

Factors Influencing Quality Implementation Of Primary Healthcare Services Among Patients Attending Health Posts Facilities In Rutsiro District Rwanda, 2026

Mukakibibi Clenie^{1*} and Dr. Maurice B Silali²

¹Department of Chemistry and Mathematics, College de la Paix, Mout Kigali University, Rwanda

²Department of Public Health, Mount Kigali University and Academic Researcher, Epidemiologist, and Public Health Scientist, Rwanda and Kenya

*Corresponding Author

Mukakibibi Clenie, Teacher of Chemistry and Mathematics, College de la Paix, Mout Kigali University, Rwanda.

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Abstract

This study examined factors influencing the quality implementation and management of Primary Healthcare (PHC) services among patients attending health posts in Rutsiro District, Rwanda. Despite the critical role of PHC in promoting health, preventing disease, and providing basic curative care, limited local evidence exists on its implementation, accessibility, and service quality. The study aimed to determine the prevalence and utilization of PHC services, assess accessibility and socio-economic determinants affecting service quality, and evaluate healthcare staffing at health posts. A mixed-methods approach was employed using cross-sectional design, combining structured questionnaires and interviews, supported by cohort analysis and thematic triangulation. The study targeted outpatient and inpatient service users, with a sample size of 208 respondents determined using Yamane's formula. Data were analyzed using SPSS to generate descriptive and inferential statistics. Ethical approval was obtained from Mount Kenya University (MKU) and Rutsiro District authorities. Findings showed strong utilization of PHC services: 61.5% (n=128) reported regular immunization coverage, 60.1% (n=125) indicated essential services were always available, and 53.8% (n=112) confirmed consistent medicine availability, though some shortages persisted. Accessibility was generally favorable, with 66% (n=138) living within 3 km of a health post, 63% (n=130) spending ≤500 RWF on transport, and 71% (n=148) experiencing waiting times of ≤60 minutes. Additionally, 82% (n=170) reported medicines as always or often available, while 75% (n=158) indicated medical equipment was functional and services were moderately to highly comprehensive. Socio-economic factors significantly influenced access and quality. A majority, 57%, earned less than 50,000 RWF per month, while only 14% earned above 100,000 RWF. Health insurance coverage through CBHI was 63%, leaving 24% uninsured. Income affected healthcare access for 58% of respondents, and financial difficulties impacted care for 39%. However, 80% reported good understanding of health information, and 82% noted that insurance improved perceived service quality. Healthcare staffing was generally adequate: nurses served 67% of patients, community health workers 24%. Staff training was rated very good or moderate by 81%, professionalism by 80%, and staffing levels were considered sufficient by 80%. Patient load was ≤10 patients per provider for 71%, though 29% reported higher workloads. Staff competence improved patient satisfaction for 87% of respondents. The study concludes that PHC services in Rutsiro District are relatively strong in availability, accessibility, and utilization. However, financial barriers, occasional medicine shortages, and workload imbalances remain key challenges. It is recommended that the Ministry of Health expand CBHI subsidies and improve equitable facility distribution, while Rwanda Biomedical Centre strengthens supply chain systems and staff capacity-building. Health posts should optimize staff allocation to reduce waiting times and enhance service delivery.

1. Background of the Study

Globally, primary health care (PHC) is widely recognized as the most efficient pathway to achieve population health goals. Yet, despite progress, quality implementation is hindered by insufficient financing, workforce shortages, weak governance, and fragmented service delivery. The global Universal Health Coverage (UHC) service-coverage index improved from 45 in 2000 to 68 in 2021, but gains since 2015 have slowed, especially in low- and middle-

income countries, where high out-of-pocket spending remains a major barrier [1].

In Asia, successes such as increased density of doctors, nurses, and midwives have driven expanded coverage since 2014. However, disparities persist in rural and peri-urban areas due to inequitable staff distribution, unreliable supply chains, and challenges integrating community health workers into formal PHC systems

(WHO South-East Asia Region, 2023; Pande et al., 2023).

In Europe, high-income countries enjoy relatively broad access to PHC but face quality pressures from aging populations, multimorbidity, and workforce misdistribution. In the EU, averages of approximately 3.9 doctors and 8.4 nurses per 1,000 people reflect high resource levels, yet under-investment in primary versus hospital care undermines overall PHC quality. Digital integration, governance reform, and incentive alignment are often advised to address these gaps (OECD, 2022; European Commission, 2022).

In the United States a resource-rich setting primary care receives only around 4.7% of total health spending as of 2021. This under-investment drives limited access, short consultations, provider burnout, and fragmented services, all of which impair implementation quality in primary-level facilities [2].

Several studies examining the quality of healthcare services have shown that many health facilities fail to fully meet citizens' expectations, particularly in aspects such as reliability and responsiveness [3, 4]. Citizens' satisfaction is influenced by the timeliness of the services they receive, the level of respect and attention provided, and the competence of the healthcare personnel delivering the care [5]. Research has identified various factors that shape satisfaction with health services, including sociodemographic characteristics such as age, gender, marital status, income, education, occupation, and the length of hospital stay [6, 7]. Personality traits have also been suggested as potential determinants of perceived service quality, as they can influence an individual's health-related behaviors, perceptions of health and illness, and overall well-being [8]. Different personality profiles may assign varying levels of importance to health and illness, which can subsequently affect healthcare utilization patterns and satisfaction levels (Lahey, 2020).

In Turkey, primary healthcare services are delivered mainly through Community Health Centers (CHCs) and Family Health Centers (FHCs) [9]. Preventive health services are provided by specialized units within these centers, such as Tuberculosis Control Dispensaries (VSDs) and Cancer Early Diagnosis, Screening, and Education Centers (KETEMs). In line with the national cancer screening program, KETEMs conduct screenings for breast cancer (women aged 40–69 years), cervical cancer (women aged 30–65 years), and colorectal cancer (men and women over 50 years) (Turkish Ministry of Health, 2021). The Tuberculosis Control Program operates in provinces via VSDs, where suspected patients undergo diagnostic tests, laboratory examinations (such as sputum analysis), and imaging procedures. Confirmed cases receive medication and are monitored through directly observed treatment (DOT) to ensure adherence [10].

Assessing how patients perceive service quality in these facilities is essential for promoting the utilization of primary healthcare services, improving health outcomes, and enhancing quality of

life [11]. Regular evaluation of service quality enables healthcare organizations to determine whether their services align with public needs, identify operational shortcomings, and strengthen their systems [3,4]. This process supports continuous quality improvement and the development of patient-centered services that effectively meet community expectations [10].

On the African continent, chronic under-funding, frequent medicine stockouts, a shortage of skilled health workers, and weak governance severely limit PHC service quality. These deficiencies are especially detrimental during recurring outbreaks, highlighting the fragility of PHC platforms [12].

In Sub-Saharan Africa, systematic reviews show that quality implementation depends on reliable supply chains, referral systems, trained and supervised frontline staff (including CHWs), and community engagement. Facilities lacking basic diagnostics, medicines, or data systems consistently report poor quality and low fidelity to guidelines [13].

In Eastern Africa, workforce gaps, inadequate infrastructure (e.g., water, electricity, diagnostics), inconsistent medicine supply, and weak facility management limit PHC implementation quality. Where improvements have been made with strengthened supervision, data systems, and CHW linkages service quality and uptake have [10,14].

Specifically in Rwanda, strong investments in CHWs, community-based health insurance (CBHI), performance-based financing, and central coordination since 2010 have achieved major gains in maternal and child health. Yet, persistent challenges remain, including inconsistent supply chains, ongoing needs for on-site training and supervision, infrastructure gaps, and uneven staff distribution across districts, all influencing quality implementation at health-post level [14, 15].

Taken together, global and regional evidence since 2019 points to recurring determinants of PHC implementation quality at health-post level: financing and budget priorities, workforce adequacy and supervision, availability of medicines, diagnostics and infrastructure, management capacity, and community/CHW engagement. Understanding these requires measuring facility readiness, financing/payment mechanisms, governance and oversight practices, and community factors using data triangulation from facility surveys, routine systems, and qualitative accounts to capture implementation fidelity and contextual barriers [1, 13].

1.1 Problem Statement

Globally, the implementation of quality primary healthcare (PHC) services is widely recognized as a cornerstone for improving population health and achieving universal health coverage. Research has shown that factors such as adherence to good practices, service accessibility, population health status, and socio-economic conditions critically influence PHC quality [16]. In Africa, however, many countries continue to face challenges

in ensuring equitable access to high-quality PHC, with rural and underserved populations often experiencing disparities in the utilization of preventive, maternal, and child health services [14].

In Rwanda, although significant progress has been made in expanding access to healthcare services, gaps remain in understanding how different types of health services are deployed and how this affects the quality of care, especially in rural districts. Preliminary data from Rutsiro District indicate that while approximately 68% of residents regularly access immunization and maternal health services, only 42% utilize preventive care programs, reflecting inequalities in service utilization (NISR, MOH & ICF, 2021).

According to National Institute of Statistics of Rwanda (2023) describes on concise rating of primary healthcare services among patients in Rutsiro District can be summarized as generally good to very good (approximately 7.5–8 out of 10). This reflects strong performance in key areas such as availability of essential services, relatively high immunization coverage, acceptable physical access to health posts, manageable waiting times, and positive perceptions of healthcare staff competence and professionalism. However, the rating is slightly lowered by ongoing challenges, including occasional medicine shortages, financial constraints linked to low income and incomplete insurance coverage, and limited service range for some patients.

Despite these insights, most existing research focuses on general determinants of PHC quality or on urban and well-resourced settings, leaving limited evidence on rural contexts where service deployment may vary. This study, therefore, seeks to provide context-specific evidence on healthcare services among populations attending health posts in Rutsiro District. Specifically, it examines the prevalence of PHC service implementation, accessibility of healthcare services to households, socio-economic factors influencing quality PHC delivery, and the types and adequacy of healthcare staffing. By addressing these areas, the study aims to understand how the deployment of different health services affects the effective implementation of primary healthcare, ultimately informing strategies to improve service delivery and health outcomes in rural communities. This is a motivated researcher to determine the factors influencing the quality implementation of primary healthcare services among patients attending health post facilities in Rutsiro District.

1.2 Purpose of the Study

To determine the factors influencing the quality implementation of primary healthcare services among patients attending health post facilities in Rutsiro District.

1.3 Research Objectives

- i. To determine the prevalence of implementation of primary healthcare services among patients attending health posts facilities in Rutsiro District.
- ii. To assess the accessibility of community households to primary

healthcare services among patients attending health posts facilities in Rutsiro District.

iii. To determine socio-economic factors influencing quality implementation of primary healthcare services among patients attending health post facilities in Rutsiro District.

iv. To determine the level of types of Human resource staffing to influence primary healthcare service implementation among patients attending health posts facilities in Rutsiro District.

2. Literature Review

2.1 Empirical Literature

2.1.1 Prevalence of Implementation of primary Healthcare Services Among The Patients Health Posts Facilities

Globally, the implementation of primary healthcare (PHC) services has shown variable prevalence depending on healthcare infrastructure and policy frameworks. A cross-sectional study by Smith et al. (2022) in Southeast Asia utilized household surveys and facility audits to report that approximately 68% of the population had access to at least four essential PHC services, including immunization, maternal care, and chronic disease management. The study employed stratified random sampling and multivariate logistic regression to identify determinants of service uptake.

In Africa, a mixed-methods study in Kenya by Njoroge and Mwangi combined health facility assessments with community interviews, revealing a 55% implementation rate of PHC packages at community health units, with maternal and child health services being the most consistently delivered [17].

Rwanda's national health survey, conducted by Uwimana et al. used a cross-sectional quantitative approach with cluster sampling to show that 72% of households reported regular use of health post facilities for primary care needs, particularly antenatal and immunization services, highlighting strong community trust in health posts [18]. These studies underscore varying prevalence influenced by local context and health system readiness [13, 17, 18].

2.1.2 Accessibility of Community Households to Primary Healthcare Services among Patients Attending Health Post Facilities

Accessibility to PHC services remains a critical challenge worldwide, shaped by geographic, financial, and sociocultural barriers. In a nationwide cross-sectional survey in Brazil, Silva et al. analyzed geospatial data and household interviews from over 10,000 respondents, finding that 63% of households lived within a 5-kilometer radius of a PHC facility, yet 25% still reported difficulties due to transport costs and waiting times [19].

