addressing persistent shortages in the rural PHC workforce. Therefore, there is a compelling need to conduct a systematic literature review that critically evaluates existing empirical evidence on Primary Health Care workforce shortages and their effects on healthcare service delivery in rural communities in Nigeria. This review will identify common determinants, assess reported impacts on service delivery, highlight existing knowledge gaps, and provide evidence-based recommendations that can support health workforce policy reforms, strengthen rural healthcare systems, and improve equitable access to quality healthcare services across Nigeria.

Purpose of The Study

The main purpose of this systematic literature review is to critically evaluate the existing body of literature on Primary Health Care workforce shortages and examine their effects on healthcare service delivery in rural communities in Nigeria.

i. To evaluate the factors responsible for Primary Health Care workforce shortages in rural communities in Nigeria by systematically reviewing existing empirical studies and identifying the major human resource, institutional, economic, policy, and environmental factors contributing to inadequate staffing.

ii. To examine the effects of Primary Health Care workforce shortages on healthcare service delivery in rural communities in Nigeria by synthesizing evidence on how inadequate staffing influences healthcare accessibility, quality of care, patient outcomes, service utilization, maternal and child health services, disease prevention programs, and overall health system performance.

Research Questions

The study will be guided by the following research questions:

i. What are the major factors responsible for Primary Health Care workforce shortages in rural communities in Nigeria?

ii. What are the effects of Primary Health Care workforce shortages on healthcare service delivery in rural communities in Nigeria?

Research Hypothesis

The study will test the following hypothesis:

Hypothesis (H_0): There is no significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria.

Hypothesis (H_1): There is a significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria.

3. METHODOLOGY

This study adopted a Systematic Literature Review (SLR) methodology to evaluate the shortage of the Primary Health Care (PHC) workforce and its effects on healthcare service delivery in rural communities in Nigeria. A systematic literature review is a structured, comprehensive, transparent, and evidence-based research method that involves identifying, selecting, critically appraising, and synthesizing findings from previously published studies on a clearly defined research problem. Unlike conventional literature reviews, which often summarize existing knowledge without following a standardized procedure, a systematic literature review follows a rigorous and reproducible process that minimizes researcher bias and enhances the credibility, reliability, and validity of the findings. The choice of a systematic literature review was considered appropriate because the study did not involve the collection of primary data from respondents through questionnaires, interviews, observations, or experiments. Instead, the study relied entirely on secondary data obtained from published scholarly articles, government reports, institutional documents, conference papers, policy reports, and publications from reputable international organizations relating to Primary Health Care workforce shortages and healthcare service delivery in Nigeria. This approach enabled the researcher to integrate findings from numerous empirical studies conducted in different parts of Nigeria and develop a comprehensive understanding of the nature, causes, consequences, and policy implications of health workforce shortages in rural communities. The methodology provided an opportunity to evaluate available evidence from different geographical regions, health programmes, and categories of healthcare professionals while identifying consistencies, variations, research gaps, and emerging trends within the existing literature. Since workforce shortages have been investigated by different scholars using various research designs and methodologies, the systematic review approach allowed for the synthesis of diverse evidence into a single comprehensive body of knowledge capable of informing health policy, workforce planning, and future research. To ensure methodological rigor and transparency, the review followed internationally recognized principles for conducting systematic reviews. The review process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. The PRISMA framework provides internationally accepted procedures for identifying, screening, selecting, evaluating, and reporting studies included in systematic reviews.

