

Research Title: Factors influencing community health service delivery among Community Health Workers in Nyanza district, Rwanda

Phocas Felicien Tuyisenge

Mount Kenya University of Rwanda, School of public Health

Abstract

CHWs play a critical role in strengthening primary healthcare systems, particularly in low- and middle-income countries where shortages of skilled health professionals persist. Despite Rwanda's progress in expanding community health programs, variations in CHW performance and service delivery remain a concern at the community level. A descriptive cross-sectional study design with a mixed-methods approach was employed. The study targeted 1,639 CHWs, from which a sample of 321 participants was selected using Yamane's formula and a multi-stage sampling technique. Qualitative data were also collected through Focus Group Discussions (FGDs) with CHWs and Key Informant Interviews (KIIs) with CHW cell coordinators and the district CHW in-charge. Data were collected using a structured questionnaire adapted from previous studies and analyzed using SPSS version 21.0. Descriptive statistics, bivariate analysis, and multivariate logistic regression were applied, with statistical significance set at $p < 0.05$. Qualitative data were analyzed thematically. The findings revealed that CHW performance in Nyanza District remains moderate, with only 39.9% reporting that they meet their monthly targets. Regarding service delivery, 61.1% reported providing timely services, while lower proportions were observed for frequent community utilization (47.0%), effective management of common diseases (41.7%), regular household visits (40.2%), accurate health education (38.6%), and proper referral of patients (30.5%). Multivariate analysis showed that motivation was a significant predictor of CHW performance (AOR = 2.200, 95% CI: 1.230–3.933, $p = 0.008$). At the organizational level, supportive supervision was significantly associated with improved performance (AOR = 1.785, 95% CI: 1.067–2.986, $p = 0.027$). In contrast, resource constraints negatively affected performance (AOR = 0.359, 95% CI: 0.155–0.833, $p = 0.017$). Community-related factors showed high levels of trust (78.5%), leadership support (79.4%), and participation (76.3%), although cultural beliefs (74.8%) were reported as influencing service delivery. Qualitative findings supported these results, revealing that CHWs provide essential services such as health education, malaria case management, maternal follow-up, referrals, and hygiene promotion. However, challenges such as inadequate supplies, irregular supervision, limited refresher training, workload pressure, and varying community acceptance were frequently reported. The study concludes that CHW performance in Nyanza District is shaped by individual motivation, organizational support systems, and community engagement. Strengthening supportive supervision, improving motivation mechanisms, and ensuring adequate resource availability are essential to enhance CHW effectiveness and improve community health outcomes.

Keywords: Community Health Workers (CHWs), CHW performance, Service delivery, Motivation, Supportive supervision, Resource constraints, Nyanza District, Rwanda

Background

For over long time, Community Health Workers (CHWs) have played the important role in delivering Primary Healthcare Services (PHCs) which is contributing essential to public health interventions such as health education, vaccination program for small pox, nutrition services, pregnant women services, among other health interventions (Hezagira et al., 2025a).

In Low and Middle Income Countries (LMICs) has Leveraged on community health workers programs to mitigate persistent shortage of formally trained Health personnel, especially in rural and underserved site (Perry & Sachs, n.d.). Community Health Workers (CHWs) program represents a notable example of a community-based model that has significantly strengthened grassroots health service delivery. In 2005, the program transitioned to a village-based model and introduced integrated community case management (iCCM) for children under 5, increasing the CHWs workforce to 45 000. By 2018, the program had grown to approximately 58 567 CHWs distributed across 14 873 villages, averaging four CHWs per village, while adopting a polyvalent model that significantly broadened the scope of health services delivered at the community level (Boustani et al., 2025).

During 2023, Rwanda's MoH transitioned to a polyvalent CHWs model where existing services were extended the scope of CHW roles to include HIV counselling, mental health, behaviour change communication and epidemic response. This shift represents a strategic adaptation to address the health workforce shortages and community-level demand. Notably, this model aligns with the MoH's 4×4 strategy, which aims to quadruple the healthcare workforce within 4 years as a means of strengthening PHC. It also supports the National Strategy for Transformation, which prioritizes the scaling up and professionalization of CHWs to improve community-level service delivery.

The motivation of CHWs influences their performance and retention, hence affecting the sustainability and effectiveness of community health program (CHPs). Motivation enhances effort, service quality, reduces attrition and lowers recruitment and training costs (Weldegebriel et al., 2016). As Rwanda continues to reinforce health systems, it is evident that CHWs are the backbone of PHC. This study provides essential insights into three decades of CHW experience in Rwanda's PHC delivery, highlighting their evolution, impact, challenges and offering actionable policy recommendations to enhance the resilience and equity of Rwanda's health system (Condo et al., 2014).

