

**FACTORS INFLUENCING THE RETENTION OF PRIMARY
HEALTHCARE WORKERS IN RURAL SIERRA LEONE:
LITERATURE REVIEW**

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Master of Science in Public Health (MPH)
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FACTORS INFLUENCING THE RETENTION OF PRIMARY HEALTHCARE WORKERS (DOCTORS, MIDWIVES AND NURSES) IN RURAL SIERRA LEONE

A thesis submitted in partial fulfilment of the requirement for the degree of
Master of Science Public Health

By:

Jefery K Morison

Declaration:

I hereby declare that the thesis research factors influencing the retention of primary healthcare workers (Doctors, midwives, and nurses) in rural Sierra Leone is entirely my original work, conducted under the guidance and supervision of my supervisor, Troop Noor and in accordance with the regulations and guidelines of KIT Royal Tropical Institute.

All the sources of information and data used in this research have been duly acknowledged and cited in the reference section. Any material or ideas taken from other works have been appropriately referenced to give credit to the original authors and sources.

I affirm that this thesis has not been submitted, in part or in full, for the award of any other degree or diploma from this or any other institution. The data, findings, and conclusions presented in this research are based on rigorous analysis and ethical practices.

Signature...



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DEDICATION

I would like to dedicate this thesis to God, my creator and the source of my inspiration, knowledge, wisdom, and understanding. Throughout this program, He has been my strong pillar and the reason for my strength and success. I am grateful for His guidance and support to me and my family.

I also want to dedicate this work to my mother, Jattu Morison and my pastors whose unwavering encouragement and prayers have been instrumental in motivating me to complete this study. Their supports in deeds, words and belief in me have pushed me to give my all to accomplish what I set out to do.

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Abbreviations and acronyms

AIDS	acquired Immune Deficiency Syndrome
ANC	Antenatal Clinic
BPEHS	Basic Package of Essential Health Services
CHO	Community Health Officer
CHC	Community Health Centre
CHP	Community Health Post
CHA	Community Health Assistance
CHW	Community Health Worker
CPD	Continuous Professional Development
GDP	Gross Domestic Product
HIV	Human Immune Virus
HRH	Human Resource for Health
MoHS	Ministry of Health and Sanitation
MCH	Maternal and Child Health
MCHP	Maternal and Child Health Post
NHSP	National Health Strategic Plan
NTD	Neglected Tropical Disease
NCD	Non-Communicable Disease
OOP	Out of Pocket
PHU	Peripheral Health Unit
SECHN	State Enrolled Community Health Nurse
SDG	Sustainable Development Goal
SSA	Sub - Sahara Africa
UHC	Universal Health Coverage
UNAID	United Nations Aid
UNFPA	United Nation Population Fund
WHO	World Health Organization

Abstract

Background: Retaining primary healthcare workers in rural regions poses a significant challenge for many low-income countries, including Sierra Leone. The unequal distribution of healthcare professionals and the unique difficulties inherent in rural healthcare settings contribute to workforce shortages, impeding the provision of quality healthcare services to vulnerable populations.

Aim: This research seeks to investigate and identify the factors influencing the retention of primary healthcare workers in rural Sierra Leone. By gaining a comprehensive understanding of these factors, evidence-based intervention could be carried out to improve retention rates and enhance healthcare delivery in underserved areas.

Methodology: A literature review was conducted to identify factors influencing retention of primary healthcare workers and analysed interventions that lead to retention in rural Sierra Leone. Reviewed relevant literatures on retention of primary healthcare workers in rural Sierra Leone and the Sub Sahara Africa countries. A systematic search of the PubMed, MEDLINE, VU Library, and Google Scholar databases was conducted. Lehmann, Dieleman and Martineau 2008 framework was used to analyse the result of the research.

Findings: The research uncovered various factors that significantly impact the retention of primary healthcare workers in rural Sierra Leone. Job satisfaction emerged as a pivotal determinant, with elements like low incentives, lack of supportive supervision, no career opportunities, lack of improved working conditions, low salary, high workload, and unrecognition playing a crucial role. Difficulties in accessing professional development opportunities and encountering limited support systems also negatively affected retention rates.

Conclusion: The study highlights the imperative of addressing retention challenges to ensure a stable and motivated primary healthcare workforce in rural areas of Sierra Leone. Prioritizing factors such as competitive compensation, professional development, and support systems, effective supportive supervision, improving the health facilities infrastructure become crucial for enhancing retention rates and sustaining the delivery of high-quality healthcare services for the rural population.

Recommendations: Based on the findings, it is recommended for government and partners to implement evidence-based interventions that enhance job satisfaction and increase rural retention.

Keywords: Primary healthcare workers, retention, factors, rural, SSA, intervention and rural areas.

Factors influencing retention of health workers in rural Sierra Leone.

Introduction

Rural healthcare workforce retention is a pressing concern in many developing countries, including Sierra Leone, where limited access to quality healthcare services persists. The equitable distribution of healthcare professionals between urban and rural areas is essential for providing comprehensive health coverage to the entire population. However, rural regions often struggle with attracting and retaining skilled health workers due to a complex interplay of factors. The researcher aspirations were to delve into the complex underlying forces that influence the retention of health workers in rural Sierra Leone.

Research on the retention of primary healthcare workers in rural Sierra Leone is of paramount importance due to its potential to address critical healthcare disparities and improve the overall well-being of the population. Access to quality healthcare services is a fundamental human right. However, rural areas often suffer from inadequate healthcare access due to the shortage of skilled healthcare workers. A stable and skilled healthcare workforce is essential for the effective delivery of healthcare services. Retaining primary healthcare workers in rural areas ensures consistent, continuous care for rural populations, contributing to better health outcomes and improved patient satisfaction. Rural communities typically experience poorer health outcomes compared to urban areas. High turnover rates among healthcare workers in rural areas lead to disruptions in healthcare service delivery. This can hinder the establishment of strong patient-provider relationships and continuity of care. Training healthcare workers is resource-intensive. When health workers leave rural postings prematurely, it leads to a waste of resources. Healthcare systems are interconnected networks that rely on the coordinated efforts of various professionals. A robust primary healthcare workforce forms the foundation of these systems. Access to quality healthcare contributes to overall socioeconomic development. When rural populations have access to healthcare services, they are better positioned to lead healthier lives, pursue education, and engage in economic activities.

1. CHAPTER ONE

1.0 Background

1.1 Administration and governance

Sierra Leone is a constitutional republic with a presidential system of government. The president is the head of state and government and is elected by popular vote for a five-year term. The country has a multi-party system, with the legislative power vested in the unicameral Parliament. Freetown is the capital and largest city of Sierra Leone. It is located on the Sierra Leone Peninsula, which is situated on the Atlantic coast. Sierra Leone has a population of approximately 8,791,092 million people, 0-17 years (51%) form the bulk of the population (1).

The country is divided into five regions: the Northern Region, Eastern Region, Southern Region, Northwest Region, and Western Area Region with sixteen districts. Despite its natural resources, Sierra Leone remains one of the poorest countries in the world with poverty rate estimated at 57.7%. The country has significant income inequality, with the wealthiest 20% of the population holding more than 50% of the country's wealth (2).

1.2 Healthcare system and structure

In Sierra Leone, the Ministry of Health and Sanitation (MoHS) oversees the public sector health workers who offer most of the country's health services. The vision for human resource for health policy states that by 2025, in Sierra Leone, there will be a strong and adaptable healthcare workforce providing affordable, research-supported, and excellent healthcare services that are fair and available to all individuals. Sierra Leone is currently experiencing a severe shortage of healthcare workers despite the presence of numerous unpaid staff, and it is believed that improving the quality and quantity of personnel is the primary catalyst for transforming the healthcare system, as evidenced by the development and revision of the Basic Package for Essential Health Services (BPEHS) in alignment with the National Health Sector Strategic Plan (NHSSP). (3).

The Free Health Care Initiative was launched in 2010 with the goal of boosting access to healthcare and decreasing user fees. Its focus was on providing free maternal and child health services to pregnant and lactating women, as well as children under five years of age. Moreover, the government health facilities offer free malaria testing and treatment services to all citizens. The level of care in relation to facility type ranging from primary to tertiary facility is defined by the 2015 Basic Package for Essential Health Services (BPEHS).

A tertiary hospital, also known as a tertiary care hospital or a referral centre, is a medical facility that provides highly specialized and complex medical services. It is typically a large hospital equipped with advanced medical technology and staffed by specialists in various medical fields. The secondary care services consist of District and regional hospitals, offer secondary care services, but they also extend primary care services, such as ANC and under-5's clinics, to the local population; however, as the healthcare system undergoes skill enhancement and better categorization of primary, secondary, and tertiary care levels, hospitals will be increasingly specialized in secondary-level care and referral services, gradually reducing their provision of primary care services (4).

Primary care is available through Peripheral Health Units (PHUs), which include various facility types (5). The Maternal and Child Health Posts (MCHPs) are in villages and serve communities of less than 5,000 people. Community Health Posts (CHPs) are found in small towns and serve populations ranging from 5,000 to 10,000. They are run by Community Health Assistants (CHAs), State-Enrolled Community Health Nurses (SECHNs), and MCH Aides, and offer services like those provided by MCHPs. Additionally, they focus on preventing and controlling communicable diseases and providing rehabilitation services. Community Health Centres (CHCs) are situated at the chiefdom level, and they oversee all CHPs and MCHPs in each chiefdom. Their coverage area usually includes a population of 10,000 to 20,000 people, and their staff includes Community Health Officers (CHO), Midwives, SECHNs, MCH Aides, laboratory personnel, and Environmental Health Assistants. Community Health Workers (CHWs) provide primary health care services at the community level and are supervised by PHUs, although they are currently not part of the civil service.

According to WHO, in 2013, the global shortage of healthcare workers, including doctors, nurses, and other professions, was estimated at 17.4 million, with the most significant shortages found in South-East Asia and Africa; however, despite a projected decline of 17% by 2030, the shortage is expected to persist at over 14 million, indicating that current healthcare worker trends will not effectively alleviate the needs-based shortage, particularly in certain countries where the African Region's shortage is anticipated to worsen while remaining relatively stable in the Eastern Mediterranean Region (6).