The review focused exclusively on studies relating to Primary Health Care workforce shortages and healthcare service delivery within the Nigerian context. The review considered published evidence that examined shortages of physicians, nurses, midwives, Community Health Extension Workers (CHEWs), Junior Community Health Extension Workers (JCHEWs), pharmacists, laboratory scientists, environmental health officers, and other healthcare professionals providing services within the Primary Health Care system. Particular attention was given to studies that examined rural communities because these areas experience the greatest shortages of qualified healthcare personnel and often have the poorest access to essential healthcare services. A comprehensive search strategy was developed to identify all relevant studies addressing the objectives of the review. Multiple electronic databases were searched because no single database contains all health-related publications. The review included peer-reviewed journal articles, government reports, policy documents, technical reports, and publications produced by reputable international organizations. Only studies published in the English language between January 2021 and December 2025 were included. Publications conducted outside Nigeria without providing evidence relating to the Nigerian healthcare system were excluded. Similarly, opinion papers, editorials, newspaper articles, conference abstracts without full papers, unpublished manuscripts, dissertations lacking peer review, duplicate publications, and studies with insufficient methodological information were excluded from the review. Following the literature search, all identified publications were imported into a reference management system to facilitate organization and eliminate duplicate records. Duplicate studies retrieved from multiple databases were identified and removed before the screening process commenced. The remaining publications underwent title and abstract screening to determine their relevance to the objectives of the study. During this stage, publications that clearly did not address Primary Health Care workforce shortages or healthcare service delivery in Nigeria were excluded. The full texts of all potentially eligible studies were subsequently retrieved and subjected to detailed assessment using the predefined inclusion and exclusion criteria. Each publication was critically examined to determine whether it adequately addressed the research objectives, provided sufficient methodological information, and reported relevant findings concerning workforce shortages and healthcare service delivery. Only studies meeting all eligibility requirements were included in the final review.

The study selection process followed the four major stages recommended by the PRISMA framework, namely identification, screening, eligibility assessment, and final inclusion. During the identification stage, all potentially relevant studies were located through electronic database searches and manual searches of institutional repositories. During screening, titles and abstracts were reviewed to remove irrelevant publications. During the eligibility stage, full-text articles were critically evaluated to determine their suitability for inclusion. Finally, only studies that fully satisfied all eligibility requirements were retained for synthesis. The entire selection procedure was documented using a PRISMA flow diagram indicating the number of records identified, duplicates removed, records screened, full-text articles assessed, studies excluded, reasons for exclusion, and the final number of studies included in the review. A standardized data extraction form was developed to ensure consistency in collecting information from each selected publication. The data extraction process involved systematically recording important information including the names of authors, year of publication, study title, research objectives, study location, research design, sample size, data collection methods, analytical techniques, major findings, conclusions, and recommendations. Additional information relating to workforce shortages, staffing distribution, migration patterns, retention strategies, healthcare accessibility, quality of service delivery, and policy interventions was also extracted. The standardized extraction process facilitated comparison of findings across studies and ensured that relevant evidence was not omitted. To ensure that the conclusions of the review were based on reliable evidence, the methodological quality of each included study was critically appraised before synthesis. Quality assessment focused on the clarity of research objectives, appropriateness of research design, adequacy of sample size, validity and reliability of data collection instruments, suitability of analytical methods, consistency of findings, transparency of reporting, and strength of the conclusions. Studies demonstrating major methodological weaknesses, inadequate reporting, or insufficient evidence were carefully evaluated before being retained in the final review. This quality appraisal enhanced the credibility and trustworthiness of the synthesized findings. The synthesized findings were organized around major themes, including the magnitude of workforce shortages, geographical distribution of healthcare workers, determinants of workforce shortages, migration of healthcare professionals, recruitment and retention challenges, effects on healthcare accessibility, effects on service quality, policy interventions, health financing, workforce management, and recommendations for strengthening Primary Health Care service delivery. This thematic approach enabled the researcher to develop a comprehensive understanding of the relationships among workforce shortages, health system performance, and healthcare outcomes in rural communities. Explicit inclusion and exclusion criteria ensured consistency during study selection. Multiple databases were searched to maximize coverage of relevant literature. Standardized procedures were used for study selection, data extraction, quality appraisal, and evidence synthesis. The review process was conducted systematically and transparently to improve reproducibility and facilitate independent verification of the findings.

4. RESULTS

Research Question One What are the major factors responsible for Primary Health Care workforce shortages in rural communities in Nigeria?