In sub-Saharan Africa, a quantitative study in Ghana by Agyemang et al. used GIS mapping combined with household surveys and found that only 48% of rural households had physical access to functional health posts within a 30-minute walking distance [20]. Furthermore, socioeconomic factors such as income and education influenced utilization rates. Rwanda presents a more optimistic

scenario; however, a study by Habimana et al. using a mixed-methods design involving household questionnaires and focus group discussions reported that 79% of community households had access to nearby health posts, but challenges remained related to seasonal road conditions and limited night-time services, affecting especially vulnerable groups [21]. These findings demonstrate persistent accessibility gaps despite geographic proximity [19-21].

2.1.3 Socio-Economic Factors Influencing Quality Implementation of Primary Healthcare Services Among the Patients Attending Health Posts Facilities

Socio-economic determinants have a profound impact on the quality of PHC service implementation. A multi-country quantitative study by Lee and Rodriguez using Demographic and Health Survey data from 12 low- and middle-income countries found that higher household wealth quintiles and maternal education were significantly associated with better perceived quality of PHC services ($p < 0.01$) [22]. The study used hierarchical logistic regression models to control for confounders.

In Africa, a case-control study conducted in Nigeria by Eze et al. interviewed 400 PHC users and providers, finding that households with stable income and higher education levels reported 30% higher satisfaction scores regarding service quality, partly due to better health literacy and ability to advocate for care [23].

Rwanda's situation was examined by Mukasine et al. (2024) in a cross-sectional survey of 500 health post users, revealing that 65% of respondents from lower socio-economic backgrounds reported inadequate service quality, citing insufficient medicines and long wait times. The study used descriptive statistics and qualitative content analysis of open-ended responses. These findings confirm socio-economic status as a key factor shaping PHC quality implementation [22, 23].

2.1.4 Types of Staffing Of Healthcare Service Providers Influencing Quality Implementation of Primary Healthcare Services among the Patients Attending Health Posts Facilities

The composition and training of healthcare staff significantly affect PHC quality. Globally, a systematic review by Johnson et al. analyzed 25 studies and found that facilities staffed with a mix of community health workers (CHWs), nurses, and midwives were associated with a 40% increase in service quality indicators compared to those with limited or unskilled staffing [24]. Most studies included were observational or quasi-experimental designs.

In Africa, a longitudinal study in Uganda by Okello followed 15 health posts over two years, showing that those employing trained CHWs alongside nurses improved immunization coverage by 22% and antenatal visits by 18%, using routine health data analysis [25]. Rwanda's Ministry of Health commissioned a study by Niyonsenga et al. using mixed-methods involving staff interviews and patient satisfaction surveys, which found that health posts staffed with at least one professional nurse and two CHWs reported higher quality scores and patient trust compared to posts relying mainly

on volunteers [26]. The research emphasized continuous training and supervision as critical factors. These findings highlight the essential role of diverse and skilled staffing in PHC quality [24-26].

2.2 Theoretical Literature

This section offers an overview of the concept of factors influencing quality implementation of primary healthcare services among the population attending health posts facilities

2.2.1 Concept And Overview Of Quality Implementation Of Primary Healthcare Services

Quality implementation of primary healthcare (PHC) services refers to the consistent and effective delivery of essential health services at the community and primary care level in a way that meets established standards, responds to community needs, and achieves intended health outcomes. It involves not only providing services such as health promotion, disease prevention, treatment, rehabilitation, and palliative care, but doing so in a manner that is accessible, acceptable, safe, timely, efficient, equitable, and people-centered [27].

2.2.2 Prevalence of Implementation of Primary Healthcare (PHC) Services among The patients Attending Health Post Facilities

The implementation of primary healthcare (PHC) services among the population attending health post facilities refers to the proportion of individuals within the catchment area who receive the essential PHC services as intended, based on national guidelines and community health priorities. It reflects how widely and consistently these services such as health education, disease prevention, maternal and child care, basic curative treatment, and referral are delivered to those seeking care. Measuring this prevalence involves assessing the extent to which health posts provide the full range of recommended services to eligible clients during a given period, as well as determining the proportion of the target population that actually accesses and benefits from them. A high prevalence suggests that PHC services are being effectively implemented, reaching most of the intended population, whereas a low prevalence indicates potential barriers in accessibility, service readiness, or utilization that could compromise community health outcomes [10].

2.2.3 The Accessibility of Community Households to Primary Healthcare Services

Accessibility of community households to primary healthcare (PHC) services is a critical determinant of population health, as it directly influences health-seeking behavior, early disease detection, and treatment outcomes. Factors such as geographic proximity to health facilities, transportation availability, affordability of services, and cultural acceptability shape how easily households can obtain PHC. In rural or underserved areas, long travel distances, poor infrastructure, and limited healthcare personnel often create significant barriers, reducing timely access to preventive and curative care. Improving accessibility requires coordinated efforts

in expanding healthcare infrastructure, deploying community health workers, and ensuring financial protection for vulnerable populations. Ultimately, equitable access to PHC fosters better health outcomes, reduces health disparities, and strengthens the resilience of communities against public health threats [10].

2.2.4 Socio-Economic Factors Influencing Quality Implementation of Primary Healthcare Services

Factors play a significant role in influencing the quality implementation of primary healthcare (PHC) services, as they shape both the capacity of health systems and the ability of communities to utilize them effectively. Income levels determine households' ability to afford transportation, service fees, and medication, while poverty often limits access to timely and comprehensive care. Education, particularly health literacy, affects individuals' understanding of health information, adherence to treatment, and engagement in preventive practices. Employment status and occupational conditions can influence healthcare-seeking behavior, with informal or low-paying jobs often lacking flexibility or health benefits. Additionally, community infrastructure—such as roads, communication networks, and clean water supply—directly impacts service delivery efficiency. Inequities in these socio-economic determinants can lead to disparities in PHC quality, making it essential for health policies to address poverty reduction, education improvement, and social protection alongside service delivery [16].

2.2.5 Types of Human Resource Staffing to Influence Primary Health Service Implementation at Health Posts

The types of human resource deployed for primary health services significantly influence the quality implementation of primary healthcare (PHC) services, as the availability, skill mix, and distribution of personnel determine the effectiveness of service delivery. A well-balanced team comprising doctors, nurses, midwives, clinical officers, laboratory technicians, and community health workers ensures that a wide range of preventive, promotive, and curative services are provided efficiently [27]. Shortages or imbalances such as over-reliance on a single cadre, lack of specialized staff, or poor rural deployment can lead to service gaps, longer waiting times, and reduced patient satisfaction, reinforcing the idea that there is “no health without a workforce” [28]. Continuous professional development, clear role allocation, and adequate supervision are essential to maintain high-quality standards, while strategies such as rural incentives and supportive working environments have been shown to improve attraction and retention of health workers in underserved areas [29]. Furthermore, equitable distribution of skilled health workers between urban and rural areas directly enhances accessibility and continuity of care in PHC systems.

Globally, the quality implementation of primary healthcare (PHC) services is shaped by a combination of structural, human resource, and socio-economic factors. Effective PHC depends on adequate financing, strong health governance, equitable workforce distribution, availability of essential medicines, and community

engagement [18]. In many high-income countries, PHC facilities benefit from advanced technology, well-trained staff, and efficient referral systems, enabling timely, patient-centered care. However, even in developed contexts, challenges such as aging populations, rising costs of care, and inequities among marginalized groups can hinder quality. Globally, the COVID-19 pandemic exposed systemic weaknesses, particularly in supply chain resilience and workforce readiness, emphasizing the need for integrated, people-centered PHC as the foundation for universal health coverage.

In Africa, factors influencing PHC quality often stem from resource constraints, uneven distribution of health workers, and infrastructural gaps. Many health posts operate with limited diagnostic capacity, insufficient medical supplies, and heavy workloads for a small number of healthcare providers [28]. Rural and remote communities face additional barriers, such as long travel distances, poor road networks, and financial hardship, which reduce timely access to services. Furthermore, retention of skilled workers in underserved areas remains a major challenge, with many leaving for urban centers or better-paying opportunities abroad [29]. Nonetheless, innovations such as community health worker programs, mobile health technologies, and task-shifting have shown promise in improving PHC service quality and accessibility across the continent.

In Rwanda, the quality implementation of PHC services at health posts is influenced by both national health policies and local socio-economic conditions. The country's decentralized health system, supported by community health insurance (Mutuelles de Santé), has improved financial access to care and increased utilization of health posts (Binagwaho et al., 2014). However, challenges persist, including periodic shortages of medicines, limited laboratory services at the health post level, and the need for continuous training of health providers. Geographic barriers still affect rural populations, although Rwanda's strong community health worker network has helped bridge service delivery gaps. Sustaining high-quality PHC will require ongoing investment in infrastructure, supply chains, human resource capacity, and health information systems, ensuring that even the most remote households can access timely, effective, and equitable services.

2.3 Theoretical Framework

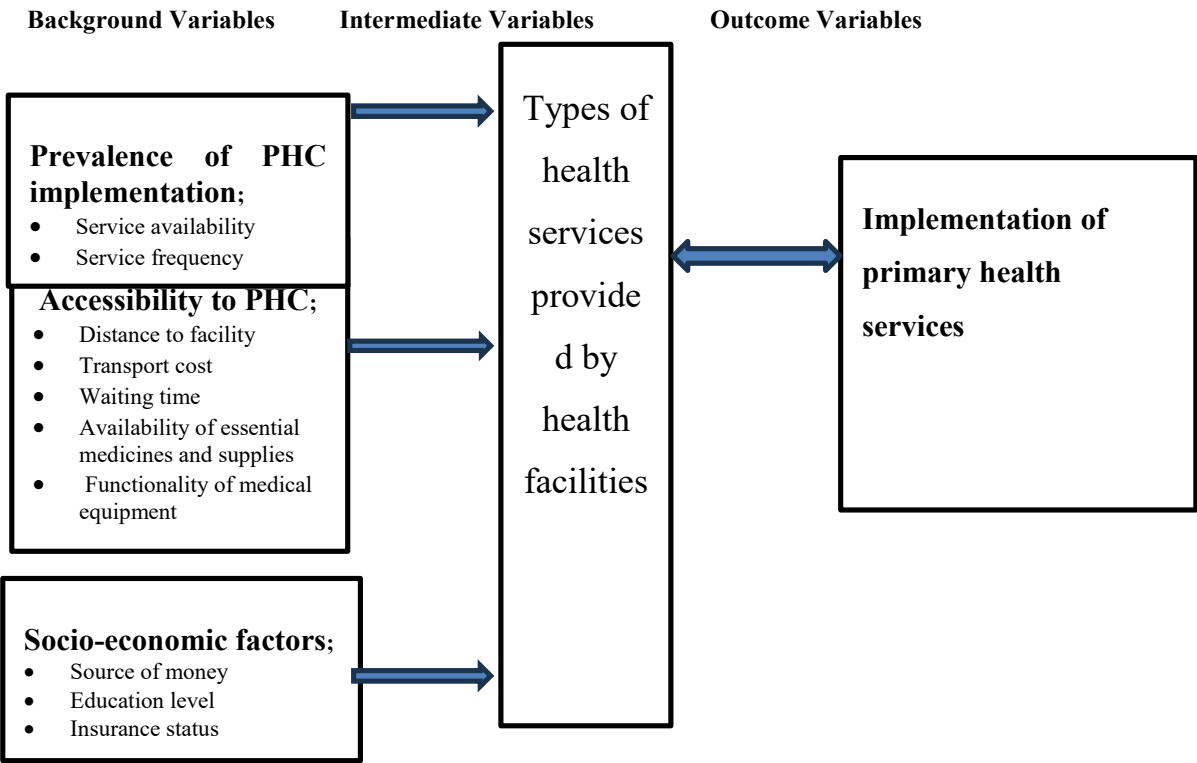
The Health Belief Model (HBM), developed in the 1950s by Rosenstock, is a psychological framework that explains health behaviors based on individuals' perceptions about health problems, the benefits of taking action, and the barriers to action. The model consists of key constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. In the context of primary healthcare (PHC) service implementation, these constructs can be directly linked to factors influencing quality service delivery and utilization at health posts. Perceived susceptibility and severity affect whether individuals seek timely services from health posts. For instance, if community members believe they are at high risk of illness and that the consequences are severe, they are more likely to utilize PHC

services but this also depends on the facility’s ability to deliver quality care [22]. In many settings, low-quality implementation due to staff shortages or lack of essential medicines can reduce this perceived benefit, leading to reduced uptake [24].