The "SDG index threshold" of 4.45 doctors, nurses, and midwives per 1000 population indicates the required density of health workers, as the latest 2013 data reveals a global health workforce exceeding 43 million, and projections anticipate a significant 55% growth leading to a total of 67.3 million health workers by 2030, considering current trends and assumptions. Even though there is a rise in the production of health workers, the current and projected future supply of health workers suggests that in specific situations, population growth is outpacing the increase in health workers, resulting in a decline in the ratio of health workers per 1000 population, particularly noticeable in low-income countries (7).

It is crucial to have skilled and experienced healthcare workers with a diverse set of abilities to provide necessary healthcare products and services. To achieve Universal Health Coverage (UHC), it is necessary to increase the number of healthcare professionals who are qualified and experienced, by matching the production of the healthcare workforce with the needs of the population (8). A positive work environment is vital for retaining healthcare professionals of all levels. Currently, there is a low density of healthcare workers on the government's payroll (6.4 per 10,000 population), whereas the World Health Organization (WHO) recommends 45 per 10,000 population for achieving UHC.

To better match healthcare needs, it is essential to increase the specialization of the healthcare workforce through competency-based education and training. In Sierra Leone, the strategic goal for Human Resource for Health is to achieve a minimum density of health workers and maintain a high-performing workforce that provides high-quality care services and is evenly distributed. The national health sector strategic plan under human resource for health goal is to introduce a health workforce stabilization program by 2025 (9).

1.3 Health financing

In 2018, the health sector relied on three sources of funding for health: government general revenues, donor financing, and out-of-pocket payments from patients as its main funding sources. The government's contribution was relatively small at approximately 10%, while development partners accounted for over 25% and households contributed nearly 45% through out-of-pocket payments. Among these payments, about 70% was allocated to drugs, which often suffer from structural inefficiencies due to irrational prescription practices and the presence of counterfeit medications. Furthermore, around 10% of the population is at risk of experiencing catastrophic healthcare expenses, and fees for services vary across public health facilities, even within the same district (10). The health expenditure in 2019 was \$46 per capita and 8.75% of the Gross Domestic Products (GDP) (11). Most OOPs are spent on medicines (65.2%), consultations (21.7%), inpatient expenses (7.2%), and travel (5.8%). Due to frequent stockouts of drugs in public facilities, a significant amount of money is spent on medicines, forcing people to purchase them from private pharmacies and vendors.

The strategic goal of government of Sierra Leone in health financing is to establish innovative and sustainable health financing mechanisms that support resilient and high-quality healthcare delivery, especially for the most vulnerable and disadvantaged populations, by 2025. This involves reducing OOP health expenditure by 20% by 2025, increasing the government's health budget allocation by at least 15% (in line with the Abuja Declaration 2001) by 2025, and developing health financing capacity by 2025 (9). This is contributing to the underperformance of the health system and being a barrier to achievement of its goals. The country government wage bill for health in 2016 was \$ 20.5 million, 8% of the government total budgets(12).

1.4 Major health problems

Malaria is a significant public health problem in Sierra Leone, accounting for around 36% of outpatient visits and 38% of hospital admissions as seen in graph 3 below. Sierra Leone has one of the highest maternal and child mortality rates in the world, with maternal mortality estimated at 1,165 deaths per 100,000 live births, and under-five mortality at 85 deaths per 1,000 live births. Sierra Leone is endemic for several Neglected Tropical Diseases (NTDs), including lymphatic filariasis, onchocerciasis, and schistosomiasis. These diseases affect the most marginalized and vulnerable communities in the country, with an estimated 5.7 million people requiring preventive chemotherapy for at least one NTD. The burden of Non-Communicable Diseases (NCDs) is rising in Sierra Leone, with an estimated 21% of deaths attributed to NCDs in 2016. The most common NCDs in Sierra Leone are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes (13). Human Immune Virus (HIV) prevalence in Sierra Leone is low, with an estimated adult prevalence of 0.9%. However, there are still significant challenges in preventing new infections and ensuring access to treatment and care for those living with Human Immune Virus (HIV) Acquired Immune Deficiency Syndrome (AIDS) (14).

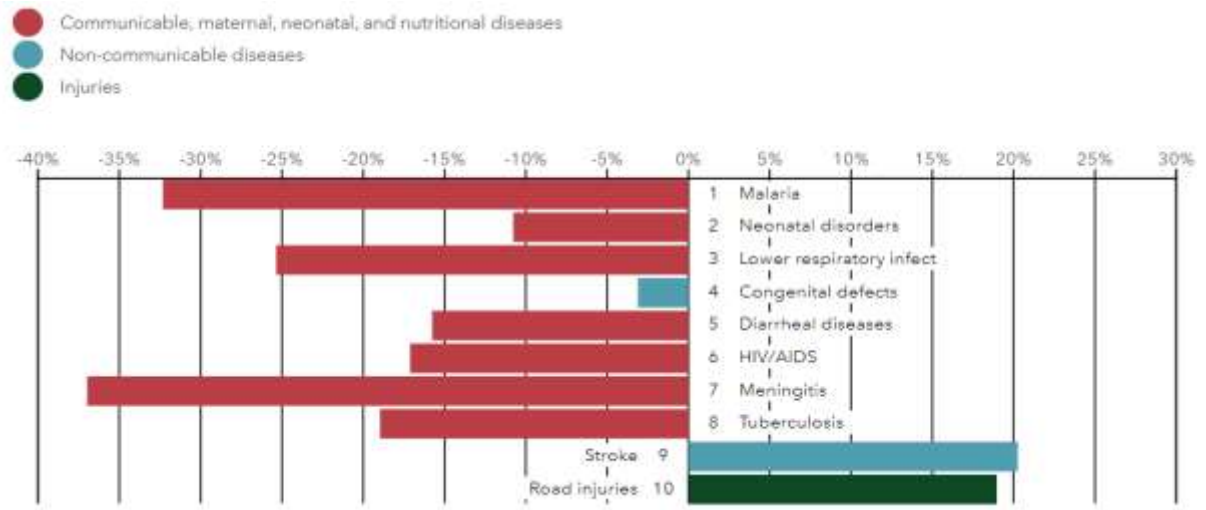


Figure 1: 10 Causes of most deaths and disability for all age group in 2019 and change in percentage in Sierra Leone from 2009 – 2019 (15)..

2.0 CHAPTER TWO: Problem Statement, justification, objectives, and methodology

2.1 Problem statement

Healthcare workforce shortage is a global challenge that affects countries across all income levels, including high, middle, and low-income nations (16). It is well position in the 2030 Sustainable Development Goal 3 which aims at improving good health and wellbeing of the world population (17). Low-income countries have a health workforce shortage of 4.3 million (18). About 35% to 75% of the health workforce who are available are absent from their duty stations (19). Even those who are present in their duty stations perform inadequately (16).

Sierra Leone, nation in West Africa, faces a profound lack of primary healthcare professionals, particularly in its rural regions. This deficiency greatly impedes the delivery of high-quality healthcare services to the rural populace (20). The lack of adequate health personnel in rural areas of the country has been a major challenge in providing quality healthcare services to the rural population.

The World Health Organization (WHO) in 2021 recommends a minimum of 23 health workers per 10,000 population to provide basic healthcare services, however, Sierra Leone has a ratio of only 2.2 health workers per 10,000 population (Figure 2) (21). According to the United Nation Development Program (UNDP), in Sierra Leone, as of 2020, approximately 61.2% of the population lived in rural areas, while 38.8% lived in urban areas (22).

The unequal distribution of healthcare workers is a primary cause of the insufficient healthcare workforce in rural Sierra Leone, with the majority being concentrated in urban areas (23). The shortage of primary healthcare workers in rural regions of Sierra Leone poses a critical obstacle to providing quality healthcare services to the rural population (24).

According to Sierra Leone Ministry of Health and Sanitation reports, as of 2016, the health workforce distribution in urban areas was 70% and rural areas was 30% (15). This indicates that a significant majority of the health workforce in Sierra Leone is concentrated in urban areas where there is a lower burden of disease and greater access to resources (Figure 2) (25).

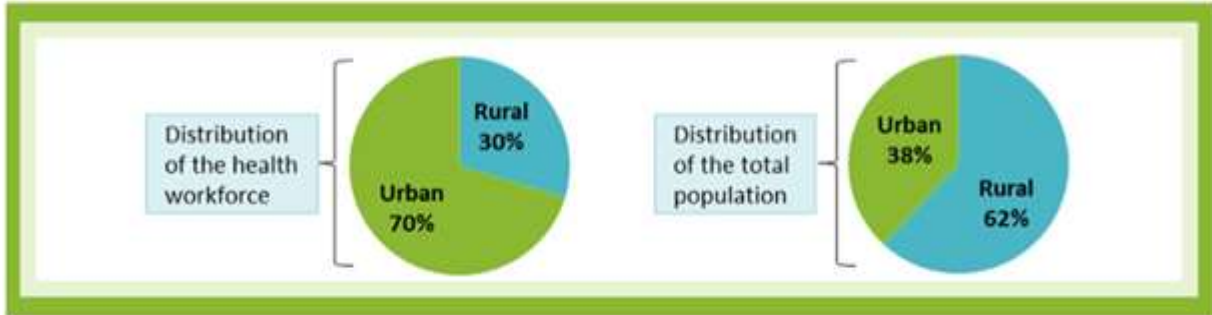


Figure 2: Urban versus rural distribution of the health workforce compared to population,2016 (15).

Unevenness in human resources for health (HRH), including inadequate and uneven distribution of the health workforce undermine the sustainability of the healthcare delivery system. Rural areas with greater healthcare needs are disadvantaged due to factors like increased workload, insufficient incentives, and difficulties in retaining health workers. This leads to staff shortages, higher stress levels, and demotivation among the healthy workforces.

To address these issues, improved retention mechanisms are essential, as emphasized in the WHO report on attracting and retaining health workers in rural areas (23).

Understanding the factors that influence the retention of primary healthcare workers in rural Sierra Leone is imperative for addressing this pressing issue. Several factors contribute to the retention challenge, including low salaries, poor working conditions, limited career advancement opportunities, inadequate housing, and insufficient training and development opportunities. Additionally, socioeconomic and cultural factors unique to rural Sierra Leone, such as poverty, gender inequalities, and traditional beliefs about health, impact the motivation and job satisfaction of healthcare workers in rural areas (26). The retention of health workers in rural areas of Sierra Leone has been a significant challenge. The challenges of health workforce retention have been discussed upon in the study conducted in Sierra Leone(12).