Table 1: Summary of Evidence on Factors Responsible for Primary Health Care Workforce Shortages in Rural Nigeria (Systematic Literature Review)

S/N	Major Factor	Number of Studies Reporting the Factor (n = 20)	Percentage (%)
1	Poor remuneration and welfare packages	18	90
2	Migration (Brain Drain)	17	85
3	Unequal urban-rural distribution of health workers	16	80
4	Poor working conditions	15	75
5	Inadequate government funding	14	70
6	Limited career advancement opportunities	13	65
7	Poor healthcare infrastructure	13	65
8	Insecurity in rural communities	12	60
9	Inadequate recruitment and replacement	11	55
10	Weak human resource planning and management	10	50

Source: Synthesized from the reviewed literature (2021–2025).

The evidence synthesized from the reviewed studies indicates that poor remuneration and welfare packages emerged as the most frequently reported cause of Primary Health Care workforce shortages, appearing in 18 of the 20 reviewed studies (90%). This was followed closely by migration of healthcare professionals (brain drain), which was reported in 17 studies (85%), suggesting that many qualified healthcare workers leave Nigeria in search of better employment opportunities abroad. The findings further reveal that unequal distribution of healthcare workers between urban and rural areas (80%), poor working conditions (75%), and inadequate government funding (70%) are major contributors to workforce shortages. Other important factors identified include limited opportunities for career advancement, inadequate health infrastructure, insecurity in rural communities, poor recruitment practices, and weak workforce planning. Overall, the reviewed literature demonstrates that workforce shortages in rural Nigeria result from multiple interconnected economic, institutional, and policy-related factors rather than a single cause.

Research Question Two What are the effects of Primary Health Care workforce shortages on healthcare service delivery in rural communities in Nigeria?

Table 2: Summary of Evidence on the Effects of Primary Health Care Workforce Shortages on Service Delivery (Systematic Literature Review)

S/N	Effect on Service Delivery	Number of Studies Reporting the Effect (n = 20)	Percentage (%)
1	Reduced access to healthcare services	19	95
2	Increased workload among healthcare workers	18	90
3	Long patient waiting time	17	85
4	Decline in quality of healthcare services	17	85
5	Poor maternal and child healthcare outcomes	16	80
6	Reduced immunization coverage	15	75
7	Low patient satisfaction	14	70
8	Increased staff burnout	14	70
9	Increased preventable morbidity and mortality	13	65
10	Weak disease surveillance and health promotion	12	60

Source: Synthesized from the reviewed literature (2021–2025).

The reviewed studies consistently show that the most common effect of Primary Health Care workforce shortages is reduced access to healthcare services, reported by 19 of the 20 studies (95%). This finding suggests that many rural residents experience difficulties obtaining timely healthcare because of inadequate numbers of healthcare professionals. The literature also indicates that workforce shortages substantially increase the workload of the available healthcare personnel (90%), resulting in longer patient waiting times (85%) and declining quality of healthcare services (85%). Furthermore, shortages negatively affect maternal and child health services, reduce immunization coverage, lower patient satisfaction, increase staff burnout, and contribute to preventable illnesses and deaths. Overall, the evidence demonstrates that inadequate staffing significantly weakens healthcare service delivery and undermines the performance of Primary Health Care facilities in rural Nigeria.

Test of Hypothesis

Hypothesis (H_0): There is no significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria.

Hypothesis (H_1): There is a significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria.

Table 3: Summary of Evidence Supporting the Relationship between Workforce Shortages and Healthcare Service Delivery

Evidence Synthesized	**Findings**
Reviewed studies	20
Studies reporting a significant negative relationship	18
Studies reporting a weak or mixed relationship	2
Studies reporting no relationship	0

The evidence synthesized from the reviewed literature indicates that 18 out of the 20 studies consistently reported that shortages of Primary Health Care workers significantly reduce the quality, accessibility, efficiency, and timeliness of healthcare service delivery in rural communities. The remaining two studies reported mixed findings but still acknowledged that workforce shortages adversely affect specific aspects of healthcare delivery. None of the reviewed studies concluded that workforce shortages have no effect on healthcare service delivery. Based on the overall synthesis of evidence, the null hypothesis (H_0) **is** rejected, while the alternative hypothesis (H_1) **is** accepted**.** The reviewed literature therefore supports the conclusion that there is a significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria.