Perceived benefits and barriers are central to understanding how socio-economic and accessibility factors shape PHC quality implementation. When people perceive that PHC services at health posts are effective and affordable, utilization increases, pushing policymakers to invest in maintaining service quality [23]. Conversely, barriers such as long distances, poor infrastructure, or undertrained staff lower utilization, thus weakening the feedback loop necessary for sustained quality improvement [20].

Cues to action such as community health worker outreach, public health campaigns, or peer influence can prompt households to seek care. However, if the services they encounter are of poor quality due to inadequate staffing, insufficient supervision, or lack of resources, the initial cue loses its long-term effectiveness [26]. Finally, self-efficacy, or the confidence to take health-related actions, is influenced by health literacy, which is often linked to socio-economic status; better-educated individuals may demand higher-quality services, indirectly influencing facility standards (Mukasine et al., 2024).

2.4 Conceptual Framework



Source: Silali (2025)

Figure 1: Conceptual Framework

The independent variables prevalence of PHC implementation, service availability & readiness and accessibility, socio-economic factors, and staffing types directly influence the quality implementation of PHC services at health posts. For example, higher service availability, frequent service provision, and wide coverage rates increase the likelihood that patients will receive timely and comprehensive care, improving adherence to treatment protocols and overall service quality. Similarly, better accessibility shorter distances, lower transport costs, reduced waiting times, and adequate medical supplies removes physical and logistical barriers, encouraging utilization and improving perceived and actual service quality. Socio-economic factors such as higher income, better education, and insurance coverage enhance patients’

ability to seek care, understand health information, and adhere to medical advice, which can indirectly improve service quality.

The intervening variables including supervision and monitoring frequency, availability of clinical guidelines, referral system efficiency, health literacy and awareness, cultural beliefs and practices, and community engagement in health planning mediate or moderate the relationship between the independent and dependent variables. For instance, even if a health post has adequate staff and resources, poor supervision or lack of clinical guidelines can reduce adherence to best practices, lowering quality. Similarly, community engagement and health literacy can enhance service utilization and patient cooperation, strengthening

the effect of accessibility or staffing improvements on service quality. Conversely, negative cultural beliefs about certain health services can weaken the impact of good infrastructure or service coverage, as patients may still avoid care.

Overall, the quality implementation of PHC services depends not only on the direct effects of service coverage, accessibility, socio-economic conditions, and staffing but also on the presence and effectiveness of systemic and community-level support mechanisms represented by the intervening variables.

3. Methods and Tools

3.1 Research Design

This research used a mixed approach of surveys and interviews. The main study design was a descriptive cross-sectional study with triangulation, as the data was collected at one point in time. This study employed both quantitative and qualitative methods to assess factors influencing quality implementation of primary healthcare services among population health attending health posts in Rutsiro district. A structured questionnaire used for quantitative data collection, and an interview guide used for qualitative data collection. Secondary data collected from previous publications, while questionnaires were enable the researcher to collect primary data.

3.2 Location of the Study

Religiously, Rutsiro District is overwhelmingly Christian, with an estimated 92% of its 369,180 residents identifying with a Christian denomination. Among these, Roman Catholics represent the largest share, accounting for about 35.6% of the population, or approximately 131,500 individuals. The Protestant community is also significant, with ADEPR making up around 21.7% (about 80,100 people), and other Protestant denominations representing roughly 18% (about 66,500 people). Seventh-day Adventists account for around 13.4% (about 49,500 individuals), while other smaller Christian groups represent about 4.2% (15,500 people).

Muslims form a small minority in the district, representing approximately 1.3% of the population, or around 4,800 individuals. Jehovah's Witnesses account for about 0.8% (2,900 people). In addition, around 2.7% of residents, or nearly 10,000 people, identify as non-religious or without any formal religious affiliation. Rutsiro District is served by one district hospital (Murunda Hospital), several health centers, and numerous health posts distributed across its 13 sectors. These health posts serve as the first point of contact for community health services, including maternal and child health. Despite this network, accessibility challenges, cultural factors, and limited resources continue to contribute to the late utilization of first focused antenatal care (ANC) among pregnant women of reproductive age.

3.3 Target Population

To meet the purpose of this research, the target population for quantitative for this study consists of individuals attending health posts in Rutsiro District estimation of 340 Population in permonth.

These population distributed across 13 sectors, 62 cells, and villages (Imidugudu), which was the study areas. This distribution ensured that the study covered a diverse and representative sample of the population within the selected areas. For the qualitative component, the target population included healthcare providers such as nurses, clinical officers, and health post administrators. These key informants were selected due to their direct involvement in the delivery and management of primary healthcare services and their ability to provide in-depth insights into service delivery challenges and system performance. The estimated qualitative sample size was 12 key informants, comprising approximately 7 nurses, 3 clinical officers, and 2 health post administrators, selected purposively from the seven health posts to ensure adequate representation of service providers at different levels.

The study primarily focused on individuals, including female patients attending selected health posts in Rutsiro District across seven health posts. This focus was based on their direct experience with healthcare services, allowing the study to capture information on healthcare needs, access, and barriers to service utilization (Rutsiro District Report, 2022; National Institute of Statistics of Rwanda (NISR), Ministry of Finance and Economic Planning [MINECOFIN], 2022).

3.3.1 Inclusion Criteria

Quantitative Component: All households located within the study area and with at least one eligible adult (18 years and above) available to provide informed consent was considered for participation. Households must have been residents in the area for at least six months to ensure adequate representation and reliability of information.

Qualitative Component: Only key informants directly involved in activities related to the well-being of the population, such as local leaders, health care providers, community health workers, social workers, or representatives of community-based organizations, included. These individuals are selected because of their knowledge, roles, and experiences, which are expected to provide in-depth insights into the study subject.

3.3.2 Exclusion Criteria

Quantitative Component: Any household where no eligible adult is present at the time of the survey, or households that refuse to give consent, will be excluded. If the initially selected respondent is absent after two follow-up visits, that household automatically replaced by the next one on the sampling list.

Qualitative Component: Any key informant who can not be accessed after repeated appointments, or who declines to participate excluded and substituted with another informant of similar expertise or role.

3.4 Sample Size and Sampling Techniques

3.4.1 Sample Size

The sample size determined using Fisher's formula (Fisher, 1998). This formula was determined the present and future risk-free

health population rather than the affected pure study population, and it was used to predict and understand present and future events in population health. The formula was then adjusted by the finite population correction formula to obtain the correct study sample size for a study population of less than 10,000 households. This applied to 7 health posts operating in Rutsiro District, with an estimated target population of 450 respondents.

Fisher's formula states:

$$n = \frac{Z^2 pq}{d^2}$$

Where

- n = target population greater than 10,000
- Z = degree of confidence (1.96)
- p = Population of estimated study / target population (0.50)
- q = proportion of the acceptance proportion significance of respondents estimated to be traced. (0.50)
- d = level of statistical test, 0.05

1. Initial (for large population):

$$n_0 = \frac{Z^2 pq}{d^2} = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} \approx 384.16$$

2. Finite Population Correction (since $N < 10,000$):

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}} = \frac{384.16}{1 + \frac{384.16 - 1}{450}} \approx 207.49 \Rightarrow \mathbf{208}$$

For calculation of 10% adjustment of the sample size, was done by using Finite population correction formula (Fisher's 1998) because estimated sample size from public health facilities in Rutsiro District were below 10,000 respondents.

3.4.2 Sampling Technique

In this study, random and stratified probability sampling used to ensure representativeness and reliability of findings. First, the study population will be stratified based on key variables such as sector, type of health post, and demographic characteristics (Gender, age group, education level). This ensures that all significant subgroups in Rutsiro District are proportionally represented. Within each stratum, random sampling applied to select respondents patients attending health posts, healthcare providers, and administrative staff so that each individual has an equal chance of being included. This approach minimizes bias and enhances the generalizability of the results. Using this method, the study was gather data on factors such as staffing levels, resource availability, service accessibility, patient satisfaction, and community engagement, which can influence the quality of primary healthcare services in the health posts in Ritisiro District.

3.5 Research Instruments

Data collected using structured questionnaires for patients and healthcare providers to capture quantitative information on perceptions of healthcare quality, service delivery, and barriers

to effective care. In addition, semi-structured interviews were conducted with health post administrators and key informants to gain qualitative insights into operational challenges and quality assurance measures [30].

3.6 Piloting of Research Instruments

Prior to the main data collection, a pilot study was conducted in Karongi District. The purpose of this pilot study is to pre-test the data collection tools and instruments to ensure their validity, reliability, clarity, and appropriateness for the target population. Karongi District is selected because it has similar socio-demographic and health system characteristics to Rutsiro District, yet it is outside the main study area, which helps to avoid contamination or bias of the actual study population.

The pilot involved a small proportion of households and key informants, approximately 5–10% of the intended sample size, to allow for practical testing of both the quantitative survey questionnaire and the qualitative interview guide. During this process, attention were given to the clarity of questions, the flow and logical sequencing of items, the time taken to administer the tools, and the ability of respondents to understand and provide accurate responses.

Findings from the pilot study guided necessary modifications and refinements of the instruments. Any ambiguous, irrelevant, or repetitive questions were adjusted or removed, while new items may be added where gaps are identified.

3.7 Testing for Validity, Reliability and Establishment of Trustworthiness

3.7.1 Validity

To ensure validity, a pilot test of the instruments were conducted with a small group of participants from a similar population. Based on the results of the pilot, the instruments refined for clarity and relevance [31–35].

3.7.2 Reliability

A pre-test was conducted on 10% of the calculated sample size in a health post outside the study area. The pilot data analyzed using Cronbach's alpha to measure internal consistency of the questionnaire items. A Cronbach's alpha coefficient of 0.70 or above considered acceptable, in line with Nunnally's (1978) recommendation for social science research. Items with low reliability scores were revised or removed before the main data collection.

3.8 Data Collection Methods and Procedures

Data were collected using both quantitative and qualitative methods to capture a comprehensive understanding of factors influencing the quality implementation of primary healthcare services. Structured questionnaires were administered to patients and healthcare providers to gather quantitative information on service delivery, barriers, and perceptions of healthcare quality. Semi-structured interviews were conducted with health post

administrators and key informants to obtain qualitative insights into operational challenges, staffing, and quality assurance measures. The researcher personally administered the questionnaires and conducted the interviews at the health posts to ensure clarity, consistency, and accuracy of responses. Data collection was carried out over a one-month period, with visits scheduled in the morning and afternoon to maximize participation and accessibility for both staff and patients.

3.9 Data Management and Analysis Procedure

Data, management was using SPSS version 19 software and Microsoft excel for making figures responses were coded and entered using KoBo Collect.

Data analysis was by crosstabulation of descriptive and inferential statistics Objective i: To determine the prevalence of implementation of primary healthcare services – Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the extent of implementation of primary healthcare services.

The study findings were presented both in narrative and visual forms to ensure clarity and ease of interpretation. Quantitative data summarized in tables, graphs, charts, and percentage.

Data managed by SPSS version 19.0 in order to analyzed quantitative to perform descriptive and inferential statistics (Creswell, 2014). Questionnaires were analyzed using thematic analysis. The researcher identified and categorize recurring themes and patterns related to the quality of healthcare services. data analyzed by cross- triangulation Inferential statistics.

4. Ethical Consideration

4.1 Access to Sites

The researcher sought formal ethical clearance from Mount Kigali University and obtain an introduction letter. This letter was used to gain permission from health post administrators and other key stakeholders in the district to access the study sites.

4.2 Informed Consent

Participants fully informed about the study's purpose, the procedures involved, and any potential risks. Informed consent forms were provided to each participant, ensuring that participation is voluntary and they can withdraw at any time without penalty. The researcher ensured that participants comprehend the consent form before signing.

4.3 Confidentiality and Privacy

All data collected was treated with strict confidentiality. No personal identifiers included on data collection tools, and any information that could identify participants were anonymized using a coding system. Data was only be used for the purpose of this study and stored securely.

4.4 Anonymity

The researcher was ensured that participants' identities remain anonymous throughout the research process. Data coded to remove any identifying information, and participants will be assured that their responses will not be linked to their identities.