The continuous human resource for health gap cut right across all cadre (doctors, midwives, and nurses) in the districts and levels of cadre in the health workforce. (27). Over 2378 (24%) of health workers in Sierra Leone are above 50 years and 394 (4%) are already over 60 years. The estimated health work force in Sierra Leone is 9,910 for both administrators and support staff as of 2016. About 7107 (72%) are health workers that provide services to patients (15). The percentage of male to female health workers employment is 62% of female and 37% of males (28).

Human resource for health is under pressure which will affect the sustainability of the services especially in the rural health areas of Sierra Leone. Inadequate staffing, maldistribution of available health work force with rural areas, who are in dire need, and this undermines the effort to strengthen the health system (29) (12). The posting of health workers in rural areas goes with an increase in workload with no or little financial incentives which make them disadvantaged and demotivated (11). These will therefore lead to poor performance of the posted staff and retention challenging. Increase in workload, high stress level with poor incentives are demotivating factors which translate into poor retention of health workers. According to WHO reports on attracting and retaining health workers in rural areas, there is a need to improve retention strategies (30).

Sierra Leone faces significant challenges in retaining its health workforce, which is critical for delivering effective and equitable health services to its population. Some of the factors that contribute to the retention challenges in Sierra Leone's health workforce include Low salaries. Health workers in Sierra Leone are among the lowest paid in the world, which makes it difficult to attract and retain qualified personnel (31). About 62% of the country's population live in rural areas with few healthcare workers and limited facilities (15).



Figure 3: Sierra Leone clinical health workforce density (per 10,000 population),2016 (15).

Health workers in Sierra Leone have limited opportunities for professional development, which have led to demotivation and a sense of stagnation (32). Health workers in Sierra Leone often lack adequate support and supervision from their supervisors, which can lead to a lack of confidence and skills. Political instability and insecurity in Sierra Leone have led to significant migration of health workers to other countries, which has further contributed to the shortage of health personnel in the country (33).

Health workers often face challenging working conditions, including long working hours, insufficient salaries, lack of adequate equipment, and inadequate housing. To address this, the government and health organizations should invest in improving the working conditions of health workers, including providing better salaries and benefits, improving the quality of working environments, and providing adequate housing and transportation. Health workers may be more likely to stay if they have opportunities to develop their skills and knowledge. Organizations can provide training and education programs to help health workers improve their clinical skills, management skills, and leadership abilities. Health workers often feel disconnected from the communities they serve. To address this, organizations can create opportunities for health workers to interact with community members and involve them in decision-making processes. This can help to build stronger relationships and foster a sense of ownership and responsibility for health outcomes (34). The bulk number of primary healthcare workers serving the rural communities are lower cadre nurses (CHO/CHA, Midwives, SECHN and MCH Aids). These staff are posted based on the type and level of facility (Figure 4).

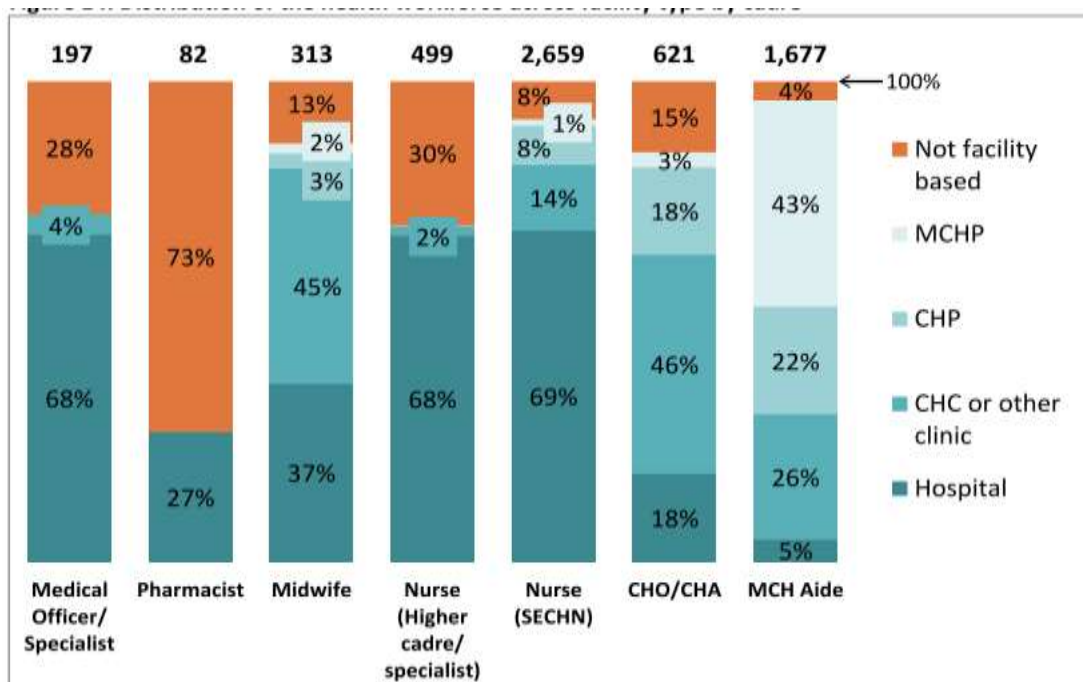


Figure 4: Distribution of the health workforce across facility type by cadre, 2016 (15).

Healthcare workers in some communities faced challenges related to cultural and social factors, such as gender discrimination or stigmatization of certain health conditions. (35). Government can address these issues by promoting diversity and inclusion in the workplace and providing support to health workers who face discrimination or stigma.

2.2 Justification

Sierra Leone, like many low-income countries, faces a significant shortage of primary healthcare workers, particularly in rural areas. This shortage hampers the delivery of quality healthcare services to the rural population. Investigating the factors influencing primary healthcare worker retention in rural Sierra Leone is crucial for addressing this shortage and ensuring sustained access to healthcare services for rural communities (36).

Retaining primary healthcare workers in rural areas directly contributes to improved health outcomes. When healthcare professionals are present in rural communities, individuals have timely access to diagnosis, treatment, and preventive care, leading to early intervention, disease management, and improved health outcomes. Understanding the factors influencing retention will help identify strategies to enhance the presence of healthcare workers and improve health outcomes for the rural population (37).

Sierra Leone experiences a significant disparity in the distribution of primary healthcare workers, with the majority being concentrated in urban areas. This unequal distribution worsens healthcare disparities, as rural communities encounter restricted availability of healthcare services (36). The investigation on the factors that affect retention in Sierra Leone and other Sub Sahara Africa countries helped us gained insights into the underlying causes of this imbalance. This knowledge was then used for focused interventions aimed at attracting and retaining healthcare workers in rural regions. Consequently, these interventions will alleviate disparities and promote fair access to healthcare services for all.

Sierra Leone currently has 25 public and private training institutions offering 56 education programs, but it lacks an adequate number of health workers to meet the staffing requirements specified in the Basic Package of Essential Health Services for 2015-2020. Furthermore, there is no coordinated pre-service training plan that has been mutually accepted by the MoHS and Ministry of Education, and the training institutions.

Nonetheless, the government of Sierra Leone with support from partners have implemented many interventions to retain these primary healthcare workers. The introduction of Performance Based Financing (PBF) by Ministry of Health and Sanitation and partners was in 2012 and ended in 2016, which was mainly for primary healthcare workers in rural areas (15). The posting of medical students (medical doctors, midwives, and nurses) in rural areas by the training institution was a government initiative geared to improve rural retention done every year and for the period of three months. Another intervention was increased in salary and other incentives for rural primary healthcare workers. The government and partners provided electricity supply by solar installation and motor bikes for all CHCs and some CHPs in rural areas. Training schools for Maternal and Child Health Aids were established in all district health quarter towns to train nurses at lower cadre that are meant for rural health facilities. The government developed a policy on human resources for health that guides the implementation of healthcare workers retention in rural areas. These interventions were to increase and retain motivated primary healthcare workers in rural areas.

Of all these developments made by the Government and its partners to retaining healthcare professionals in rural areas remain a challenge, it is crucial for establishing a healthcare system that can be sustained over time. Experiencing frequent turnover in staff leads to higher expenses for recruitment and training, disrupts the consistency of care provided, and hampers the formation of meaningful relationships between patients and healthcare providers (38).

The creation of successful approaches to enhance job satisfaction, tackle challenges, and establish a supportive environment that encourages long-term retention are key to retention.

To overcome the difficulties related to retaining primary healthcare workers in rural Sierra Leone, it is essential to create evidence-based approaches and interventions that enhance job satisfaction, address challenges, and establish a supportive environment conducive to long-term retention. These will inform the development of targeted interventions aimed at retaining a competent and motivated primary healthcare workforce in rural areas. Ultimately, this will ensure fair access to healthcare services and lead to improved health outcomes for the rural population.

To this day, there has been limited research dedicated to examining the factors that influence the retention of primary healthcare workers in rural Sierra Leone. While a study has explored the challenges of retaining healthcare workers in Sierra Leone (39), there is still a gap in understanding the specific factors that affect the retention of primary healthcare workers in rural Sierra Leone. Primary healthcare workers are individuals who are employed in the field of primary healthcare to provide essential medical services and support to patients at the first level of healthcare contact. These workers can include a variety of healthcare professionals, such as doctors, nurses, nurse practitioners, physician assistants, midwives, community health workers.

2.3 Main objective

The main objective of this study is to identify factors that influence retention of primary healthcare workers in rural Sierra Leone and to make recommendation for improving rural retention.

Specific objectives

1. What are the individual factors that influence retention of primary healthcare workers in rural areas
2. What is the work environment factors that influence retention of primary healthcare workers in rural areas in Sierra Leone.
3. What are the local environment factors that influence rural retention of primary healthcare workers in Sierra Leone.
4. what are the national and international environment factors that influence rural retention of primary healthcare workers in Sierra Leone.
5. What interventions could be used in Sierra Leone to improve the retention of primary healthcare workers in rural Sierra Leone
6. What are the recommendations for improving rural retention strategies for primary healthcare workers in Sierra Leone

2.4 Methodology

Ensuring access to quality healthcare services in rural areas, especially in low-resource settings like Sierra Leone, relies on retaining skilled health workers, as their availability directly affects healthcare delivery and the population's well-being; thus, understanding the factors influencing health worker retention in rural Sierra Leone is crucial for developing effective strategies and policies to address the challenges faced in these areas. Finding out what is already known about rural retention; literature review will be conducted.