Even though Rwanda has made strong progress in expanding and strengthening community health worker (CHWs) programs, there is still a need to better understand how these improvements are working in Nyanza. Differences in training, support, motivation, and availability of resources may affect how well community health workers (CHWs) deliver services to the people they serve. The study aimed to assess how community health services are being delivered and to explore the factors that influence the performance of community health workers in Nyanza District. The findings help to provide practical insights that can guide policymakers, health managers, and other stakeholders in improving community health programs and ensuring better health outcomes for the population.

Research Methodology

Research design

The study adopted a descriptive cross-sectional research design combined with a qualitative approach

(mixed-methods design). This design is appropriate because it allowed the researcher to collect quantitative data from a large population at a single point in time to describe the current situation regarding community health service delivery, while also incorporating qualitative data to provide deeper insight into the barriers and challenges affecting Community Health Workers (CHWs). It further enables the examination of relationships between individual, organizational, and community factors influencing CHW performance without manipulating the study environment. The qualitative component, through Focus Group Discussions (FGDs) with CHWs and Key Informant Interviews (KIIs) with CHW cell coordinators and the district CHW in-charge (CHEO), complements the quantitative findings by providing contextual explanations and a more comprehensive understanding of factors affecting the effectiveness of community health service delivery.

Target population

The target population of this study included all Community Health Workers (CHWs) operating in Nyanza District, estimated at 1,639 CHWs. These CHWs are directly involved in providing community health services such as maternal and child health care, disease prevention, and health education.

Inclusion Criteria

- Registered and active CHWs working in Nyanza District
- CHWs who have worked for at least six months in community health service delivery
- CHWs who consent to participate in the study

Exclusion Criteria

- CHWs who are not actively involved in service delivery
- CHWs who decline to participate in the study

Sample size determination and sampling procedures

Sample Size

The representative sample was chosen using the reasoned choice as the technique of sampling. Thus, to determine the sample, YAMEN's formula is used: $n = \frac{N}{1 + N(e)^2}$ in which n is the size of corrected sample, N is target population and e is an error margin. Individuals to be chosen for a margin of error of 10% with 95% confidence interval.

$$n = \frac{N}{1 + N(e)^2}$$

n : Sample size/ N =Total population/ e : Error margin

$$n = \frac{1639}{1 + 1639(0.05)^2}$$

$$n = \frac{1639}{1 + 1639(0.0025)} \quad n = \frac{1639}{5.0975} = 321$$

A sample size of 321 respondents selected from the total population of 1639 CHWs operating in Nyanza District

Sampling technique

To select the sample under this study, probability sampling technique used. Multi-stage sampling technique is a technique in which researcher divides a population into units (e.g., households or individuals) and select a sample directly by collecting data from everyone in the selected units. Then after, systematic sampling technic used to select number of participants from sectors accordingly.

Table 1: Population and sample size

Sectors	CHWs	Number of participants
BUSASAMANA	191	37
BUSORO	164	32
CYABAKAMYI	172	33
KIBILIZI	128	25
KIGOMA	208	41
MUKINGO	232	45
MUYIRA	100	21
NTYAZO	156	31
NYAGISOZI	164	32
RWABICUMA	124	24

Source: Nyanza District Development plan 2013-2018

Sample of qualitative study

Table 2: Sample of Qualitative study

Respondent category	Number of participants	Data collection method
Community Health Workers (CHWs)	2 Focus Group Discussions (6–8 participants per FGD)	Focus Group Discussions (FGDs)
CHW Cell Coordinators	5 Key Informants	Key Informant Interviews (KIIs)
District CHW In-charge / CHEO	1 Key Informant	Key Informant Interview (KII)

Data collection Methods and procedures

A structured questionnaire was used to collect quantitative data from respondents. The questionnaire was developed based on the study objectives and designed to address each of the research questions. It included sections on both dependent and independent variables. The dependent variable focused on the level and quality of Community Health Worker (CHW) performance and the challenges they faced in service delivery, while the independent variables captured individual, organizational, and community-related factors influencing CHW performance.

The questionnaire enabled the assessment of CHW performance levels and the identification of influencing factors. A cut-off point was used to determine whether a CHW had a high or low level of performance, with the mean score of the total responses serving as the reference point. Scores above the mean indicated high performance, while scores below the mean indicated low performance.

Data collection instruments

The collection of data for this study was meticulously conducted using a structured questionnaire developed from relevant existing literature. In particular, a questionnaire previously used in a study conducted in Uganda on the performance of Community Health Workers was adopted and adapted. It was then carefully reviewed and harmonized to suit the Rwandan context, ensuring that it captured the relevant factors and variables applicable to the study population (Musoke et al., 2019). The questionnaire consisted of two sections. The first section collected socio-demographic information, including age, gender, level of education, and duration of service as a Community Health Worker, among other characteristics. The second

section focused on gathering information on Community Health Worker performance, including the level and quality of services delivered. 3.4.2 Procedure of Data collection

Structured questionnaires were translated into Kinyarwanda to ensure effective communication and better understanding among respondents and data collectors assisting in the data collection process. Printed copies of the questionnaires were used to gather information from Community Health Workers (CHWs). Trained data collectors were engaged to assist in administering the questionnaires, interviewing respondents, and accurately recording all responses on the structured instruments, which mainly consisted of closed-ended questions, after obtaining informed written consent from each participant.