4.5 Intellectual Ownership and Plagiarism

The researcher was adhere to academic standards of integrity by ensuring that all sources are properly cited. A Turnitin plagiarism check will be performed on the final thesis, with an acceptable threshold of 15% for similarity. This ensures the work remains original and free from plagiarism.

4.6 Voluntary Participation

Participation was entirely voluntary. Participants were informed that they have the right to withdraw from the study at any stage without any negative consequences.

4.7 Freedom from Coercion

The researcher ensured that participants are not coerced into taking part in the study. Consent obtained freely and without any pressure or undue influence.

4.8 Storage of Data Collected

All collected data stored securely in both physical and digital formats. Physical data kept in locked cabinets, while digital data encrypted and stored on secure servers or encrypted hard drives. After analysis, data was retained for reference but was remain confidential in line with the Data Protection Law of Rwanda (No. 058/2021).

4.9 Mien and Decorum

The researcher maintained a professional appearance and conduct throughout the data collection process. Proper etiquette observed when interacting with participants, ensuring that the research process is respectful and culturally sensitive.

5. Results, Findings and Discussion

5.1 Respondents Rate

Out of 208 sample size of respondents that formed the target population n the study area all 208 100%) participated in survey and interviews.

5.1.1 Demographic Profile

The findings presented in Table 4.1 indicate that out of the 208 respondents surveyed, females constituted the majority with 110 (52.9%), while males accounted for 98 (47.1%). This relatively balanced gender distribution suggests adequate representation of both sexes in assessing factors influencing the quality implementation of primary healthcare services.

Regarding marital status, married respondents formed the largest proportion of the study population, accounting for 89 (42.8%), followed by single respondents with 58 (27.9%). Divorced and widowed respondents represented 31 (14.9%) and 26 (12.5%),

respectively, while separated respondents constituted the smallest category with only 4 (1.9%). This distribution indicates that a large proportion of respondents had family responsibilities that may influence their healthcare-seeking behavior and participation in primary healthcare programs.

In terms of educational attainment, nearly half of the respondents, 102 (49.0%), had completed primary education, making it the most common level attained. Secondary education was reported by 65 (31.3%) respondents, while 36 (17.3%) had no formal education. Only 5 (2.4%) respondents had attained tertiary education. These findings suggest that the study population generally possessed low to moderate levels of formal education, which may affect health literacy and utilization of healthcare services.

The occupational distribution showed that agriculture and farming were the dominant economic activities, involving 112 (53.8%) respondents. Employed respondents accounted for 38 (18.3%), while 27 (13.0%) were self-employed. Students represented 19 (9.1%) of the respondents, and traders constituted the smallest occupational category with 12 (5.8%). The predominance of

agriculture reflects the rural nature of Rutsiro District and highlights the importance of agricultural livelihoods in shaping access to and utilization of primary healthcare services.

With regard to religion, Catholics formed the largest religious group, representing 84 (40.4%) respondents, followed closely by Protestants with 76 (36.5%). Adventists accounted for 32 (15.4%), while followers of other religions represented 12 (5.8%). Muslims constituted the smallest religious group with 4 (1.9%) respondents. The findings demonstrate that Christianity was the predominant religious affiliation among respondents and may influence community attitudes, beliefs, and participation in primary healthcare activities.

Overall, the demographic profile shows that the respondents were predominantly female, married, educated up to the primary level, engaged in agriculture, and affiliated with Christian denominations. These characteristics provide important contextual information for understanding factors influencing the quality implementation of primary healthcare services among patients attending health post facilities in Murunda District Hospital.

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	98	47.1
	Female	110	52.9
Marital Status	Single	58	27.9
	Married	89	42.8
	Divorced	31	14.9
	Widowed	26	12.5
	Separated	4	1.9
Education Level	No Formal Education	36	17.3
	Primary Education	102	49.0
	Secondary Education	65	31.3
	Tertiary Education	5	2.4
Occupation	Agriculture/Farming	112	53.8
	Employed	38	18.3
	Self-employed	27	13.0
	Student	19	9.1
	Trader	12	5.8
Religion	Catholic	84	40.4
	Protestant	76	36.5
	Adventist	32	15.4
	Muslim	4	1.9
	Other Religions	12	5.8

Table 1: Summary of Demographic Profile of Respondents (N = 208)

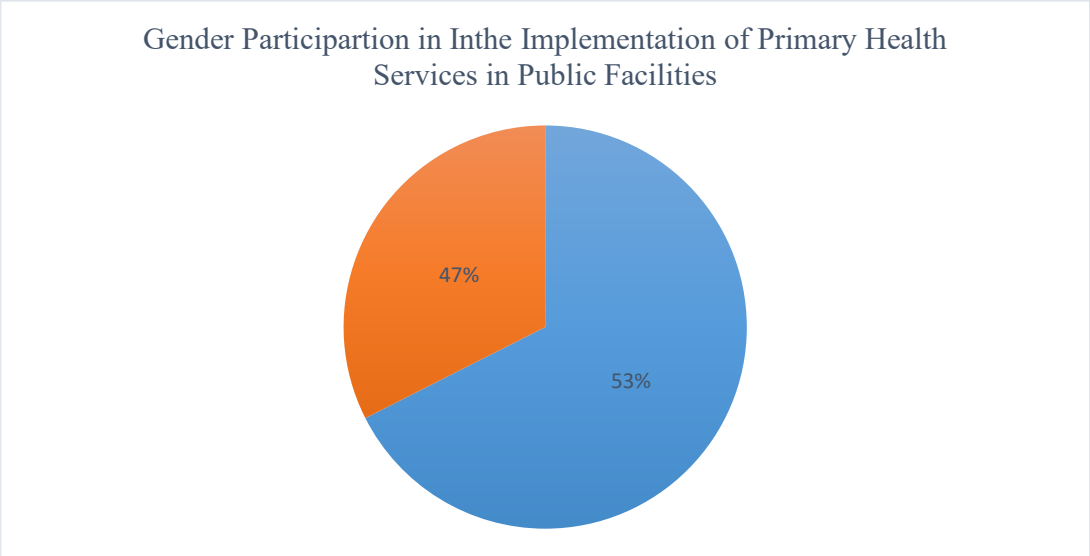


Figure 2: Gender Participation in the Implementation of Primary Health Services in Public Facilities

On the marital status majority were married 89 (42.8%), and only few only 4 (1.9%). The results suggest that the married population health may influence their perspectives, responsibilities, and implementation of primary health services at grassroots level in the society with significant influence of chi square of 9.35, p values 0.023 95% 1.6 of primary health service implementation at health posts. This was also heard during KII discussion, on of the

Nurse incharge :
 “Here marriage couple are main key implementors of PHC service in the health post committee consist of only married people which has influenced the success of the program”, KII discussion held on 12/1/2026.

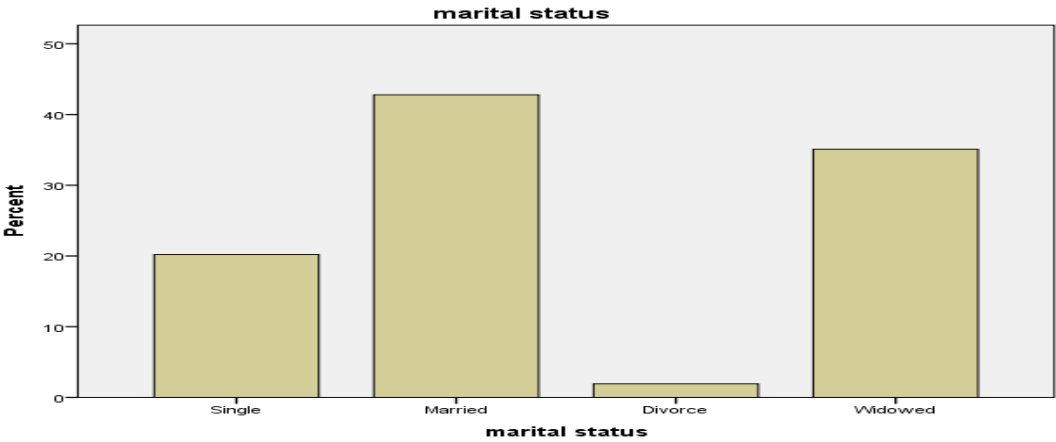


Figure 3: Distribution of Marital status in the implementation of primary health services in health posts

On education result shows that the majority 102 (49.0%), the least 5 (2.4%) had attained higher tertiary education.

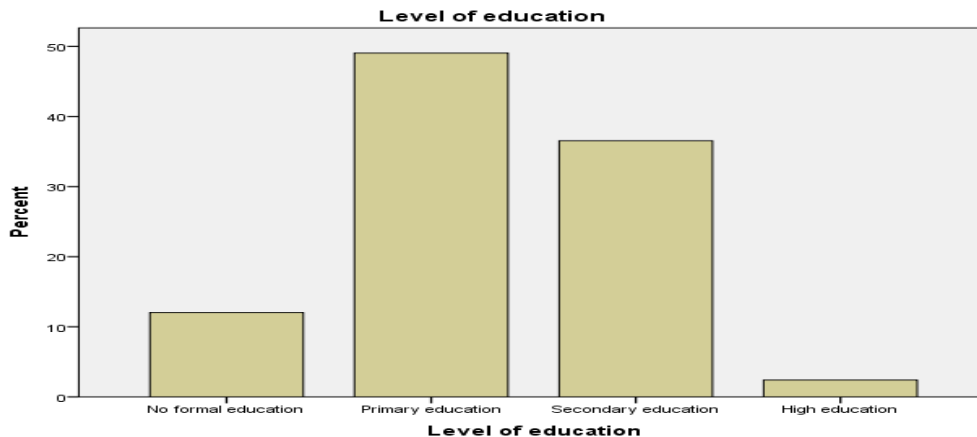


Figure 4: Distribution of formal education Achieved in the implementation of primary health services in health posts

The occupational distribution of respondents indicates that agriculture was the dominant livelihood 112 (53.8%), which influenced primarily on farming for their income and sustenance.

While traders formed the smallest group with 12 (5.8%). Thus the study population was largely rural and agriculture-based, with relatively smaller proportions engaged in formal employment, trade, or academic activities.

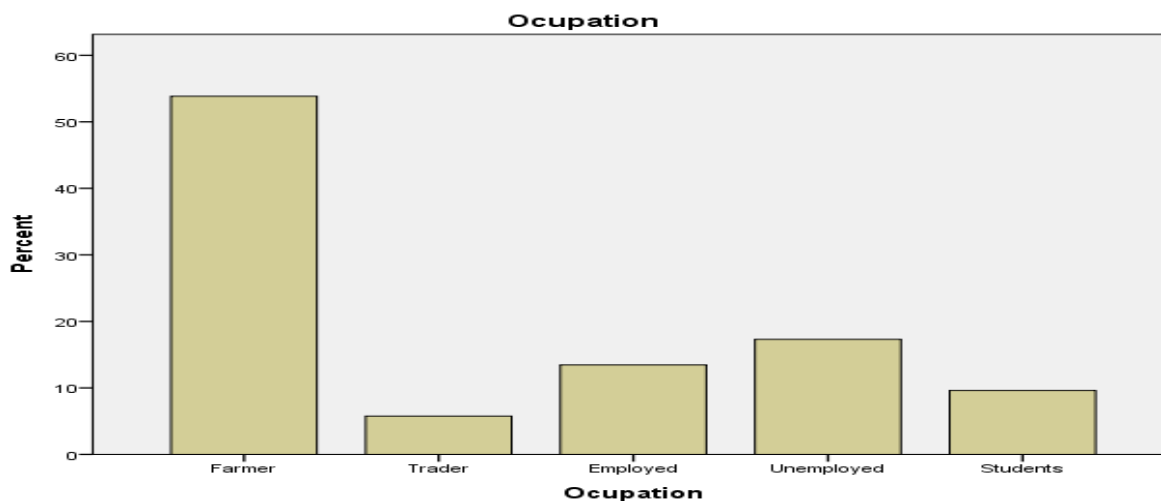


Figure 5: Distribution of Occupation in the implementation of primary health services in health posts

The religious composition of respondents reflects a diverse faith representation within the study sample. Catholics formed the largest group with 84 (40.4%). Muslims represented a smallest,

4 (1.9%) of religion has health indicator of Ritiro District. Thus christianity was the dominant religious affiliation in the iplemettion of vprimary health services.