2.4.1 Search strategy

In reviewing relevant literatures on retention of primary healthcare workers in Sierra Leone and the Sub Sahara Africa Region, the researcher carried out a narrative literature review method through iterative approach. A systematic search of the PubMed, MEDLINE, VU Library, and Google Scholar databases was conducted using a combination of relevant keywords (such as primary health care workers, retention, factors, rural, and Sierra Leone in conjunction with professional classification: doctor, nurses, and midwives). Additionally, the reference lists of the selected articles were screened for relevant studies that may have been missed in the initial search. We also used grey literature from WHO, UNAIDS, UNFPA and many other reports related to the topic. To find more texts using Snowball, we examined the reference list of the papers that were reviewed. We therefore search for more literature to dig out the various factors and how these factors are interrelated in influencing retention.

2.4.2 Inclusion and exclusion criteria

Articles were included if they addressed or have connections with the factors influencing the retention of primary healthcare workers in rural Sierra Leone. Only articles related to primary

healthcare workers were included, like those focused on doctors, nurses, and midwives from Sierra Leone, West Africa, and Sub Sahara Africa (SSA), articles and reports that provided solutions or recommendations for improving retention were also included. The search was limited to articles published between 2006 and 2023, and only articles written in English were included for both grey and peer reviewed literature.

2.4.3 Data extraction

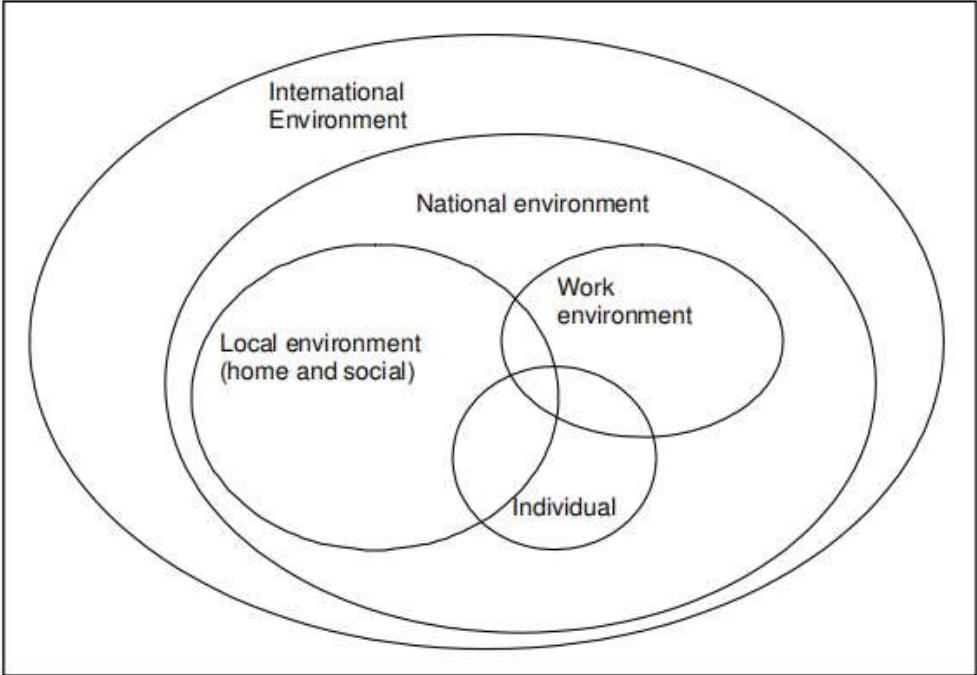
The data were extracted from the selected articles using categories such as demographic factors, financial incentives, job satisfaction, working conditions, training, and community factors. The relevant data were extracted from each article, organized, and synthesized to identify common themes and trends.

2.4.4 Conceptual framework

Retention of primary healthcare workers in rural settings have been studied in different forms using different models, conceptual frameworks, and theories. Henderson and Tulloch’s (2008) framework focuses on the influence of financial incentives on the retention of health workers in low and middle income countries of which Sierra Leone is part (15). The framework proposed that financial incentive can influence at three different levels: individual, organizational, and systemic. A study in Rwanda found that health workers motivation was positively associated with their intention to remain in rural areas (40).

We used the below framework (figure 4) by Lahmann, Dieleman and Martineau, 2008 conceptual framework (41) to analyse the factors that influence the retention of primary healthcare workers in rural Sierra Leone. The reason for choosing this framework is because it investigates the different factors and how these factors are connected to one another from different environments that affect healthcare workers retention. This concept deals with the broad view of the research and therefore helps detail analysis of the study.

Figure 5: Conceptual Framework on different fields that influencing retention



Source: Lahmann, Dieleman and Martineau, 2008 (42).

Explanation of the different environment that influence retention described by Lahmann, Dieleman and Martineau, 2008 framework, the details explanation of these different environments is seen below:

Individual factors

These factors consist of sex, age, marital status, and community of birth. Working and staying in rural areas by primary healthcare workers with limited facilities and opportunities is challenging especially for younger age and been a female. Young married healthcare workers usually like staying close to their family in urban areas with a lot of opportunities and educating the children. Due to imbalance opportunity between urban and rural areas affect retention.

Local environment

The framework describes the healthcare worker's living condition, such as electricity, good road network, accommodation school and qualified teachers, safe drinking water and transportation. The living condition play key role in retaining healthcare workers. Availability of good accommodation, sustainable electricity, good road network with access to transportation, improved school and source of safe drinking water are all motivating factors that make healthcare workers stay and work in a rural setting.

Working environment

The factors of work environment are Management support, pay and condition of service, high risk work environments, organizational arrangement and equipment and infrastructures availability. For healthcare workers to have a motivated spirit, need a sign of belongingness through supportive supervision, availability of infrastructure and equipment, less workload, and functionable financial commitment like special allowances. This brings about job satisfaction and retention.

National environment

Factors that influencing retention are country's political situation like social unrest (war or conflict), career development opportunities in the country and the country policies related to general labour. During the 11 years civil war in Sierra Leone, healthcare workers left their posting especially rural communities and settled in urban areas for safety. Career growth opportunities for rural healthcare workers in Sierra Leone attract and motivate them to stay and serve than when is only available for urban healthcare workers. A policy that Favors rural healthcare workers retention like high incentive, mandatory rural posting, locating training medical schools in rural areas, and developing curriculum based on rural services.

International environment

The international environment is higher wages, safe working conditions, good working environment, career development opportunities and good education. In Sierra Leone, high salary, good working environment and opportunity for growth are key factors that motivate healthcare workers to stay and work in rural areas. Healthcare workers move away from rural

posting for better life, and if the same opportunities are available within the country especially for rural settings, motivate them to stay and work.

2.4.5 Limitations of the study

The literature review on the retention of health care workers in rural Sierra Leone faces several difficulties and challenges. Some of these difficulties and challenges include:

1. One of the significant challenges in conducting this literature review on the retention of health care workers in rural Sierra Leone was the limited availability of literature. The lack of articles makes it difficult to obtain a comprehensive understanding of the topic.
2. Many studies or articles on the retention of health care workers in other rural West Africa countries were published in languages other than English, which can create difficulties in accessing and reviewing the literature.

3. CHAPTER THREE: Study Result

Factors influencing the retention of primary healthcare workers in rural Sierra Leon and SSA countries.

Retention of primary healthcare workers in rural Sierra Leone and SSA are influenced by different environmental factors which includes Individual environment, local environment, work environment, national environment, and international environment.

Table 1: Summary of findings on factors influencing retention of primary healthcare workers in rural Sierra Leon and other SSA countries.

NO	Environment	factors	Findings	Country of finding
1	Individual environment	Age	<ul style="list-style-type: none"> - Older healthcare workers are more likely to leave rural posts than younger ones. - Another study states that young healthcare workers more likely to leave than older ones. 	Sierra Leone and Uganda Ghana
		Gender	<ul style="list-style-type: none"> - Less female healthcare workers found in rural area. - About 68% of female healthcare workers are found in rural areas 	Zambia Sierra Leon
		Marital status	<ul style="list-style-type: none"> - No finding for marital status 	
		Place of origin	<ul style="list-style-type: none"> - Healthcare workers with rural background are more likely to stay than those with urban background. 	Ghana
		Level of education	<ul style="list-style-type: none"> - Primary healthcare workers found in rural areas are lower cadre nurses. 	Ghana, Tanzania, and Nigeria
		physical infrastructure,	<ul style="list-style-type: none"> - Poor condition of health facility and lack of medical equipment have negative impact on retention of healthcare workers. - Improved accommodation in rural areas for healthcare workers have positive impact 	Sierra Leone, South Africa South Africa

2	Local environment		on retention	
		Access to safe drinking water, electricity, and sanitation	- Lack of safe drinking water and electricity in health facilities affect primary healthcare workers retention	Ghana, Malawi, and Zambia
		Community and social factors	- Lack of community acceptance, appreciation and cultural integration affect primary healthcare workers performance hence hinder retention.	Uganda and Nigeria
		socioeconomic conditions,	- Lucrative salaries and allowances for primary healthcare workers retention in rural areas play a key role. - According to WHO report, incentive (financial and non-financial) is key to retaining primary healthcare workers in their position	Sierra Leone WHO LMIC
		School and educational standard	- Lack of standard schools in a rural area was demotivating factor for medical doctors and nurses to serve rural communities	Kenya, Ghana, and South Africa
		Road network and transportation.	- Poor road network and ineffective transportation system as factor that discourage healthcare professionals to	
3		Supportive supervision, mentorship, and coaching	- Irregular supportive supervision demotivates healthcare workers to stay	Kenya, SSA
		Salaries allowance and other benefit	- Inadequate compensation discourages health workers and decide to leave the job	Malawi, Kenya, and Sierra Leone
		Professional development and training	- Lack of professional development and training	Ghana, South Africa, Malawi, and Kenya.

	Work environment	Workload and staff level	- High workload due to lack of inadequate staffing	South Africa
		Physical environment and resources	- Lack of essential supplies and equipment	Ethiopia and Tanzania
		Supportive management and work culture	- Effective leadership and positive work culture	Ghana, Mozambique, Tanzania, and Uganda
4	National environment		- Good governance structure Supportive policies	Kenya, Ghana, Malawi, and Tanzania
5	International environment		- Presence of global health policies - International program to support rural healthcare workers	Uganda and Malawi

3.1 Individual environment

This deals with the characteristics of individual healthcare workers like the age, gender, marital status, background, and the level of education.