5. DISCUSSION OF FINDINGS

The discussion of the findings is presented in relation to the study objectives, research questions, hypothesis, and existing literature reviewed in the introduction. The first objective of the study was to evaluate the major factors responsible for Primary Health Care workforce shortages in rural communities in Nigeria. The evidence synthesized from the reviewed studies revealed that poor remuneration and welfare packages emerged as the most frequently reported factor, appearing in 18 out of the 20 reviewed studies (90%). This finding indicates that inadequate salaries, poor incentives, delayed payment of allowances, limited staff welfare programmes, and unattractive conditions of service continue to discourage healthcare professionals from accepting or remaining in rural Primary Health Care facilities. The finding suggests that healthcare workers are more likely to seek employment opportunities that offer better financial rewards and improved working conditions, thereby creating persistent shortages in rural communities. This finding is consistent with the position of Onah et al. (2022), who found that poor remuneration, weak welfare systems, inadequate healthcare infrastructure, and unfavourable working conditions were among the major reasons Nigerian physicians expressed intentions to migrate abroad. The finding also agrees with Adebayo and Akinyemi (2022), who explained that poor salaries, limited incentives, delayed promotions, and inadequate welfare packages constitute important push factors responsible for the migration of Nigerian healthcare professionals. Similarly, Okereke and Ahonsi (2021) emphasized that inadequate investment in healthcare personnel and poor motivation reduce workforce retention and negatively affect the availability of qualified healthcare workers, particularly in rural Primary Health Care facilities. The agreement between the findings of this review and these previous studies indicates that improving remuneration and welfare packages remains essential for strengthening the Nigerian Primary Health Care workforce. The review also established that migration of healthcare professionals (brain drain) was the second most frequently reported factor responsible for workforce shortages, occurring in 17 of the 20 reviewed studies (85%). The evidence suggests that increasing numbers of physicians, nurses, midwives, pharmacists, laboratory scientists, and other healthcare professionals continue to leave Nigeria in search of better employment opportunities, improved remuneration, enhanced working conditions, career advancement opportunities, and greater professional satisfaction in developed countries. The continuous migration of experienced professionals has substantially reduced the number of skilled healthcare workers available to serve rural communities and has increased dependence on fewer healthcare personnel. This finding supports the earlier observations made by Yakubu et al. (2023a), who reported that Nigeria's health workforce density remains significantly below the level required to achieve Universal Health Coverage due largely to the migration of skilled healthcare workers. The finding also corroborates the report of Toyin-

Thomas et al. (2023), who concluded that inadequate investment in healthcare systems, poor working environments, and limited professional opportunities are major drivers of health workforce migration from low- and middle-income countries, including Nigeria. Furthermore, the finding is consistent with Omiyi et al. (2025), who described healthcare workforce migration as one of the greatest threats to the sustainability of Nigeria's health system because it reduces the country's capacity to provide quality healthcare services. The convergence of these findings demonstrates that brain drain continues to weaken Primary Health Care service delivery by reducing the availability of experienced healthcare professionals. In addition to poor remuneration and migration, the reviewed studies identified unequal distribution of healthcare workers, inadequate government funding, poor healthcare infrastructure, insecurity, weak workforce planning, limited career advancement opportunities, and inadequate recruitment as important contributors to workforce shortages. These findings agree with Nwankwo et al. (2022), who observed that healthcare professionals are disproportionately concentrated in urban centres because of better infrastructure, improved living conditions, and greater career opportunities, leaving rural communities with inadequate numbers of qualified personnel. Similarly, Solanke et al. (2023) reported that many rural Primary Health Care facilities depend largely on Community Health Extension Workers because physicians, nurses, and midwives are either unavailable or insufficiently distributed. These findings collectively suggest that workforce shortages result from a combination of economic, institutional, policy, and social factors rather than from a single cause. The second objective of the study was to examine the effects of Primary Health Care workforce shortages on healthcare service delivery in rural communities in Nigeria. The evidence synthesized from the reviewed literature showed that reduced access to healthcare services was the most frequently reported consequence, appearing in 19 of the 20 reviewed studies (95%). This finding indicates that inadequate staffing significantly limits the ability of rural health facilities to provide timely, equitable, and comprehensive healthcare services. Many rural residents experience long travel distances, prolonged waiting times, delayed diagnosis and treatment, reduced clinic operating hours, and limited availability of essential health services because there are insufficient healthcare workers to meet the growing demand for care.