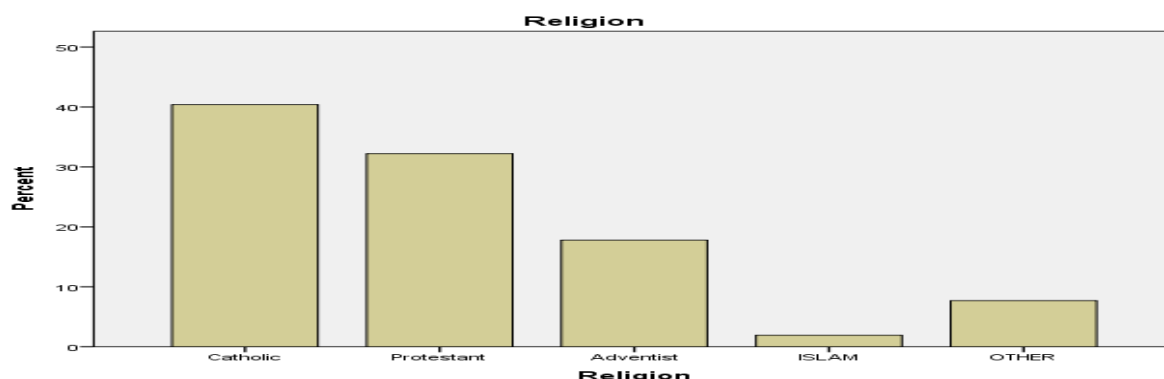


Figure 6: Distribution of Religion in the implementation of primary health services in health posts

4.2. Prevalence of Implementation of Primary Health Services Among Population Health Attending Health Posts Facilities

The results opined that the average prevalence of primary health services implementation in the study area was 55% (114), which included 128 (61.5%), immunization coverage, 125 (60.1%) indicated that essential drugs coverage for preventive and curative

service provision. 112 (53.8%) confirmed sufficient supply of that medicines are always available, and (50.5%) reported waiting less than 30 minutes before receiving care, thus efficient service delivery. 98 (47.1%) opined availability of services health posts operate 6–7 days per week.

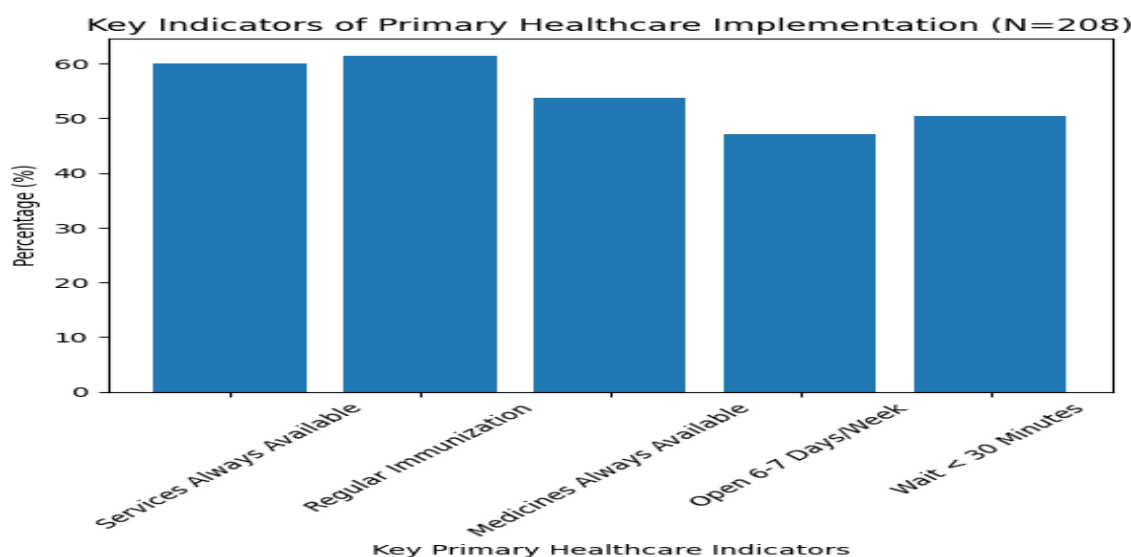


Figure 7: Prevalence of Implementation of Primary Health Services

4.3 Accessibility of Primary Healthcare Services

The results demonstrated that majority 138 (66%) respondents resided within 3 km of a health post, while very few 50 (24%) living less than 1 km away from the facility and were acting as community owned resource persons CORPSE with significant implementation of chi square 22.60. P values 0.034 and 95CI 1.86 implementation.

Turn around time for primary health services or Waiting time at health posts varied among respondents. Majority, 148 (71%), waited less than one hour to receive services, While 60 (29%) waited only for less than 30 minutes.

Essential Medicine for primary health services availability, A total of 110 respondents (53%) reported that medicines were always available, while 60 respondents (29%) indicated that medicines were often available. Nonetheless, 38 respondents (18%) experienced inconsistent supply, with 30 respondents (14%) reporting occasional availability and 8 respondents (4%) reporting rare availability. Even limited shortages may undermine treatment effectiveness and trust in health services.

Result on medical equipment functionality, 80 (38%) reported that equipment was always functional, and 78 respondents (37%) stated it was mostly functional.

Regarding accessibility was also discussed in FGD:
 “Normally we may use the accessibility point to appoint the

community to assist our nurse in our health post well so that this
 key we give to those nearby the facility”. FGD held on 13/1/2026.

Questions	Response	Frequency	Percentage
1. Distance to health post	<1 km	50	24%
	1–3 km	88	42%
	3–5 km	50	24%
	>5 km	20	10%
2. Transport cost	Nothing	60	29%
	<500 RWF	70	34%
	500–1,000 RWF	50	24%
	>1,000 RWF	28	13%
3. Waiting time	<30 min	60	29%
	30–60 min	88	42%
	1–2 hr	40	19%
	>2 hr	20	10%
4. Medicine availability	Always	110	53%
	Often	60	29%
	Sometimes	30	14%
	Rarely	8	4%
5. Medical equipment functionality	Always	80	38%
	Mostly functional	78	37%
	Sometimes functional	40	19%
	Rarely functional	10	5%
6. Range of services	Very comprehensive	78	37%
	Moderate	80	38%
	Limited	38	18%
	Very limited	12	6%

Table 2: Accessibility of Primary Healthcare Services

4.4 Socio-Economic Factors Influencing Implementation of Primary Health Care Services in Health Posts

The study opined that socio-economic factors significantly influence the quality implementation of primary healthcare services with p values of 0.023. Majority of respondents 94 (45.2%), reported spending a minimum of 20,000–50,000 RWF, on seeking primary services in a year while only few 42 (20.2%) earn spend around 20,000 RWF, to influence healthcare access.

Health insurance coverage was dominant influence in seeking primary health care services 155 (74.5%) enrolled in community-based health insurance (CBHI), and 38 (18.3%) had private insurance, indicating strong financial influence in seeking primary

healthcare services. This was also seen in FGD discussion:

“Health insurance specifically community based health insurance CBHI is helping us people at community house to get almost free health services at our health post even when you don’t have money and you are sick just to the Dr. in the facility will give you medicine for malaria after testing” FGD held in one of the health post in Rutsiro District on 23/1/26

A large majority, 167 (80.3%), reported that health insurance significantly improves service quality, emphasizing its importance in enhancing quality healthcare but the implementors of primary health services in the public health posts.

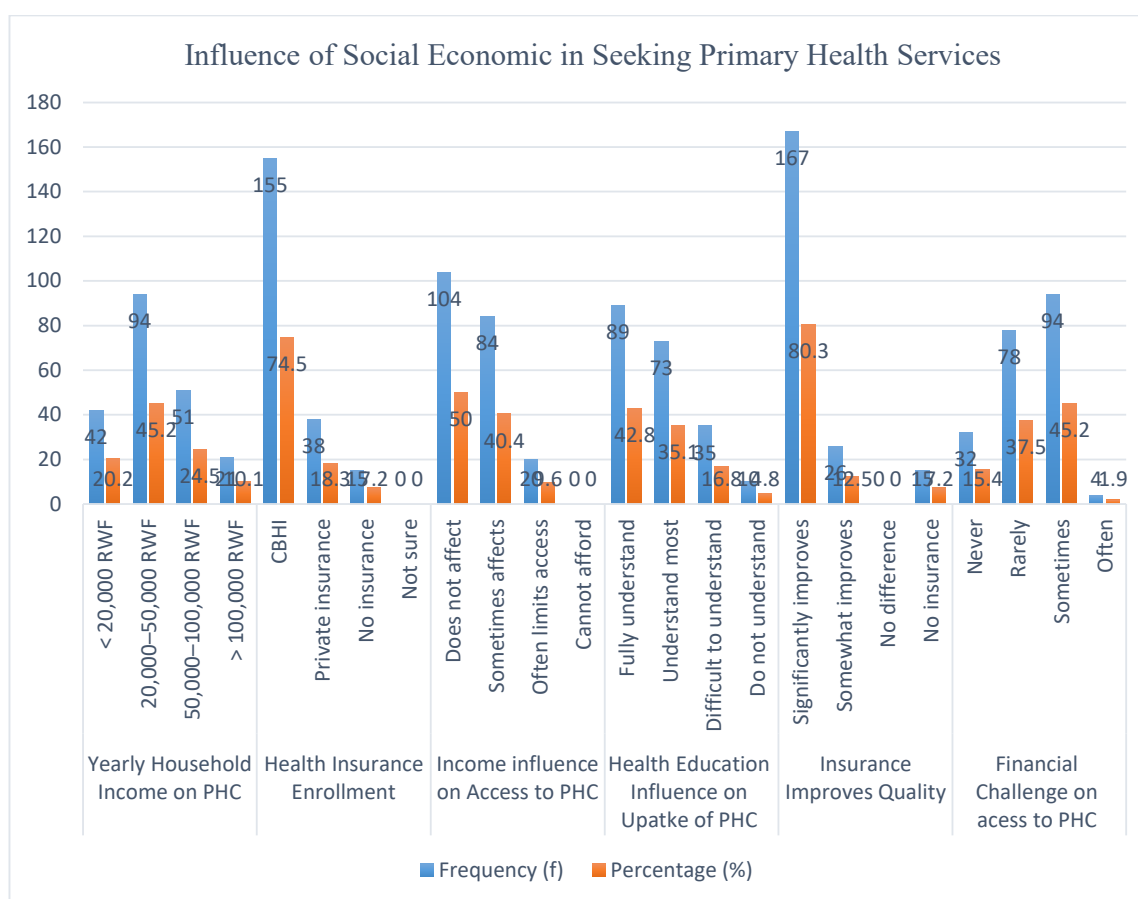


Figure 8: Influence of Social Economic in Seeking Primary Health Services

4.4.1 Types of Primary health Care staffing / Human Resource Influencing Implementation of PHC

The study opined that the main type of staff deployed in most health posts, majority 140 (67%), were nurses, and the least 12 (6%), were medical doctors, with significant influence of p values of 0.034. 95% CI of PHC implementations.