3.1.1 Age

The age of healthcare workers has been identified as a potential factor influencing their retention in rural Sierra Leone and other SSA counties. A study conducted in Sierra Leone found that older healthcare workers in the higher cadre were more to leave rural jobs due to lack of career advancement opportunities and low salaries (43). Another study conducted in Uganda found that older healthcare workers leave rural job due to the low salaries and career advancement opportunities (44). Healthcare workers in Sierra Leone with long-term serving, lot of experience and in senior position will not be comfortable to work in rural area with no further opportunities, this serves as demotivating factor and eventually leave for urban with lot of opportunities. A study conducted in Ghana found that younger healthcare workers were more likely to leave rural areas than older healthcare workers due to factors such as inadequate housing, lack of opportunities for professional development and limited access to basic amenities (45). In Sierra Leone, young healthcare workers leave for career development, well paid job, good working condition and living condition and many others as it was stated in other studies. Young healthcare workers force to move due to desire in career advancement, despite the overall growth of the healthcare workforce, it is worth highlighting that a significant number of healthcare professionals are nearing the retirement age of 60, as indicated in Figure 6. According to human resource profile in Sierra Leone, approximately 24% of all healthcare workers are currently over 50 years old, and there are already 394 individuals who have exceeded the age of 60 (46).

A systematic review found that younger healthcare workers were more likely to leave rural areas due to factors such as limited opportunities for professional development, inadequate housing and infrastructure and lack of access to basic amenities (38).

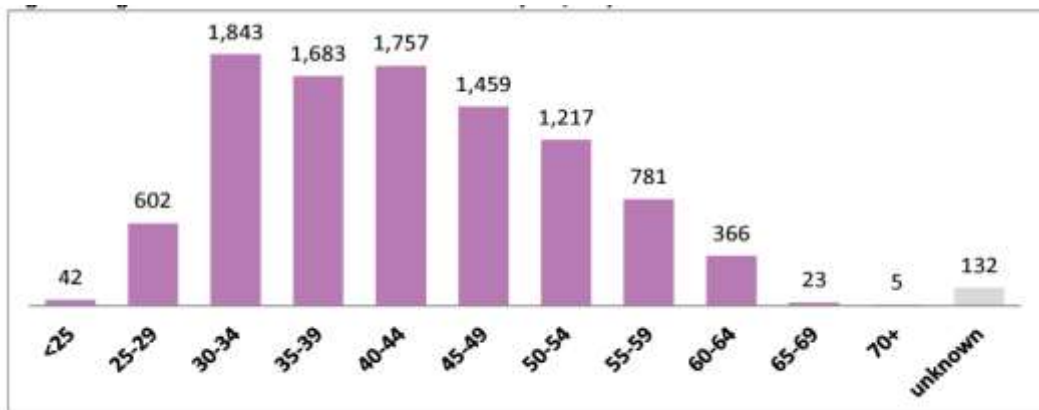


Figure 6: Distribution of health workforce by age in Sierra Leone, 2016 (15).

3.1.2 Gender

Gender is one of the individual factors that can influence the retention of primary healthcare workers in rural Sierra Leone.

A study found that gender-based discrimination, such as unequal pay and limited career advancement opportunities, contributed to the high attrition rates among female healthcare workers in rural Sierra Leone. The study also found that female healthcare workers were more likely to leave their rural posts due to family-related reasons, such as the need to care for children or aging parents (47).

A study in Sub-Saharan Africa showed that gender disparity in the willingness to accept rural postings among healthcare workers, with females being less likely to remain in such postings compared to males. This is due to various factors such as concerns for safety, lack of family support, and poor social and economic conditions in rural areas. In Zambia, despite females constituting the majority of the nursing and midwifery workforce (85.2%), they were underrepresented in rural areas, according to a study (48). According to a report by the Sierra Leone Ministry of Health and Sanitation, female health workers are more likely than male health workers to be found in rural areas. The report states that approximately 68% of female health workers are located in rural areas, compared to 54% of male health workers (15).

3.1.4 Place of origin

According to study conducted in Ghana, health workers who have their origin from rural areas are more likely to remain in rural posting than those from urban, this is because they are adapted to the rural environment (45). Among the health professionals, 60% of them are not in their first job, many have changed their job due to dissatisfaction with the working environment. Between 2004 to 2007, the percentage of nurses located in rural areas and are willing to work decrease from 34% to 18% (49). According to a study by WHO, having students from rural origins, and curriculum tailored based on rural intervention were the strong factors for rural practice and retention (50).

Locating professional training schools outside urban areas with clinical rotation in rural health facilities until completion, designing the curriculum that address rural health concerns including professional development opportunities are key for rural retention (51). In Sierra Leone, primary healthcare workers with rural origin have rural experience, some already have their family living in a rural area and are likely more comfortable to stay and work in rural areas than those from urban areas. Relocating medical schools in rural areas and admitting students based on their origin will increase rural retention. This just affirming that, the study in Ghana is applicable in Sierra Leone context.

3.1.5 Educational background

The educational background of health workers can influence their retention in rural areas, including Sierra Leone. Health workers with a strong educational background, including comprehensive training and relevant skills, are better equipped to handle the challenges of rural practice. Those who receive quality education and training are more likely to feel capable of providing effective care in rural settings. This can contribute to job satisfaction and increase the likelihood of retention (12). There was no research found on the influence of retention of healthcare workers in relation to their educational background in Sierra Leone.

According to a study conducted in Sub-Saharan Africa, health workers with advanced education tend to stay in urban areas instead of rural areas. This was apparent from the notable scarcity of doctors and specialists in rural settings compared to urban environments. The study indicated that this imbalance could be attributed to the greater availability of advantageous practice opportunities and additional income-generating prospects in urban areas, contrasting with the limited options in rural regions (52). Likewise, in Ghana, health workers with lower educational qualifications were observed to be more inclined to stay in rural areas compared to those with higher qualifications. A study conducted in three rural districts in the Eastern region of Ghana demonstrated that the majority (72%) of health workers held certificates, while only a small proportion (10%) had obtained bachelor's, master's, or doctoral degrees. Among these health workers, nurses and midwives constituted 83% of the workforce, while medical doctors had a limited presence (4.3%) (53).

A research study conducted in Tanzania revealed that health workers with lower levels of education had a higher likelihood of staying in rural settings for longer durations, in contrast to those with higher educational attainment (54). In Zambia, a study identified that the scarcity of medical doctors and specialized healthcare professionals in rural areas stemmed from their perception of rural settings as offering unfavourable financial and non-financial conditions. Additionally, health workers with advanced education expressed concerns about social isolation, which contributed to their reluctance to remain in rural areas (55). In Nigeria, a separate study indicated that nurses and midwives at the primary care level had to assume additional responsibilities beyond their designated roles due to the absence of medical doctors (56). Primary healthcare workers found in rural Sierra Leone are lower cadre nurses (CHO, CHA, midwives) unlike medical doctors and senior cadre nurses who love to stay in urban than rural. Based on the finding from other SSA countries, linking to Sierra Leone context with the experience, the different findings are also applicable to Sierra Leone. In Sierra Leone peripheral health unit is of more of lower cadre of healthcare worker like junior nurses, midwives, and other lower healthcare workers as it was seen from other SSA countries. They most of the time perform the roles meant for medical doctors because they are not available.

3.2.0 Local environment

The local environment of health workers encompasses the immediate surroundings and conditions in which they reside and carry out their work. It comprises a range of factors that have the potential to impact their professional practice, job satisfaction, and overall well-being. Typically, the local environment of health workers includes a variety of elements like physical infrastructure, access to safe drinking water and sanitation, electricity, and community and social factors, socioeconomic conditions, safety and security and professional development opportunities.

3.2.1 Physical infrastructure

This consists of the state of healthcare facilities, focusing on their infrastructure, equipment, resources, as well as factors such as electricity, staff accommodation, and availability of essential medical supplies. A study conducted in Sierra Leone shown that, the condition of healthcare facilities, including infrastructure and equipment, greatly influences healthcare worker retention (57). Inadequate resources, such as medical supplies and equipment, negatively impact healthcare workers' ability to provide quality care, leading to frustration and decreased job satisfaction, thereby negatively impact the retention and motivation of health workers within the public sector (58).

Improved housing was highlighted as a significant factor for South African doctors to remain in rural areas, supported by anecdotal evidence and previous studies that reveal the negative impact of inadequate housing, unreliable infrastructure services, and insufficient educational facilities on the motivation of healthcare professionals in choosing rural service (59). A study conducted in South Africa shown that, adequate healthcare facility infrastructure, resources, and equipment are essential motivators for doctors and lack of properly equipped facilities resulted in doctors leaving their positions, leading to decreased confidence among medical teams. In Sierra Leone, improved healthcare facility infrastructure and guaranteeing the accessibility of essential equipment are vital for retaining healthcare workers and instilling patient confidence. Lack of sufficient resources and demotivated staff in poorly equipped health facility result in the loss of highly skilled professionals, such as doctors, who seek better prospects elsewhere (59,60). These were factors found in Sierra Leone and similar in South Africa which were found to have negative impact on retention.

3.2.2 Access to safe drinking water, electricity, and sanitation:

In rural Sierra Leone, limited access to safe drinking water due to water scarcity, inadequate infrastructure, and unreliable supply systems poses challenges to healthcare delivery. Availability of these factors impact the well-being of health workers and their ability to maintain hygiene, sanitation, and infection control practices, ultimately affecting their retention. Adequate access to clean water contributes to improved job satisfaction and can ultimately aid in retaining health workers in rural areas (61). Research conducted in Ghana revealed that health workers exhibited a reluctance to be retained in rural areas due to insufficient access to water and electricity. Midwives, in particular, expressed reservations about accepting postings and remaining in rural locations due to the lack of portable drinking water and inadequate electricity supply, which created unfavourable living conditions for them (62,63). Research conducted in Zambia and Malawi highlighted that the insufficient provision of electricity and water services were contributing factors to health workers' lack of

motivation to remain in rural positions (64,65). Nonetheless, in Sierra Leone, poor safe water supply and lack of electricity are all factors that hinder retention of primary healthcare workers in rural areas. The same factors (inadequate water safe water supply, and lack of electricity) affecting Ghana, Malawi and Zambia also affecting Sierra Leone and therefore can be applied in Sierra Leone context.