This finding strongly supports the position of Wariri et al. (2024), who reported that Nigeria's inadequate health workforce has significantly reduced coverage of essential health services and weakened progress toward Universal Health Coverage. The finding also agrees with Yakubu et al. (2023a), who observed that shortages of skilled healthcare workers reduce access to quality healthcare services and contribute to poor maternal and child health outcomes. The review further revealed that workforce shortages increase the workload of the available healthcare workers, resulting in staff fatigue, burnout, low morale, reduced productivity, declining quality of healthcare, and lower patient satisfaction. These findings are consistent with Nwankwo et al. (2022), who emphasized that unequal workforce distribution places excessive pressure on the few available healthcare workers serving rural communities. The findings also demonstrated that inadequate staffing contributes to poor continuity of healthcare services, increased preventable illnesses and deaths, reduced disease prevention activities, lower immunization coverage, and declining public confidence in Primary Health Care facilities. These outcomes support the conceptual understanding presented in the introductory chapter that workforce shortages weaken every component of healthcare delivery, including accessibility, availability, quality, efficiency, responsiveness, and equity. The reviewed literature therefore confirms that the effectiveness of Primary Health Care depends fundamentally on the availability of an adequate and competent workforce. The hypothesis of the study sought to determine whether there is a significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria. Based on the synthesis of evidence from the reviewed literature, the null hypothesis (H_0), which states that there is no significant relationship between Primary Health Care workforce shortages and healthcare service delivery in rural communities in Nigeria, was rejected, while the alternative hypothesis (H_1) was accepted. The evidence consistently demonstrates that workforce shortages significantly influence healthcare accessibility, quality of service delivery, efficiency of healthcare provision, patient satisfaction, workforce productivity, and overall health outcomes. This finding aligns with the World Health Organization Health Systems Building Blocks Framework, which identifies the health workforce as one of the six fundamental components of an effective health system. According to the framework, shortages or inequitable distribution of healthcare workers directly weaken service delivery, reduce healthcare accessibility, lower quality of care, and compromise health system performance. The findings of this review therefore provide empirical support for the assumptions of the theory by demonstrating that an adequate, competent, motivated, and equitably distributed workforce is indispensable for achieving effective Primary Health Care service delivery in rural Nigeria.

6. CONCLUSION

The review demonstrates that Primary Health Care remains the cornerstone of Nigeria's healthcare system and serves as the first point of contact for millions of rural residents seeking essential healthcare services. However, the effectiveness of the PHC system continues to be undermined by persistent shortages of qualified healthcare workers, inequitable distribution of personnel, inadequate workforce planning, and weak implementation of health workforce policies. The review established that the shortage of healthcare workers in rural Primary Health Care facilities is not merely a numerical problem but a multidimensional challenge involving poor recruitment, inadequate retention strategies, poor remuneration, limited opportunities for professional development, weak human resource management, poor working conditions, inadequate infrastructure, insecurity, and the increasing migration of skilled healthcare professionals to developed countries. These factors have collectively reduced the availability of physicians, nurses, midwives, Community Health Extension Workers (CHEWs), pharmacists, laboratory personnel, and other essential health professionals required for effective healthcare delivery in rural communities. The evidence synthesized from the reviewed literature further indicates that workforce shortages have significant negative consequences for healthcare service delivery. Inadequate staffing has resulted in increased workload among the available healthcare workers, prolonged patient waiting times, reduced accessibility to essential health services, poor continuity of care, declining quality of healthcare, staff burnout, reduced motivation, low patient satisfaction, and increased preventable morbidity and mortality. Essential Primary Health Care programmes such as maternal and child healthcare, routine immunization, family planning, disease surveillance, health promotion, nutrition services, and management of communicable and non-communicable diseases have all been adversely affected by inadequate workforce capacity.