In addition, a qualitative component was included to complement the quantitative data. Focus Group Discussions (FGDs) with selected CHWs and Key Informant Interviews (KIIs) with CHW Cell Coordinators and the District CHW in-charge (CHEO) were conducted to explore in-depth experiences, barriers, and challenges affecting CHW performance. These interviews and discussions allowed participants to freely express their views, and all qualitative data were recorded with consent for later thematic analysis.

Reliability and validity

Reliability refers to the consistency of measurement and is frequently assessed using the test–retest reliability method. Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. A test is reliable if it is consistent within itself and across time. The researcher selected a pilot group comprised of 33 CHWs from the sample population to test the reliability of the research instrument. Validity is described as measure that accurately reflects the concept it is intended to measure. Test validity is the extent to which a test accurately measures what it is supposed to measure. The researcher discussed the data collection tools with colleagues, supervisor, and experts from Mount Kenya University. These suggestions used for correcting tools to ensure valid data to be collected.

Data analysis and presentation

To analysis data of this study SPSS Version 21.0 used and eventually, enable to calculate measures of central tendency. All data from different components of the questionnaire entered to an SPSS computer program by researcher, coded and further cleaned. Analysis included by the following: Descriptive statistics, mainly frequency and percentage applied to demographic, socio-demographic profiles of participants and other variables addressing to influencing factors of level of performance of CHWs, quantitative data presented using tables, charts and graphs. Regression analysis (logistic regression and multivariate analysis): to explore factors that may have significant influence on influencing factors level of performance of CHWs. Confidence interval of 95% and P-value of less than 5% considered as level of statistical significance for risk factors influencing level of performance of CHWs.

Qualitative data collected from Focus Group Discussions (FGDs) with Community Health Workers and Key Informant Interviews (KIIs) with CHW Cell Coordinators and the District CHW in-charge (CHEO) were analyzed using thematic analysis. All interviews and discussions were audio-recorded with participants' consent, transcribed verbatim, and translated into English where necessary.

The transcripts were then read several times to ensure familiarity with the data. Initial codes were generated by identifying meaningful statements related to barriers and challenges affecting CHW performance. These codes were then grouped into broader categories and organized into themes reflecting key patterns

in the data, such as organizational challenges, individual-related constraints, and community-related factors.

The identified themes were reviewed, refined, and interpreted in relation to the study objectives. Finally, qualitative findings were presented in a narrative form, supported by direct quotations from participants to enhance credibility and provide deeper contextual understanding of the quantitative results.

Informed Consent

Study participants were voluntary participated where the signed informed consents for their agreement of participation in the study.

Voluntary Participation

This study was voluntary to participate for all study participants. There was no cost to participate in this study.

Confidentiality and Anonymity

During data collection was no personal data like names conducted from participants to ensure their confidentiality. All data collected were kept in secured computer of research with pass key to ensure that data are only accessible to the researcher. This helped to keep data privacy.

Ethical considerations

The study implemented in accordance with the research protocol which approved by both the Mount Kenya University (MKUR) research ethical committee and Nyanza District and ethical Permissions from them also obtained.

Research Findings

Social Demographic characteristics of the study respondents

This table is presenting social demographic characteristics, A total of 381 participants participated in this study.

Table 3: Social Demographic characteristics

Variables	Frequency (n)	Percentage (%)
Gender		
Male	89	27.7
Female	232	72.3
Age Group		
18-25	16	5.0
26-35	68	21.2
36-45	126	39.3
46 and above	111	34.6
Education Level		
Primary	136	42.4
Secondary Level	134	41.7
Tertiary/Vocational Level	51	15.9
Years of Experience		