3.2.3 Community and social factors

Community and social factors play a significant role in the retention of healthcare workers in rural Sierra Leone and Africa. A study conducted in Uganda demonstrated that the community's lack of recognition and support towards rural health workers had an adverse impact on their retention (66). A study conducted in Nigeria stated that the high utilization of services and financial assistance provided by the community contributed to sustaining the motivation of rural health workers and ultimately improved their retention (67). Healthcare workers who feel culturally and socially integrated into the local community are more likely to stay in rural areas. Factors such as acceptance by the community, familiarity with local customs, and language proficiency contribute to their retention (68). A safe and secure working environment is essential for healthcare workers' retention. Measures to ensure personal safety, including protection from violence and access to security resources, contribute to their willingness to remain in rural areas (69). Culture and tradition are common practices for both Sierra Leone and other SSA countries according to the findings, good community structures that likely increase healthcare workers retention in Sierra Leone by creating deep connection with community members thereby increasing security and appreciation. Sierra Leone has high value for culture and tradition just like other SSA countries which makes the findings similar and applicable in Sierra Leone context.

3.2.4 Socioeconomic condition

Effective social welfare programs and healthcare policies, such as health insurance and comprehensive healthcare coverage, contribute to healthcare worker retention, accessible and inclusive healthcare systems help alleviate financial burdens and increase job satisfaction (70). A study conducted in Sierra Leone states that competitive salaries and financial incentives, such as bonuses and allowances, are crucial and key factor for retaining healthcare workers in rural areas. Adequate compensation helps address their financial challenges and motivates the healthcare professionals to stay (71).

In Sierra Leone, when primary healthcare workers are insured, and have free medical treatment for their family with other remote benefits, they will prefer to work and serve in rural areas than city especially those having passion for their work. This is not only for primary healthcare workers in Sierra Leone but beyond. When a primary healthcare worker meets family demand with less stress in the job, the motivation and commitment will increase which lead to increase in retention. Therefore, the findings from other countries can be applied in Sierra Leone context. Listening

3.2.5 Road network and transportation

A study conducted in Kenya revealed that healthcare professionals, including nurses and doctors, expressed dissatisfaction with their working conditions primarily due to limited and ineffective transportation options. The research emphasized that the challenges associated

with travelling and the high costs of transportation had a negative impact on the retention of healthcare professionals in rural regions (72). Similarly, another study carried out in Ghana found that health workers in remote areas were discouraged by poor road networks and inadequate transportation systems thereby affecting retention (73). Similar observation was made in South Africa, highlighting the adverse effects of inadequate transportation on healthcare workforce retention(56).

Many primary healthcare workers in Sierra Leon do not accept rural posting due to family disconnection (12). Poor road network with lack of mobility and high transportation cost will totally serve as demotivating factors hence leading to poor retention. Healthcare workers with transportation means like motor bikes will have easy access to family outside the working environment than those without.

3.2.6 School and educational standards

Research conducted in Kenya demonstrated that the substandard quality of schools for their children acted as an obstacle, impeding the willingness of nurses and doctors to accept positions and remain in rural areas (73). In countries of Sub-Saharan Africa, health workers hold the view that schools located in distant regions are considered to have inferior standards (74). Similarly, a study carried out in Ghana revealed that the availability of reputable schools for their children played a crucial role in influencing the decision of medical doctors to prolong their stay in rural areas (75). In the case of South Africa, an investigation discovered that the absence of well-performing schools contributed to a scarcity of health workers being assigned to remote communities (76).

Sierra Leone is no exemption of poor educational standard in rural areas. Primary healthcare workers in Sierra Leone want to see their children attending in standard schools and be able to monitor them. The lack of this schools in rural areas will discourage parents from taking their children to attend in rural schools with low educational standards. Therefore, the findings of low standard of education in rural areas from other countries is the same as in Sierra Leone and can be used in its context as a barrier to rural retention.

3.3.0 Work environment

The working environment of healthcare workers in rural Sierra Leone and Sub-Saharan Africa (SSA) has a significant impact on their retention in these regions (23). Studies conducted in SSA highlighted several factors related to the working environment that influence healthcare professionals' decision to stay or leave. These factors include supportive supervision and mentorship, continuous education and training opportunities, compensation and working conditions, workload and staff level, safety and security and recognition and career opportunities (77).

3.3.1 Supportive supervision, mentorship, and coaching

According to study conducted in SSA, Supportive supervision and mentorship play a crucial role in improving the retention of health workers, providing guidance, feedback, and professional development opportunities, these strategies can enhance job satisfaction, skill development, and career progression, which are all key factors in retaining health workers (78). According to study conducted in Kenya, mentorship and coaching provide opportunities for healthcare workers to enhance their clinical skills and competencies. Mentors can share

their expertise, guide clinical decision-making, and provide hands-on training. This professional development not only increases job satisfaction but also boosts confidence and competence, making healthcare workers more likely to stay in their positions (79).

The findings from Kenya on lack of supportive supervision, mentorship and coaching that affect rural retention is the same in Sierra Leone as it breaks barrier between supervisor and supervisee. Mentorship and coaching improve healthcare workers skill and competency thereby making the work comfortable and enjoyable, which in turn lead to job satisfaction and retention in rural Sierra Leone. Therefore, making supportive supervision a routine activity will deepen the relationship between primary healthcare workers staff and supervisors, increasing productivity and motivation. This is applicable to all SSA countries.

3.3.2 Salaries, allowances, and other benefits

Adequate and competitive compensation packages play a crucial role in attracting and retaining healthcare professionals in underserved regions. In Kenya, Malawi, and Sierra Leone, the unavailability, poor administration, unfair allocation, and inadequacy of rural allowances discourage health workers from remaining in rural areas. Studies in Ghana indicate that urban health workers earn more through part-time jobs compared to their rural counterparts, and medical officers suggest considering the opportunity cost of potential additional income to attract doctors to remote areas. According to a study conducted in Sierra Leone, the absence of financial incentives, such as the remote area allowance serve as a demotivating factor for rural health workers. This lack of differentiation in financial benefits between rural and urban areas leads to the decision to leave their positions (23). Based on these findings, medical doctors prefer to work in urban settings where they work in more than one job to increase their income.

According to WHO, offering competitive salaries that align with the qualifications, responsibilities, and market rates can attract and retain healthcare workers in rural areas (18). A study conducted in SSA proved that providing specific allowances or incentives for healthcare workers serving in rural areas can be a motivating factor for retention. Rural allowances can offset the additional costs and challenges associated with practicing in remote or underserved communities, such as housing, transportation, and access to amenities. These allowances recognize the unique circumstances and provide financial support to encourage healthcare workers to remain in rural areas (42). Research conducted in Sierra Leone, Kenya, and Malawi, the unavailability, poor administration, unfair allocation, and inadequacy of rural allowances discourage health workers from remaining in rural areas (12,65,79). Therefore, all these finding in Kenya, Malawi and by WHO are the same factors found in Sierra Leone that affect retention.

3.3.3 Condition of service

A condition of service refers to the terms, benefits, and working conditions provided to healthcare professionals that contribute to their job satisfaction, motivation, and likelihood of staying in their positions. It encompasses various elements such as professional development and training, mandatory services and bounding, and promotional criteria that influence the overall work environment and employee experience.

3.3.4 Professional development and training

According to study conducted in Ghana, the career advancement of healthcare workers emerges as a key factor for attracting and retaining them in rural areas. Many medical doctors perceive that accepting assignments in rural stations would deny them the chance to receive mentorship from specialized professionals, which they believe is more readily available in urban settings (63,75). A studies carried out in South Africa indicated that healthcare professionals, like doctors and nurses, view rural areas as valuable settings for encountering rare professional experiences within their specific fields of expertise (23,80). A study in South Africa found that lower-level nurses expressed dissatisfaction with the extended duration it took for them to access opportunities for professional growth and skill improvement while working in rural regions (81). On the other hand, investigations conducted in Malawi and Kenya have uncovered that healthcare workers are discouraged from staying in rural areas due to limited access to training and insufficient opportunities for professional development (82,83).

In Sierra Leone study conducted showed that doctors and nurses see rural as important environment for having real professional development experiences in their field of study. Capacity building opportunities for healthcare workers in Sierra Leone are just concentrated in the urban setting, those in rural are left with no option but to leave rural post for urban searching for such opportunities. According to doctors in Sierra Leone, accepting rural placement deprive them from mentorship and this make them to move to where such facilities are available (84).

3.3.5 Mandatory services

There was no literature found on mandatory services in Sierra Leone. A study conducted in Ghana found that medical doctors perceived the promotion criteria for health workers in rural regions as unjust and slower compared to their counterparts in larger urban hospitals (75). A study conducted in South Africa revealed that, health professionals favoured rural locations due to fewer competitors and obstacles when it came to their career advancements (85). Research conducted in rural Uganda revealed that being offered the chance to assume higher positions of responsibility for a specified and agreed-upon duration of time served as a motivating factor for individuals to be drawn to and remain in these rural areas (66).

Sierra Leone, mandatory services for new medical graduates have been implemented and it was successful from the start, the standard was not followed and lost it purpose, it was purposely to increase rural retention. Midwives and nurses are posted for job practical every year in rural health facilities for a period of two to six months and sometimes one year based on the situation. Findings from other countries are applicable in Sierra Leone context though there was no literature found.

3.3.6 Promotional criteria

Study conducted in Sierra Leone states that nurses and midwives expressed dissatisfaction with being stationed at one location for an extended period instead of being rotated and promoted as it was planned for every two years. This situation was perceived as a demotivating element for rural retention (23).

3.3.8 Workload and staffing levels

In Nigeria, a study showed that healthcare workers perceived heavy workloads and understaffing as significant challenges affecting their retention and job satisfaction (86). Insufficient staffing levels and excessive workloads were also identified as factors leading to burnout and high turnover rates among healthcare workers in South Africa (87).

In Sierra Leone, shortage of healthcare workers was highly experienced during and after Ebola and COVID 19 outbreaks. Shortage of healthcare workers in Sierra Leone lead to high workload and this contribute to poor performance of staff thereby leading to job dissatisfaction and poor retention. The findings in Nigeria and South Africa are applicable in Sierra Leone context as they all have problem with rural retention of healthcare workers.

3.3.9 Physical environment and resources

A study conducted in Ethiopia found that healthcare workers identified the availability of essential supplies and equipment, such as medications, diagnostic tools, and proper infrastructure, as crucial for their job satisfaction and motivation to stay in their positions (88). Similarly, research in Tanzania revealed that healthcare workers emphasized the need for a well-equipped and functioning work environment to deliver quality care and remain in rural areas (89).