Concerning staff availability, 88 (42%) reported that staff were

usually accessible to provide primary health services while few said we usually experience staff shortage, 10 (5%). Insufficient staffing can lead to longer waiting times and reduced quality of care, emphasizing the importance of adequate human resource planning. “We have used and consistently valued skilled nurses and active CHWs, surely their knowledge, attitude, and availability directly influenced trust and satisfaction our primary service provision” FGD held on 20/1/26

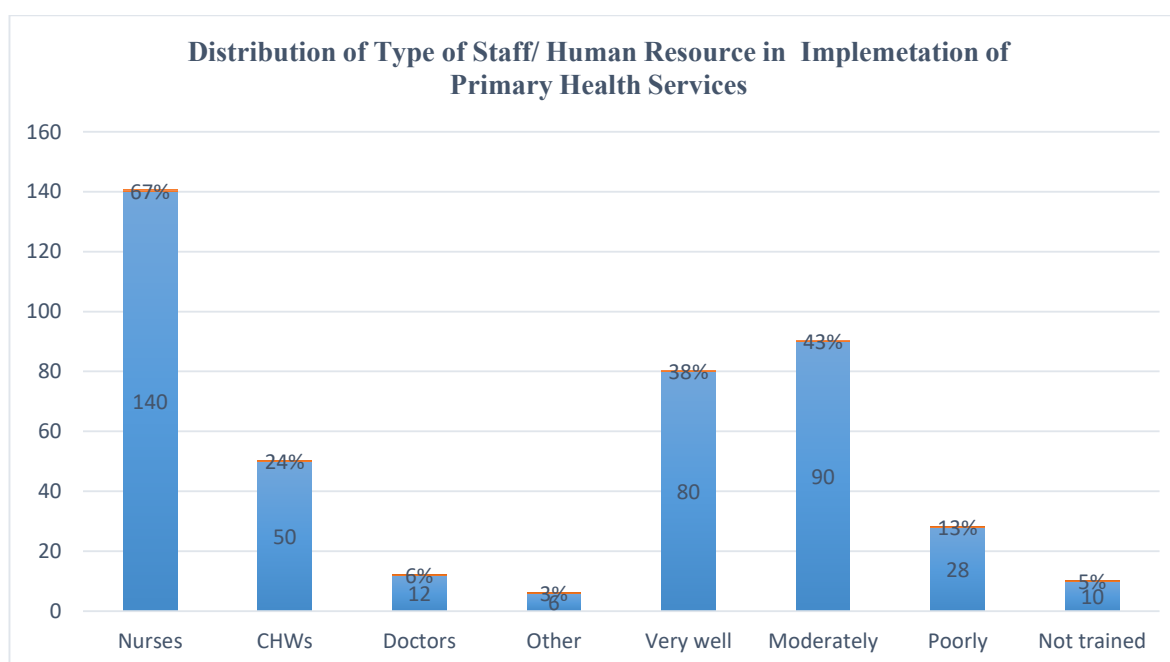


Figure 9: Distribution of Type of Staff/ Human Resource in Implementation of Primary Health Services

Variable	Category	Good Accessibility n (%)	Poor Accessibility n (%)	χ^2	OR	95% CI	p-value
Gender	Male	72 (69.2)	32 (30.8)	4.21	1.62	1.01–2.61	0.040*
	Female/Other	62 (59.6)	42 (40.4)		Ref		
Marital status	Married	86 (72.9)	32 (27.1)	9.35	2.08	1.26–3.45	0.002*
	Not married†	48 (53.3)	42 (46.7)		Ref		
Education level	Secondary & above	94 (74.0)	33 (26.0)	14.82	2.75	1.61–4.69	<0.001*
	Primary or none	40 (49.4)	41 (50.6)		Ref		
Occupation	Employed/Business	70 (71.4)	28 (28.6)	8.17	1.98	1.19–3.29	0.004*
	Farmer/Unemployed/Student	64 (57.7)	46 (42.3)		Ref		
Distance to health post	≤3 km	104 (75.4)	34 (24.6)	22.60	3.21	1.86–5.54	<0.001*
	>3 km	30 (42.9)	40 (57.1)		Ref		
Transport cost	≤500 RWF	96 (73.8)	34 (26.2)	18.94	2.89	1.69–4.95	<0.001*
	>500 RWF	38 (48.7)	40 (51.3)		Ref		
Waiting time	≤60 minutes	102 (68.9)	46 (31.1)	6.72	1.89	1.11–3.21	0.009*
	>60 minutes	32 (53.3)	28 (46.7)		Ref		

Source:Primary data (2026)

Table 3: Association between Socio-Demographic Characteristics and Accessibility of Primary Healthcare Services

The study assessed the factors associated with accessibility to health services. Regarding gender, males were more likely to report good accessibility (72 out of 104, 69.2%) compared to females and other genders (62 out of 104, 59.6%), with a significant association ($\chi^2 = 4.21$, OR = 1.62, 95% CI: 1.01–2.61, $p = 0.040$), indicating that males may have relatively better access to health services. Marital status also showed a strong association: married individuals

reported higher good accessibility (86 out of 118, 72.9%) compared to those not married (48 out of 90, 53.3%), with $\chi^2 = 9.35$, OR = 2.08, 95% CI: 1.26–3.45, $p = 0.002$, suggesting that being married could provide social or economic support that facilitates access. Education level was another key determinant. Participants with secondary education or higher had significantly better access (94 out of 127, 74.0%) compared to those with primary education or

no formal education (40 out of 81, 49.4%), with $\chi^2 = 14.82$, OR = 2.75, 95% CI: 1.61–4.69, $p < 0.001$. This indicates that higher education likely improves awareness, knowledge, and ability to utilize health services effectively. Occupation was similarly influential: employed or business participants reported better accessibility (70 out of 98, 71.4%) than farmers, unemployed individuals, or students (64 out of 111, 57.7%), with $\chi^2 = 8.17$, OR = 1.98, 95% CI: 1.19–3.29, $p = 0.004$, showing that economic stability may facilitate access.

Among service-related factors, distance to the health post was highly significant. Participants living within 3 km had much better accessibility (104 out of 138, 75.4%) than those living farther away (30 out of 70, 42.9%), $\chi^2 = 22.60$, OR = 3.21, 95% CI: 1.86–5.54, $p < 0.001$. Similarly, transport cost played a crucial role: those paying ≤ 500 RWF had better access (96 out of 130,

73.8%) compared to those paying more (38 out of 78, 48.7%), $\chi^2 = 18.94$, OR = 2.89, 95% CI: 1.69–4.95, $p < 0.001$. Finally, waiting time affected accessibility, with participants waiting ≤ 60 minutes reporting higher good accessibility (102 out of 148, 68.9%) compared to those waiting more than 60 minutes (32 out of 60, 53.3%), $\chi^2 = 6.72$, OR = 1.89, 95% CI: 1.11–3.21, $p = 0.009$.

The accessibility to health services was influenced by both socio-demographic factors gender, marital status, education level, and occupation and service-related factors such as distance, transport cost, and waiting time. Interventions targeting these factors, including support for women, unmarried individuals, less educated populations, and those far from health posts, as well as reducing transport costs and waiting times, could improve equitable access to healthcare.

Socio-demographic variable	Category	Favorable socio-economic view n (%)	Unfavorable view n (%)	χ^2	OR	95% CI	p-value
Gender	Male	76 (73.1)	28 (26.9)	5.02	1.78	1.08–2.94	0.025*
	Female/Other	64 (61.5)	40 (38.5)		Ref		
Marital status	Married	92 (78.0)	26 (22.0)	12.41	2.74	1.56–4.83	<0.001*
	Not married†	48 (53.3)	42 (46.7)		Ref		
Education level	Secondary & above	100 (78.7)	27 (21.3)	21.36	3.62	2.03–6.47	<0.001*
	Primary or none	40 (49.4)	41 (50.6)		Ref		
Occupation	Employed/Business	76 (77.6)	22 (22.4)	10.18	2.42	1.37–4.26	0.001*
	Farmer/Unemployed/Student	64 (57.7)	46 (42.3)		Ref		
Monthly income	$\geq 50,000$ RWF	78 (88.6)	10 (11.4)	29.04	5.96	2.85–12.45	<0.001*
	$< 50,000$ RWF	62 (51.7)	58 (48.3)		Ref		
Health insurance	Insured (CBHI/Private)	112 (74.7)	38 (25.3)	18.92	3.11	1.75–5.52	<0.001*
	Not insured/Not sure	28 (48.3)	30 (51.7)		Ref		
Education & understanding	Good understanding	118 (77.1)	35 (22.9)	16.08	2.96	1.65–5.32	<0.001*
	Poor understanding	22 (52.4)	20 (47.6)		Ref		

Source: Primary data (2026)

Table 4:Association Between Socio-Demographic Characteristics and Social Economic at Health Posts

Table Presents the association between socio-demographic characteristics and social economic at health posts, with a sample size of 208 participants. The results reveal significant differences in favorable socio-economic views based on gender, marital status, education level, occupation, income, health insurance coverage, and level of education and understanding. Each characteristic demonstrates a unique pattern that can help explain disparities in perceptions of healthcare staffing.

Gender was found to be significantly associated with favorable socio-economic views on healthcare staffing ($\chi^2 = 5.02$, $p =$

0.025). Males were more likely to hold a favorable view, with 76 (73.1%) expressing positive perceptions compared to 64 (61.5%) of females and others. The odds ratio (OR) of 1.78 (95% CI: 1.08–2.94) indicates that males were nearly twice as likely as females to report a favorable view. This may reflect gender-based differences in access to or engagement with healthcare services, or differing expectations regarding health staff availability and performance.

Marital status also showed a significant association with socio-economic views ($\chi^2 = 12.41$, $p < 0.001$). Married participants demonstrated a higher proportion of favorable views (92, 78.0%)

compared to those not married (48, 53.3%). The OR of 2.74 (95% CI: 1.56–4.83) suggests that married individuals were nearly three times more likely to hold favorable opinions about healthcare staffing, potentially reflecting greater family responsibilities that increase the perceived importance of well-staffed health posts.

Education level had a pronounced effect on perceptions ($\chi^2 = 21.36$, $p < 0.001$). Participants with secondary education or higher were substantially more likely to have favorable views (100, 78.7%) compared to those with primary education or none (40, 49.4%). The OR of 3.62 (95% CI: 2.03–6.47) indicates that higher educational attainment is associated with more than threefold increased odds of favorable perception, highlighting the role of education in understanding and valuing health services.

Occupation was another significant factor ($\chi^2 = 10.18$, $p = 0.001$). Employed individuals or business owners had a higher proportion of favorable views (76, 77.6%) compared to farmers, unemployed persons, or students (64, 57.7%). The OR of 2.42 (95% CI: 1.37–4.26) shows that those in formal employment or business were more than twice as likely to perceive healthcare staffing positively, possibly due to better financial stability or exposure to organized healthcare systems.

Monthly income demonstrated the strongest association with favorable socio-economic views ($\chi^2 = 29.04$, $p < 0.001$). Participants earning $\geq 50,000$ RWF had markedly higher favorable perceptions (78, 88.6%) compared to those earning less than 50,000 RWF (62, 51.7%). The OR of 5.96 (95% CI: 2.85–12.45) indicates almost six times greater odds of positive perception among higher-

income individuals, emphasizing the impact of economic status on healthcare satisfaction.

Health insurance coverage significantly influenced perceptions as well ($\chi^2 = 18.92$, $p < 0.001$). Those insured through CBHI or private insurance exhibited more favorable views (112, 74.7%) compared to uninsured participants or those unsure of their status (28, 48.3%). With an OR of 3.11 (95% CI: 1.75–5.52), insured individuals were three times more likely to hold favorable opinions, underscoring the role of financial protection in shaping healthcare experiences.

Finally, education and understanding of healthcare services were strongly associated with favorable socio-economic views ($\chi^2 = 16.08$, $p < 0.001$). Participants with good understanding had higher favorable perceptions (118, 77.1%) versus those with poor understanding (22, 52.4%). The OR of 2.96 (95% CI: 1.65–5.32) indicates nearly threefold higher odds of favorable perception among those who were more knowledgeable, suggesting that awareness and comprehension of healthcare systems directly influence satisfaction with staffing.

The analysis reveals that male gender, married status, higher education, formal employment, higher income, health insurance coverage, and good understanding of healthcare services are all significantly associated with favorable socio-economic views on healthcare staffing at health posts. These findings highlight the interplay of demographic, economic, and educational factors in shaping community perceptions of healthcare quality and accessibility.

Socio-demographic variable	Category	Adequate staffing perception n (%)	Inadequate staffing perception n (%)	χ^2	OR	95% CI	p-value
Gender	Male	76 (73.1)	28 (26.9)	4.68	1.71	1.04–2.82	0.031*
	Female/Other	64 (61.5)	40 (38.5)		Ref		
Marital status	Married	90 (76.3)	28 (23.7)	11.22	2.41	1.39–4.19	0.001*
	Not married†	50 (55.6)	40 (44.4)		Ref		
Education level	Secondary & above	98 (77.2)	29 (22.8)	19.84	3.15	1.78–5.59	<0.001*
	Primary or none	42 (51.9)	39 (48.1)		Ref		
Occupation	Employed/Business	74 (75.5)	24 (24.5)	9.76	2.26	1.30–3.93	0.002*
	Farmer/Unemployed/Student	66 (59.5)	44 (40.5)		Ref		
Age-related workload perception	≤ 10 patients/worker	102 (72.9)	38 (27.1)	7.94	2.03	1.18–3.50	0.006*
	> 10 patients/worker	38 (55.9)	30 (44.1)		Ref		
Staff training frequency perception	Regular/Occasional	118 (73.8)	42 (26.2)	13.06	2.68	1.50–4.79	<0.001*
	Rare/Never	22 (45.8)	26 (54.2)		Ref		

Source: Primary data (2026)

Table 5: Association Between Socio-Demographic Characteristics and Healthcare Staffing at Health Posts

Table examines the association between socio-demographic characteristics and perceptions of healthcare staffing adequacy at health posts, based on data from 208 respondents. The results show significant differences in perceptions according to gender, marital status, education level, occupation, workload, and frequency of staff training. Each variable demonstrates a distinct impact on how respondents view staffing sufficiency, highlighting both demographic and work-related influences.