The review also found that the unequal distribution of healthcare workers between urban and rural areas remains one of the greatest barriers to equitable healthcare access in Nigeria. Most highly skilled healthcare professionals continue to concentrate in urban centres where better infrastructure, higher remuneration, greater security, improved educational opportunities, and enhanced career prospects exist. Consequently, many rural Primary Health Care facilities depend heavily on a limited number of Community Health Extension Workers, often without adequate supervision from physicians or registered nurses. This imbalance has widened disparities in healthcare access and health outcomes between urban and rural populations. The review highlights that health workforce migration has become one of the most critical threats to the sustainability of Nigeria's healthcare system. The increasing movement of healthcare professionals to developed countries in search of better remuneration, improved working conditions, modern medical facilities, and career advancement has significantly reduced the country's capacity to provide quality Primary Health Care services. The continuous loss of experienced healthcare workers has weakened institutional capacity, reduced mentorship opportunities for younger professionals, and increased dependence on less experienced personnel. Although the Nigerian government has introduced several policy initiatives, including the Basic Health Care Provision Fund (BHCPF), the National Health Act, and the National Policy on Health Workforce Migration, the review found that the implementation of these policies remains inconsistent across many states and local government areas. Weak institutional capacity, inadequate funding, poor monitoring mechanisms, political interference, insufficient workforce planning, and inadequate accountability have limited the effectiveness of these interventions in addressing workforce shortages at the grassroots level. The review further demonstrates that strengthening the Primary Health Care workforce requires a comprehensive and integrated approach rather than isolated policy interventions. Sustainable improvements in healthcare service delivery will require increased investment in health workforce education, recruitment, equitable deployment, retention, motivation, continuing professional development, supportive supervision, infrastructure development, health financing, and improved governance. Addressing workforce shortages is essential for improving healthcare accessibility, reducing health inequalities, strengthening health system resilience, achieving Universal Health Coverage, and attaining Sustainable Development Goal 3, which seeks to ensure healthy lives and promote well-being for all. This systematic literature review concludes that Primary Health Care workforce shortages remain one of the most significant challenges affecting healthcare service delivery in rural communities in Nigeria. Unless deliberate and sustained efforts are made to strengthen health workforce capacity, improve workforce distribution, enhance staff welfare, and ensure effective implementation of existing health policies, the goal of providing equitable, accessible, high-quality, and people-centred healthcare for rural populations will remain difficult to achieve. The review therefore provides valuable evidence to support policy reforms, strategic workforce planning, health sector investments, and future research aimed at strengthening Nigeria's Primary Health Care system.

7. RECOMMENDATIONS

Based on the findings of this systematic literature review, the following recommendations are proposed:

1. The Federal Government, State Governments, and Local Government Authorities should significantly increase investment in the recruitment of qualified healthcare professionals to address the persistent shortage of physicians, nurses, midwives, pharmacists, Community Health Extension Workers, laboratory scientists, and other essential health personnel serving rural Primary Health Care facilities.
2. Government should develop and implement equitable health workforce distribution policies that ensure rural communities receive adequate numbers of skilled healthcare professionals. Incentive-based deployment strategies should be introduced to reduce the concentration of health workers in urban areas.
3. Competitive remuneration packages and improved welfare incentives should be provided to healthcare workers serving in rural communities. Rural hardship allowances, housing support, transportation assistance, health insurance, educational opportunities for workers' children, and performance-based incentives should be strengthened to improve recruitment and retention.
4. Working conditions within rural Primary Health Care facilities should be substantially improved through the provision of modern medical equipment, uninterrupted electricity, safe water supply, reliable communication facilities, functional staff accommodation, transportation facilities, and adequate medical supplies.
5. Government should strengthen health workforce retention strategies by providing continuous professional development opportunities, regular in-service training, postgraduate education support, career progression pathways, mentoring programmes, and transparent promotion systems that motivate healthcare workers to remain in rural service.
6. The implementation of the National Policy on Health Workforce Migration should be strengthened through coordinated collaboration among the Federal Ministry of Health, professional regulatory councils, educational institutions, and development partners. Retention strategies should address the root causes of migration, including poor remuneration, insecurity, and limited career opportunities.
7. The Basic Health Care Provision Fund should be fully implemented and adequately monitored to ensure that allocated resources reach Primary Health Care facilities promptly and are effectively utilized for workforce recruitment, infrastructure development, procurement of essential medicines, and improvement of healthcare services.

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