There was no article found on physical environment and resources in Sierra Leone. Based on Integrated Supportive Supervision Visit (ISSV) reports, the lack of medical equipment and diagnostic tools cut right across the health facilities. Stockout of drugs was the most common concern in all health facilities. This led to under performance of healthcare workers, and compromise in service delivery. Comparing these findings in Ethiopia and Tanzania to what is seen in Sierra Leone, it is a similar situation and adapted to Sierra Leone context.

3.3.11 Supportive management and work culture

A study in Malawi found that healthcare workers valued supportive supervision, effective leadership, and opportunities for professional development as crucial components of a positive work environment (90). Positive work culture and supportive management were associated with higher job satisfaction and lower turnover intentions among healthcare workers in Mozambique (91). Research conducted in Tanzania, Uganda, and Sierra Leone revealed that poor communication from management, unequal treatment of employees, failure to acknowledge accomplishments, favouritism among staff, and disrespectful behavior of management towards healthcare workers were identified as management-related problems affecting the willingness of staff to remain in their positions (66,84,92). Similarly, a study conducted in Ghana emphasized the lack of managerial support for training and professional growth opportunities as a significant concern, thereby influencing the retention of physicians in rural districts (75).

Lack of managerial support, poor communication led to demotivation and poor performance of healthcare workers in Sierra Leone.

3.4 National environment

The national environment plays a crucial role in the retention of healthcare workers in rural Sierra Leone and other sub-Saharan African (SSA) countries. It encompasses factors such as

health policies, governance, socio-economic conditions, and infrastructure, which collectively influence the motivation and ability of healthcare professionals to remain in rural areas.

In Sierra Leone, a study highlighted the importance of supportive policies, including rural retention schemes and incentives, in enhancing the healthcare workers to remain in rural areas (23). Similarly, research in Ethiopia revealed that strong governance and policy frameworks can positively influence healthcare worker retention in rural areas (93). A study in Malawi found that low salaries were a major reason for healthcare workers' intentions to leave rural areas (94). Additionally, research in Tanzania emphasized the need for financial incentives, housing, and other support mechanisms to enhance healthcare worker retention in rural areas (95). Access to reliable infrastructure and resources is crucial for healthcare worker retention (30). A study conducted in Tanzania highlighted the importance of basic infrastructure, such as roads and electricity, in improving healthcare worker retention in rural areas (96). Research in Ghana revealed that the lack of managerial support for training and professional growth opportunities negatively impacted the retention of physicians in rural districts (97). A study in Kenya identified limited career development opportunities as a challenge for healthcare worker retention in rural areas (98).

A good government structures and strategies (good retention policy, recruitment, allocation of training school in rural areas, enumeration, and community program) that will retain healthcare workers in rural in Sierra Leone. The findings in Kenya, Tanzania and Ghana are adapted in Sierra Leone context, the same factors affecting rural retention in other SSA counties is also affecting Sierra Leone.

3.5 International environment

The international environment plays a significant role in the retention of healthcare workers in rural Sierra Leone and other sub-Saharan African (SSA) countries. It encompasses factors such as global health policies, international aid and funding, migration trends, and collaborations between countries.

Global health policies set by international organizations and donor countries can influence healthcare worker retention. Research in Malawi highlighted the importance of alignment between national and global health policies in addressing workforce challenges and retaining healthcare workers (99). studies have emphasized the significance of international policies promoting equitable distribution of healthcare resources to improve retention in rural areas (100). In SSA countries, aid programs that prioritize rural health infrastructure, training, and financial incentives have been shown to enhance retention (95). A study in Uganda found that international funding and training program tailored for rural areas improved healthcare worker retention (101). Research has shown that attractive job opportunities and better working conditions in abroad can lead to the loss of healthcare workers from rural areas (98). Collaborative efforts between countries and international organizations can support healthcare worker retention (102). Partnerships that facilitate knowledge sharing, training programs, and professional exchanges can enhance the capacity and motivation of healthcare workers to remain in rural areas (103). Collaboration can also promote resource allocation, policy development, and innovative approaches to address retention challenges (104).

In Sierra Leone, there is an increase in movement of healthcare workers in the international labour market. This is due to lack of alignment in policy between national and international.

This was seen in evidence according to research done in Malawi. Linking international organizational training and coaching program with rural healthcare workers in Sierra Leone will lead to attraction and retention of them in rural areas. Many healthcare workers left their posts and sought international jobs because of the opportunities attached to it like high salary, good working environment, high security, and career development pathway. The findings in Malawi and Uganda are applicable in Sierra Leone context. The lack of these opportunities increases international migration if not guided by international policy.

3.6.0 Health system interventions to improve health workforce retention in rural areas

The retention of healthcare workers in rural areas poses a significant obstacle for SSA countries, including Sierra Leone. Insufficient healthcare professionals in rural regions have a negative impact on healthcare service provision and contribute to disparities in health. This literature review focuses on different interventions implemented in rural Sierra Leone and SSA to enhance the retention of healthcare workers, offering an overview of the interventions (educational, financial, regulatory, and professional and personnel supports) and their effectiveness on the retention of the healthcare workforce.

Table 2: Interventions used to improve recruitment and retention of health primary healthcare workers in rural areas (30).

No	Category of interventions	Example of interventions	Implemented/not implemented in Sierra Leone
1	Education	❖ Continuous professional development and in-service training to rural healthcare workers	❖ Implemented but not regularly done
		❖ Internship/clinical rotation in rural areas during studies	❖ Implemented
		❖ Medical training schools outside major cities	❖ Implemented (for lower cadre)
2	Regulatory	❖ Compulsory rural services	❖ Not implemented
		❖ Enhance scope of practice	❖ Not implemented
		❖ Different types of health professional training	❖ Implemented
		❖ Subsidize education for return of service	❖ Implemented
3	Financial incentives	❖ Appropriate financial incentives to rural healthcare workers	❖ Started but not functional
		❖ Save and supportive working	❖ Not implemented

4	Professional and personal support	environment	
		❖ Better living conditions	❖ Not implemented
		❖ Career development programs	❖ Not implemented
		❖ Public recognition measures	❖ Not implemented

3.6.1 Educational intervention

There was no research found on educational intervention in Sierra Leone. Research done in SSA state that recruitment and training interventions of individuals who have rural background was one key factors that increase rural retention (105). Those that have rural background have rural experience and coping mechanism to stay and work in rural environment. It is similar in Sierra Leone as those who usually work in rural setting have rural background and can easily accept rural postings. Scholarships and financial incentives provided by the government and non-governmental organizations (NGOs) in Sierra Leone encourage students from rural backgrounds to pursue healthcare professions (106). Research in South Africa indicates that individuals who come from rural backgrounds are more likely to remain in rural areas for their professional practice (107). This is the same situation in Sierra Leone, rural health workforce is mainly of those with rural backgrounds.

Recruiting lower cadre health workers from the same areas where they live and are expected to work easily accomplished and at a lower expense. Consequently, retaining these workers becomes more manageable as they are already familiar with the living conditions and context of their respective communities (108,109).

The study in SSA have shown that selecting university students from rural backgrounds was linked to higher rates of retention in rural areas (110). Undertaking at least one year of health training in non-metropolitan regions during university education has been associated with prolonged retention (111). Students who opt for a longer duration of rural training exposure during their basic training, such as two years, have approximately twice the likelihood of retention. (112).

From the various educational intervention's findings in South Africa, recruiting and training students that have rural background was effective. Likewise in Sierra Leone 62% of the country population live in rural areas and 70% of the health workforce live in urban areas. Based on the intervention from South Africa, it will work well in Sierra Leone.

3.6.4 Regulatory intervention

There was no finding in Sierra Leone concerning compulsory rural services. One of the approaches in regulatory interventions involves the Implementation of a mandatory service program, where healthcare workers are obligated to serve in remote areas for a designated period. Preferential admission policies for rural students in medical schools in South Africa have been implemented to ensure a steady supply of healthcare workers from these areas (121). This requirement was prior to obtaining a license or as a prerequisite for pursuing specialization or career advancement opportunities (122).

For instance, between 1998 and 2010, a total of 13,155 doctors and 4,605 nurses were placed across various provinces, while in 2012 alone, 7,164 health workers participated in the rural service program. However, it should be noted that one drawback of this strategy was that some healthcare professionals, who were dissatisfied with this policy, were compelled to leave (122,123). This is easy to implement in Sierra Leone as more health facilities are in rural areas with limited healthcare workers.

Based on findings on healthcare workers retention from South Africa under compulsory rural retention and comparing to Sierra Leone's retention regulator interventions, is applicable to Sierra Leone context as many policies are creating impacts.

3.6.3 Financial interventions

Offering financial incentives attract and retain healthcare professionals in rural areas. This includes providing higher salaries, bonuses, and allowances specifically targeted for rural postings. Financial support for further education and training can also be provided for rural healthcare workers in Sierra Leone (117). A study conducted on financial intervention in Sierra Leone clearly shows that, health workers with good salary and other financial incentives were more motivated and willing to stay in rural areas. (23).

According to study conducted in Ghana, financial incentive like salary increase and allowances have direct motivation of healthcare workers, therefore leading to an increase in rural retention (118). Another study conducted in Zambia showed that, the introduction of financial and non-financial assistance such as loan, housing allowance, transportation contributed to their motivation and long stay of health workers in rural areas (119). Study in Kenya showed that, healthcare workers hardship allowance was 30% of their salary which make them to be motivated and willing to serve rural communities (83). A study also in Senegal shows the role hardship allowance play in retaining healthcare workers in rural areas (120). All these findings are typical to Sierra Leone healthcare workers and hence applicable to Sierra Leone context to improve retention.

3.6.2 Professional and personnel support interventions

Supportive supervision and regular performance feedback were key to improve job satisfaction (113). Implementation strategies to improve health worker retention in remote and rural areas in Sierra Leone according to study was career development, developing healthcare workers with rural healthcare services improve retention. (114).

According to Sierra Leone Ministry of Health and Sanitation report, Supportive policies that favour Continuous Professional Development (CPD) and career development opportunities increased job satisfaction and retention (115). Improving working conditions was crucial for enhancing healthcare worker retention in rural areas in Sierra Leone. Interventions include infrastructure development programs to upgrade rural health facilities, ensuring access to essential medical supplies, and implementing regular maintenance protocols (116).