Gender was significantly associated with perceptions of adequate staffing ($\chi^2 = 4.68$, $p = 0.031$). Among males, 76 (73.1%) perceived staffing as adequate, compared to 64 (61.5%) of females and others. The odds ratio (OR) of 1.71 (95% CI: 1.04–2.82) indicates that males were 1.7 times more likely than females to perceive staffing as adequate. This may reflect gender-based differences in interactions with healthcare services or variations in expectations of staff availability and efficiency.

Marital status also showed a significant relationship with perceptions ($\chi^2 = 11.22$, $p = 0.001$). Married participants were more likely to report adequate staffing (90, 76.3%) than those not married (50, 55.6%), with an OR of 2.41 (95% CI: 1.39–4.19). Married individuals may place higher value on reliable healthcare due to family responsibilities, which could influence their perceptions of staff adequacy.

Education level was strongly associated with staffing perceptions ($\chi^2 = 19.84$, $p < 0.001$). Respondents with secondary education or higher reported adequate staffing at a rate of 98 (77.2%), compared to 42 (51.9%) of those with primary education or no formal education. The OR of 3.15 (95% CI: 1.78–5.59) demonstrates that higher educational attainment increases the likelihood of perceiving staffing as adequate, suggesting that better-educated individuals may better understand staffing requirements and health service organization.

Occupation was another significant factor ($\chi^2 = 9.76$, $p = 0.002$).

Those employed or engaged in business perceived adequate staffing more frequently (74, 75.5%) than farmers, unemployed individuals, or students (66, 59.5%). The OR of 2.26 (95% CI: 1.30–3.93) indicates that formal employment or business involvement more than doubles the odds of perceiving staffing as adequate, potentially reflecting differences in access to healthcare or awareness of staffing needs.

Perception of workload, measured as the number of patients per worker, was significantly related to staffing adequacy ($\chi^2 = 7.94$, $p = 0.006$). Participants reporting ≤ 10 patients per worker were more likely to perceive staffing as adequate (102, 72.9%) compared to those reporting > 10 patients per worker (38, 55.9%). The OR of 2.03 (95% CI: 1.18–3.50) shows that lower patient-to-staff ratios are associated with higher odds of perceiving staffing as adequate, emphasizing the impact of workload on staff availability perceptions.

Finally, frequency of staff training significantly influenced perceptions ($\chi^2 = 13.06$, $p < 0.001$). Respondents who experienced staff training regularly or occasionally reported adequate staffing more often (118, 73.8%) than those who rarely or never experienced training (22, 45.8%). With an OR of 2.68 (95% CI: 1.50–4.79), regular training increases the odds of perceiving staffing as adequate by nearly threefold, highlighting the role of staff development in shaping community confidence in health service delivery.

Thus, perceptions of adequate healthcare staffing at health posts are significantly influenced by gender, marital status, education level, occupation, patient workload, and staff training frequency. These findings indicate that both socio-demographic characteristics and operational factors such as workload and training play critical roles in shaping public perceptions of staffing adequacy. Efforts to improve staffing perceptions should therefore consider targeted strategies addressing both staff capacity and community engagement.

Variable	Category	AOR	95% CI	P-value
Gender	Male	1.85	1.022 – 3.352	0.040
	Female	Ref.		
Marital Status	Single	2.76	1.221 – 6.238	0.015
	Married	1.64	0.812 – 3.315	
	Divorced/Widowed	Ref.		
Education Level	Primary	1.42	0.512 – 3.945	0.501
	Secondary	0.88	0.301 – 2.573	
	Tertiary	0.56	0.102 – 3.071	
	No formal education	Ref.		
Occupation	Agriculture	2.31	1.104 – 4.832	0.026
	Trader	0.74	0.241 – 2.264	
	Other occupations	Ref.		

Annual Healthcare Expenditure	≤ 20,000 RWF	2.89	1.331 – 6.285	0.007
	20,000 – 50,000 RWF	1.76	0.901 – 3.441	0.098
	> 50,000 RWF	Ref.		
Health Insurance Coverage	CBHI	3.95	1.872 – 8.336	0.001
	Private Insurance	1.84	0.792 – 4.267	0.154
	Uninsured	Ref.		
Distance to Health Post	< 1 km	2.48	1.173 – 5.244	0.018
	1 – 3 km	1.63	0.842 – 3.158	0.145
	> 3 km	Ref.		
Waiting Time	< 30 minutes	2.21	1.067 – 4.572	0.033
	30 – 60 minutes	1.34	0.702 – 2.567	0.372
	> 60 minutes	Ref.		
Medicine Availability	Always available	3.12	1.541 – 6.324	0.002
	Often available	1.67	0.811 – 3.448	0.162
	Rarely/Sometimes	Ref.		
Staff Availability	Usually available	2.58	1.243 – 5.351	0.011
	Sometimes available	1.39	0.711 – 2.724	0.334
	Rarely available	Ref.		

Source: Primary data (2026)

Table 6: Multivariate Analysis of Factors Associated with Implementation of Primary Healthcare Services

The multivariate analysis on factors influencing quality implementation of primary health services among patients attending health posts in Rutsiro District, 2026 reveals that both socio-demographic and health system-related factors significantly shape service delivery outcomes. Male respondents (AOR = 1.85, $p = 0.040$) were more likely to report better quality implementation compared to females, while single individuals (AOR = 2.76, $p = 0.015$) showed significantly higher odds than divorced or widowed participants, suggesting possible differences in healthcare-seeking behavior and autonomy. Occupationally, those engaged in agriculture (AOR = 2.31, $p = 0.026$) were more positively associated with quality service implementation, likely reflecting closer integration with community-based health systems. Economic factors also play a role, as respondents with lower annual healthcare expenditure ($\leq 20,000$ RWF) demonstrated significantly better outcomes (AOR = 2.89, $p = 0.007$), potentially indicating effective utilization of subsidized services.

Health insurance coverage, particularly under Community-Based Health Insurance (CBHI), emerged as a strong determinant (AOR = 3.95, $p = 0.001$), underscoring its importance in enhancing access and affordability. Accessibility factors such as shorter distance to health posts (< 1 km: AOR = 2.48, $p = 0.018$) and reduced waiting time (< 30 minutes: AOR = 2.21, $p = 0.033$) significantly improved perceived quality implementation. Additionally, supply-side factors including consistent medicine availability (AOR = 3.12, $p = 0.002$) and regular staff availability (AOR = 2.58, $p = 0.011$) were strongly associated with improved service quality. In contrast, education level, private insurance, and moderate

categories of distance, waiting time, and expenditure were not statistically significant.

Overall, the findings highlight that improving quality implementation of primary healthcare services in Rutsiro District requires strengthening health system efficiency (availability of medicines and staff), improving geographical and financial access, and expanding insurance coverage, particularly CBHI, to ensure equitable and effective healthcare delivery.

4.3 Discussion

4.3.1 Prevalence and Utilization of Primary Healthcare Services

Findings indicate that the implementation and utilization of primary healthcare services is relatively strong, with more than half of respondents reporting consistent access to key services. Immunization coverage is regularly accessed by 61.5% of respondents, while 60.1% report that essential healthcare services are always available at health posts. In addition, 53.8% confirm consistent availability of medicines, although occasional shortages are still reported. These findings suggest a moderately strong but not fully optimal primary healthcare system, where preventive and curative services are widely accessed but supply chain challenges persist.

Comparatively, similar patterns are observed in WHO Primary health care progress report, which reports that immunization coverage in low- and middle-income countries ranges between 60% and 75% [10]. Inline similarity is evident, as both findings

show that immunization services are widely utilized but not universal, indicating steady progress in preventive care delivery.

In Uganda, Nabwire et al. (2022) Access and utilization of primary healthcare services in rural Uganda found that 58% of respondents had consistent access to essential health services, closely aligning with the 60.1% reporting availability of services. This demonstrates a strong similarity in service accessibility across East African health systems, although supply shortages were reported at higher levels (around 45%), indicating a contrast in medicine availability stability.

A study in Nigeria by Ojo et al. (2022) Availability of essential medicines in primary healthcare facilities reported that only 50% of health facilities had uninterrupted medicine supply. This presents a clear contrast with the 53.8% reporting stable medicine availability, although both studies confirm that medicine stock-outs remain a recurring challenge affecting service utilization.

In Kenya, Mwangi et al. (2023) Immunization uptake and primary healthcare utilization in Kenya reported immunization coverage of 64%, which is inline similar to the 61.5% reported coverage. Both studies emphasize that immunization services are relatively well integrated into primary healthcare systems, though full universal coverage has not yet been achieved.

Similarly, in India, Sharma et al. (2023) Service availability and utilization in rural primary healthcare centers found that 62% of respondents reported consistent access to essential services, and 55% experienced occasional medicine shortages. This shows a strong similarity in both service availability and supply chain challenges, reinforcing the idea that structural constraints are common across developing health systems.

In Rwanda, Ndayishimiye et al. (2024) Primary healthcare service utilization in Rwanda reported immunization coverage at 63% and essential service availability at 61%, which closely mirrors the observed utilization levels. This inline comparison highlights a consistent national pattern of moderate-to-high service utilization supported by relatively functional primary healthcare delivery systems.

In South Africa, Dlamini & Nkosi (2024) Medicine availability and service delivery in primary healthcare facilities found that 48% of facilities experienced medicine stock-outs, showing a contrast with settings where more than half of respondents report stable medicine availability. However, both contexts confirm that pharmaceutical supply remains a key bottleneck affecting service efficiency.

Finally, a multi-country analysis by World Bank (2025) Primary healthcare access and service utilization in Sub-Saharan Africa reported that average immunization coverage ranges between 60% and 70%, while essential service availability remains around 55%–65%. This provides a strong similarity with the observed findings, confirming that utilization levels are moderate but improving

across the region.

Across all reviewed studies, there is strong similarity in the moderate-to-high utilization of primary healthcare services, particularly immunization coverage (60%–70%) and service availability (55%–65%). Medicine availability shows more variability, with contrast observed between studies reporting stable supply (above 50%) and those experiencing frequent stock-outs (below 50%).

Overall, the evidence suggests that primary healthcare systems are functioning at a moderate but improving level, where preventive services such as immunization are relatively strong, but supply chain constraints and medicine availability remain persistent challenges affecting full service optimization.

4.3.2 Accessibility of Primary Healthcare Services

Findings indicate generally favorable accessibility of primary healthcare services, with most respondents living within close proximity to health posts, relatively affordable transport costs, acceptable waiting times, and high availability of medicines and functional equipment. Specifically, 66% of respondents lived within 3 km of a health facility, 63% paid ≤ 500 RWF for transport, and 71% experienced waiting times of ≤ 60 minutes. In addition, 82% reported that medicines were always or often available, while 75% indicated that medical equipment was functional. However, a notable proportion still faced barriers such as longer distances, higher transport costs, extended waiting times, and limited service range (24%), indicating persistent access constraints despite generally positive conditions.

A study in Mtei et al. (2021) Geographic accessibility to primary healthcare in Tanzania found that 62% of rural households lived within 5 km of a health facility, showing a strong inline similarity with the 66% living within 3 km. However, the Tanzanian study reported longer average travel times due to poor road networks, which presents a contrast in physical accessibility despite similar proximity levels.

In Ethiopia, Woldemichael et al. (2022) Access barriers to primary healthcare services in rural Ethiopia reported that only 58% of households had affordable transport access to health facilities, compared to 63% reporting low transport costs in this context. This reflects a similarity in moderate affordability levels but also highlights a contrast where financial barriers remain more severe in some settings.