4. CHAPTER FOUR:

4.0 Discussion

Retaining primary healthcare workers in rural Sierra Leone is vital to provide quality healthcare services to underserved populations. There are several distinct factors in rural Sierra Leone according to findings that affect retention of primary healthcare workers.

The main objective of this study was to identify factors that influence retention of primary healthcare workers in rural Sierra Leone and to make recommendation for improving rural retention. It is crucial to comprehend and tackle these factors to establish effective interventions that attract and retain healthcare professionals in rural areas, leading to enhanced healthcare access and better outcomes for rural communities in Sierra Leone. The main findings on retention of primary healthcare workers in rural Sierra Leone that affect retention were identified are listed and explained based on its importance:

Inadequate competitive compensation packages for rural healthcare workers were mentioned almost in all literature on rural retention. This factor affects all cadres but especially junior healthcare workers who are in larger number of the primary health workforce. Poor health facility infrastructures, such as irregular safe drinking water supply, dilapidated health facility structures, and lack of electricity, were highlighted as key reasons that discourage healthcare workers from staying in rural areas compared to urban settlements. Lack of career development opportunities and continuous professional development training were seen in many findings that affect retention, this force healthcare workers especially young medical doctors, nurses and midwives to leave and settle in urban areas with lot of these opportunities. Supportive supervision, mentorship and coaching were among the most important factors that influence retention. This was not only important for staff capacity building but also create connection between health facilities and the DHMT staff, it also helps to uncover their successes, challenges and provide solution to some of their challenges. Supportive rural retention policy was another finding that affect rural interventions which increase retention. Establishment of medical schools outside major cities was highly recognised to contribute to high retention rate. This factor helps to recruit students with rural background that are already integrated into the communities. The frequent stockout of drugs and other consumable in health facilities were among findings that affect the services of health personnel there by influence the decision to leave for urban settlement. Another factors but not as importance as the factors above that affected rural retention were: lack of improved school for children, lack of appreciation by community, lack of managerial supports, lack of international programs in rural areas, poor accommodation conditions and many others were factors that affected retention.

Establishing medical training schools in rural areas can have a significant impact on the retention of healthcare workers. By providing education and training opportunities in these underserved regions, aspiring doctors, nurses, and other healthcare professionals are more likely to develop a connection and commitment to these areas. This strategy not only helps address the shortage of healthcare workers but also creates a sense of community engagement and responsibility among graduates, encouraging them to serve in rural settings. The availability of quality education for the children of healthcare workers is essential in retaining these professionals in rural areas. If healthcare workers have access to good schools and

educational facilities for their children, they are more likely to stay in rural regions. Creating a diverse range of career opportunities within rural healthcare settings is vital. Offering specialized training programs, leadership roles, and opportunities for healthcare workers to expand their skills and expertise can make rural positions more attractive. Factors such as cultural norms, geographical barriers, and healthcare infrastructure should be considered when developing retention strategies. Engaging local communities and leaders in the design and implementation of these strategies can lead to more effective and sustainable outcomes. Societal gender norms and expectations might place additional pressure on married female healthcare workers to prioritize their family roles over their professional careers. This can create a conflict between their aspirations for a healthcare career and their perceived obligations as wives and mothers, potentially leading to decisions to leave their rural positions. Female healthcare workers who are married in the community where they work may find it easier to establish connections, build relationships, and develop a sense of belonging in rural areas. This social integration can contribute to their overall satisfaction with their work and life in the community.

The PBF was successfully implemented in Sierra Leone which contributed to rural retention. Rwanda was another country that successfully implemented PBF policy. This initiative provides financial incentives to healthcare workers based on performance indicators, contributing to improved retention rates and service quality. Establishing medical training schools in rural areas of Sierra Leone could help create a locally trained healthcare workforce with a stronger connection to those communities. Ethiopia's approach of decentralizing medical education involves establishing medical schools in rural regions. This strategy led to a significant increase in the number of healthcare workers willing to work in underserved areas. Investing in quality education for the children in rural Sierra Leone can enhance retention by addressing family-related concerns from the healthcare workers. In Malawi, improvements in schools and housing for healthcare workers and their families have contributed to higher retention rates, as these provisions create a more conducive environment for healthcare workers and their families. Developing diverse career paths and opportunities within rural healthcare settings can make rural positions more attractive to healthcare workers. Ghana's "Rural Retention Scheme" provides financial incentives, professional development, and improved living conditions for healthcare workers in remote areas. This approach has positively impacted retention rates. By adapting and implementing successful strategies, Sierra Leone can work towards improving the retention of healthcare workers in rural areas.

Limited research has been conducted on the retention of healthcare workers in Sierra Leone. Moreover, there was a notable absence of research focused on investigating the impact of socioeconomic and cultural factors on the retention of healthcare workers in the country. No research may have thoroughly examined the intricate connection between socioeconomic and cultural factors and healthcare worker retention. Gaining an understanding of the interplay between elements like income levels, family dynamics, cultural conventions, and community outlook could offer valuable insights into the development of strategies aimed at enhancing healthcare worker retention.

For instance, a study could investigate how cultural values and societal expectations regarding caregiving roles impact healthcare workers, particularly women, in their decision to continue working in rural areas. Additionally, understanding how economic opportunities in urban centres affect healthcare workers' choices and how these decisions vary based on cultural contexts could be a relevant area of exploration.

Effective rural healthcare worker retention interventions are essential for maintaining a stable and skilled healthcare workforce in underserved areas. Rural areas often struggle with recruiting and retaining healthcare workers due to limited resources, isolation, and a lack of career prospects. Retention interventions are crucial to maintain a skilled healthcare workforce, enhancing care quality for rural populations and overall community health. Interventions in Sierra Leone encompass continuous professional development, internship programs, rural medical training, diverse healthcare training, and mentoring. While financial incentives like performance-based financing were discontinued, continuous professional development and in-service training prove effective for retention by keeping healthcare workers up-to-date, motivated, and engaged, ultimately reducing turnover. Despite requiring capital, the feasibility is increased through partnerships with development entities. It was done through coordinated effort, using the available human resource with different expertise to train this health workers. Introducing internship/clinical rotation programs in rural areas aims to provide early exposure and familiarity with rural healthcare settings for medical students and young healthcare professionals. This approach dispels misconceptions about rural practice and creates a sense of community connection, all while being cost-effective and sustainable through government and training institution collaboration. Such programs offer firsthand experience, altering negative perceptions and inspiring long-term consideration of rural postings. Additionally, Sierra Leone established medical training institutions in rural areas to train junior healthcare workers, emphasizing community-based training like SECHN and MCH Aid. These institutions customize curricula to address rural challenges, fostering a sense of belonging and readiness for rural practice among graduates. Diversifying healthcare training to include various professionals like nurses, midwives, and community health workers strengthens the healthcare workforce and enables task shifting, benefiting rural healthcare access. These interventions, successfully implemented in other SSA countries, contribute to healthcare profession growth with minimal financial investment.

5.0 CHAPTER FIVE: Conclusion and Recommendation

5.1 Conclusion

The retention of primary healthcare workers in rural area in Sierra Leone greatly affecting health work force. The factors identified in this research are crucial for establishing effective interventions that retain healthcare professionals in rural Sierra Leone. The factors such as: lack of career development, irregular supportive supervision, poor living condition, frequent stock out of medical supplies, outdated medical equipment, lack of clear pathway for promotion, lack of scholarship opportunity and many others including community ownership. To address these issues, policymakers, healthcare authorities, and stakeholders must collaborate to develop targeted strategies, including enhancing working conditions, offering competitive compensation packages, implementing regular supportive measures, and expanding educational and skill-building opportunities. By prioritizing rural retention and investing in the well-being and professional growth of primary healthcare workers, Sierra Leone can work towards building a sustainable and skilled healthcare workforce that ensures equitable healthcare access and better health outcomes for rural communities.

5.2 Recommendations

Base on the findings of the research on factors influencing retention of primary healthcare workers in rural Sierra Leone and evidence on the various interventions from the study, the following recommendations are put forward to help minimize the challenges of rural retention and improve the healthcare services delivery in Sierra Leone:

1. The government of Sierra Leone to implement competitive compensation packages (financial incentives, housing allowances, and other benefits) for rural healthcare workers to attract and retain skilled professionals in rural areas. This can be done through structure policy that explain the implementation of competitive compensation package, who are to benefit, what they are to benefit, how long and how frequent.
2. The Ministry of Health and Sanitation through District Health Management Team (DHMT) to establish regular and effective supportive supervision, mentorship, and coaching programs for healthcare workers in rural facilities. This can be done through a team of trained focal/unit heads or member of the unit using structured questionnaire guide that guide the areas of interest.
3. The partners (NGOs, private sectors) to invest in improving health facility infrastructure in rural areas, including safe drinking water supply, waste management systems, access to electricity, adequate supply of medical equipment and essential medical supplies in primary health facilities to enhance working conditions and quality of care. Service level agreement between implementing partners and government to decide on the type of services and areas of implementation. This will lead to equitable distribution of services to rural areas.
4. The training institutions to work in line with the human resource health policy/retention policy that prioritize those with rural background and tailor the curriculum based on rural services. The rural service should also be mandatory for every trainee before receiving license.

5. The International and local NGOs, private institutions in partnership with the government to provide and support in-service training and scholarship scheme for rural healthcare workers. The scholarship can be awarded based on performance, commitment, and period of serving the rural community.

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7.0 Appendix

Table 3: Search table showing key words and their synonyms.

Key Words	Factors influencing “AND”	Availability and Distribution “AND”	Health workers “AND”	Rural “AND”	Sub-Saharan Africa “AND”	Retention on “AND”	Intervention s “AND”
Synonyms	Determinants “OR” Contributory factors “OR” Barriers “OR” Inhibitors “OR” Facilitators “OR”	Spread “OR” Accessibility “OR” Provision “OR” Deployment “OR”	Human resource for health “OR” Health workforce “OR” Health professionals “OR” Health personnel “OR” Doctors “OR” Nurses “OR” ” Midwives “OR”	Remote “OR” Poor settings “OR” Poor community “OR” Countrysi de de “OR” Villages “OR”	LMIC “OR” Developing countries “OR” Resource poor settings “OR”	Attraction “OR” Stay “OR”	Strategies “OR” Approaches “OR”