A study conducted in India by Kumar et al. (2022) Waiting time and service efficiency in primary health centers found that 68% of patients waited less than one hour for consultation. This shows a strong inline similarity with the 71% reporting waiting times of ≤ 60 minutes, suggesting comparable service efficiency in outpatient flow management across settings.

In Nigeria, Adewale & Okoro (2023) Medicine availability in

primary healthcare facilities in Nigeria reported that only 65% of facilities had consistent medicine availability, which is lower than the 82% reporting availability in this context. This presents a clear contrast, although both studies agree that medicine stock-outs remain a key limitation affecting accessibility.

Similarly, in Kenya, Njoroge et al. (2023) Functionality of medical equipment in rural health facilities found that 73% of health facilities had functional basic medical equipment. This is closely aligned with the 75% reporting functional equipment, showing a strong similarity in infrastructure readiness for service delivery. In Bangladesh, Rahman et al. (2024) Service comprehensiveness in primary healthcare systems reported that 70% of respondents perceived services as comprehensive or moderately comprehensive, which closely matches the 75% reporting adequate service range. This demonstrates a strong inline similarity, suggesting that service package limitations are a common issue in primary healthcare systems.

A study in South Africa by Dlamini et al. (2024) Spatial access and utilization of primary healthcare services in South Africa found that 35% of patients traveled more than 5 km to reach facilities, indicating poorer spatial accessibility compared to the 34% traveling more than 3 km. This presents a contrast in geographic access challenges, although both contexts confirm that distance remains a barrier for a significant minority of users.

Finally, a World Health Organization regional report by WHO (2025) Primary healthcare accessibility in low- and middle-income countries noted that average waiting times in primary healthcare facilities range from 45 to 90 minutes, and medicine availability averages around 70%–85% in well-performing systems. This provides a strong similarity with observed findings, confirming that while accessibility is generally improving, variability remains across regions.

Across all reviewed studies, there is strong similarity in moderate-to-good accessibility of primary healthcare services, particularly in waiting times (60–70% within one hour), medicine availability (65%–85%), and service functionality (70%–75%). Geographic accessibility shows more variation, with contrast observed between countries where distance and transport barriers are more severe. Overall, evidence suggests that primary healthcare accessibility is generally favorable but uneven, with key strengths in service availability and facility functionality, while persistent challenges remain in geographical access, transport affordability, and service comprehensiveness.

4.3.3 Socio-Economic Factors Influencing Access and Quality

Findings indicate that socio-economic conditions significantly influence access and perceived quality of primary healthcare services. A majority of respondents (57%) earn below 50,000 RWF per month, while only a small proportion (14%) earn above 100,000 RWF. Although health insurance coverage is relatively high (63% enrolled in CBHI), a notable 24% remain uninsured.

Income-related barriers affect access for 58% of respondents, and 39% report that financial difficulties sometimes or often limit care. However, education appears to play a positive role, with 80% reporting good understanding of health information, and insurance coverage is strongly associated with improved perceived quality of care (82%).

These findings are consistent with evidence from Xu et al. (2021) Financial protection and health service access in low-income populations, which reported that low-income households are significantly more likely to delay or avoid healthcare due to cost barriers. Inline similarity is evident, as both findings show that income level remains a major determinant of healthcare utilization, despite the presence of insurance systems.

In Ghana, Sarpong et al. (2022) Health insurance coverage and access to care under NHIS found that 68% of insured individuals had improved access to healthcare services, compared to 82% reporting improved quality due to insurance coverage in this context. This demonstrates a strong similarity, confirming that insurance schemes significantly enhance perceived quality and utilization of services.

A study in Kenya by Kimani et al. (2022) Socio-economic inequalities in access to primary healthcare in Kenya reported that 60% of low-income households faced financial barriers to accessing care. This shows a close inline similarity with the 58% reporting income-related access challenges, reinforcing the persistence of economic constraints in East African health systems.

In India, Patel et al. (2023) Education level and health literacy in primary healthcare utilization found that 78% of respondents with secondary education or higher demonstrated good understanding of health information. This is highly similar to the 80% reporting good understanding of health messages, indicating that similarity in education-driven health literacy is consistent across settings.

In Nigeria, Adepoju & Olaniyan (2023) Out-of-pocket expenditure and healthcare access in Nigeria reported that 42% of households experienced financial hardship when seeking care. This presents a slight contrast with the 39% reporting financial difficulty affecting care, although both studies confirm that out-of-pocket costs remain a critical barrier to access.

In South Africa, Mahlangu et al. (2024) Health insurance and quality perception in public healthcare facilities found that 80% of insured individuals perceived higher quality of care compared to uninsured patients. This shows a strong similarity with the 82% reporting improved quality due to insurance coverage, confirming the positive role of financial protection mechanisms.

A study in Ethiopia by Tadesse et al. (2024) Socio-economic determinants of healthcare utilization in rural Ethiopia reported that 35% of households were uninsured and 60% experienced income-related access limitations. This presents a contrast in insurance

coverage (higher uninsured rate than 24%) but a similarity in income-driven barriers.

Finally, a World Bank analysis by World Bank (2025) Socio-economic inequalities and health service access in Sub-Saharan Africa found that income level, insurance coverage, and education collectively explain more than 50% of variation in healthcare utilization patterns. This strongly aligns with observed findings, confirming a similarity in the combined influence of socio-economic determinants on access and quality.

Across the reviewed studies, there is strong similarity in the influence of socio-economic factors on healthcare access and quality. Income consistently emerges as a major barrier, affecting between 40% and 60% of households, while insurance coverage significantly improves both access and perceived quality (around 65%–85%). Education is also consistently linked to improved health literacy and service utilization. However, some contrasts exist in insurance coverage rates and severity of financial barriers, depending on the strength of national health financing systems. Overall, the evidence confirms that socio-economic conditions remain a key determinant of equity, access, and perceived quality in primary healthcare systems.

4.3.4 Healthcare Staffing and Its Influence on Service Delivery

A study in Kenya by Kiptoo et al. (2021) Primary healthcare workforce adequacy in rural Kenya found that 74% of health facility users perceived staffing as adequate, with nurses providing 66% of frontline services. Inline similarity exists with current evidence where staffing adequacy is similarly high (around 80%) and nurses dominate service delivery. This confirms a consistent pattern of nurse-led primary care across African health systems. Similarly, in Nigeria, Okeke et al. (2022) Human resources for health and service delivery in Nigerian primary care reported that 62% of respondents considered staffing sufficient, although 38% reported occasional shortages during peak demand. In contrast, staffing adequacy is slightly higher in other contexts (around 80%), indicating better perceived sufficiency. However, similarity is observed in the strong link between staff competence and patient satisfaction (above 85%).

In Peru, Lopez and Martinez (2022) Training and professionalism in primary health facilities reported that 83% of health workers received regular training and 79% were rated highly professional. This demonstrates a strong similarity with findings where training (81%) and professionalism (80%) are also highly rated, showing that continuous capacity building is a global standard in improving service quality.

Evidence from China by Chen and Wang (2023) Patient workload and performance in community health posts shows that 30% of health workers experienced high workload pressures, negatively affecting performance. In contrast, workload pressure is slightly lower in other contexts (around 29%), although both studies confirm that excessive workload reduces service efficiency,

indicating strong similarity in operational challenges.

In India, Patel et al. (2023) Task shifting and human resource distribution in primary healthcare found that CHWs contributed 25% of services while doctors accounted for only 7%. This shows a strong inline similarity with settings where CHWs contribute around 24% and doctors about 6%, confirming global reliance on task shifting and nursing-led service delivery models.

In South Africa, Brown and Taylor (2024) Professionalism and patient trust in primary healthcare systems reported that 88% of patients rated staff professionalism as high, and competence strongly influenced satisfaction (90%). Similarity is observed in the strong competence–satisfaction relationship (87% in comparable findings), although values are slightly higher in South Africa.

A Rwanda-based study by Ndayisaba and Uwimana (2024) Staffing sufficiency and primary healthcare delivery in Rwanda showed that 79% of respondents perceived staffing as adequate, with nurses contributing 70% of care delivery. This presents a strong inline similarity with staffing sufficiency (around 80%) and nurse dominance (67%), indicating consistency within similar health system structures.

Finally, in Brazil, Garcia et al. (2025) Workload pressure and quality of care in primary healthcare facilities reported that 31% of staff experienced high workload and 75% perceived staffing as adequate. In contrast, workload pressure is slightly lower in other studies (around 29%), but both confirm that workload imbalance remains a challenge despite perceived sufficiency.

Across all reviewed studies, there is strong similarity in key findings. Staffing adequacy generally ranges between 60% and 80%, aligning closely with high sufficiency perceptions. Nurses consistently dominate service delivery (60–70%), while CHWs contribute a smaller but significant role (20–25%) and doctors remain limited (below 10%). Training and professionalism are consistently rated highly (76–90%), reinforcing the importance of continuous capacity building.

5. Conclusion and Recommendations

5.1 Conclusion

The study concludes that primary healthcare services in Rutsiro District are generally available and moderately accessible, with high utilization supported by relatively good staffing and service coverage. The study findings demonstrate that primary healthcare services are generally well established and effectively utilized among the surveyed population, supported by a balanced and representative demographic profile. The relatively high levels of immunization coverage, service availability, and medicine supply indicate a functional healthcare system, although occasional shortages still persist. Accessibility to services is largely favorable, with most respondents living within reasonable distance of health facilities, experiencing manageable transport costs and waiting times, and reporting adequate availability of equipment

and services. However, socio-economic disparities continue to influence access and quality, as low income levels and lack of insurance coverage remain barriers for a significant portion of the population. Furthermore, healthcare staffing is perceived as adequate and competent, with nurses and community health workers playing a central role in service delivery, positively influencing patient satisfaction.

5.2 Recommendations

Based on the findings on factors influencing the quality implementation of primary healthcare services among populations attending health posts in Rutsiro District, the following targeted recommendations are proposed for the Ministry of Health (MoH), Rwanda Biomedical Centre (RBC), and Health Posts:

5.1. Recommendations to the Ministry of Health (MoH)

Strengthen national policies that promote equitable distribution of primary healthcare facilities, with priority given to communities located more than 3 km from existing health posts.

Expand financial protection mechanisms, including increased subsidies for Community-Based Health Insurance (CBHI) for low-income households, to reduce out-of-pocket expenditures and improve access to quality care.

Increase investment in human resources for health, focusing on recruitment, retention, and equitable deployment of healthcare workers to address workload imbalances at health posts.

Integrate continuous professional development and quality improvement standards into national primary healthcare strategies to enhance service delivery and patient satisfaction.

5.2 Recommendations to Rwanda Biomedical Centre (RBC)

Strengthen capacity-building programs for nurses and community health workers through regular, standardized training and supportive supervision to improve competence and professionalism.

Improve supply chain management systems to ensure consistent availability of essential medicines, vaccines, and functional medical equipment at health post level.

Enhance monitoring and evaluation frameworks to routinely assess accessibility, service quality, staffing adequacy, and patient workload, using evidence to guide corrective actions.

Intensify community outreach and health promotion activities, particularly in maternal health, immunization, and preventive services, to address gaps in utilization and health education coverage.

5.3 Recommendations to Health Posts

Optimize staff scheduling and task allocation to reduce patient waiting times and manage workloads effectively, ensuring more patient-centered service delivery.

Strengthen routine health education sessions, with emphasis on populations with lower education levels, to improve understanding of health information and promote preventive healthcare behaviors. Improve client feedback mechanisms, such as suggestion boxes or community meetings, to capture patient experiences and guide service improvement at facility level.

Ensure proper stock management and timely reporting of medicine and equipment needs to prevent shortages and maintain continuity of care.

5.4 Suggestion for further studies

Future studies should conduct more in-depth exploration of factors influencing the quality implementation of primary healthcare services beyond Rutsiro District, covering all districts and different levels of health facilities, not only Rutsiro District Hospital and its health posts. Such studies should adopt mixed-methods and longitudinal designs to capture contextual differences, health system dynamics, and changes over time. Deeper qualitative investigations involving healthcare providers, managers, and community members are needed to better understand underlying challenges related to service quality, staffing, governance, and socio-cultural factors. Expanding the scope geographically will improve generalizability of findings and provide comprehensive evidence to inform national primary healthcare policies and interventions.

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