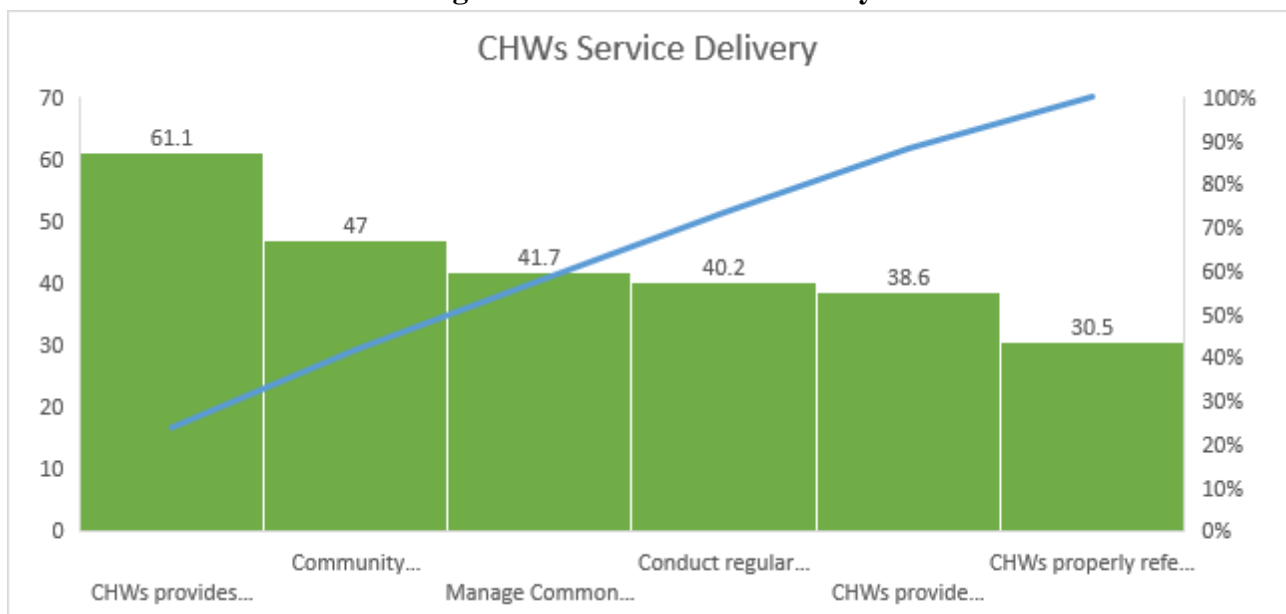
<1	67	20.9
1-3 Years	105	32.7
3 and above	149	46.4

A total of 321 community health workers (CHWs) participated in this study. The majority of respondents were female (72.3%). In terms of age distribution, most participants were middle-aged, with 39.3% aged 36–45 and 34.6% aged 46 and above, while only a small proportion (5.0%) were between 18–25 years. Regarding education level, most CHWs had primary (42.4%) or secondary education (41.7%), with only 15.9% having attained tertiary or vocational training, in terms of work experience, nearly half of the respondents (46.4%) had more than three years of experience, while 32.7% had 1–3 years and 20.9% had less than one year.

Types, level, and quality of CHW service delivery This figure is presenting level of performance of Community Health Workers to meet their meet your monthly CHW targets.

This figure (2) is presenting the quality-of-service delivery by CHWs to their community they serve.

Figure 2: CHWs service Delivery



This figure (3) shown that community health workers whom timely provide services were 61.1%) followed by Community members frequently use CHWs services ((47.0%) and Manage Common Diseases Effectively reported with (41.7%) , Conduct regular Household Visits (40.2%) while CHWs provide accurate Health education and CHWs properly refer patients to health facilities reported with (38.6%) and (30.5%)

Table 4: Bivariate analysis community health workers service delivery

Variables	CHWs monthly target to service delivery		P-Value
	Yes n(%)	No n(%)	
CHWs provide timely health services			0.110
Yes	85(66.4)	111(57.5)	
No	43(33.6)	82(42.5)	

Manage Common Diseases effectively			0.129
Yes	60(46.9)	74(38.3)	
No	68(53.1)	119(61.7)	
Conduct Regular Household Visits			0.047
Yes	60(46.9)	69(35.8)	
No	68(53.1)	124(64.2)	
Community Members frequently use the services			0.007
Yes	72(56.3)	79(40.9)	
No	56(43.8)	114(59.1)	
CHWs properly refer patients to the health facilities			0.790
Yes	38(29.7)	60(31.1)	
No	90(70.3)	133(68.9)	
CHWs provide accurate Health Education			0.420
Yes	46(35.9)	78(40.4)	
No	82(64.1)	115(59.6)	

This table (4) shows that CHWs who met targets were more likely to conduct regular household visits (46.9% vs 35.8%, $p = 0.047$) and had higher reports of frequent community use of services (56.3% vs 40.9%, $p = 0.007$), with the latter showing a particularly strong and highly significant association. In contrast, other indicators such as timely service delivery (66.4% vs 57.5%, $p = 0.110$), effective management of common diseases (46.9% vs 38.3%, $p = 0.129$), proper referral of patients (29.7% vs 31.1%, $p = 0.790$), and provision of accurate health education (35.9% vs 40.4%, $p = 0.420$) showed no statistically significant differences, despite some favorable trends.

In addition, qualitative research findings show that Community Health Workers (CHWs) provide a broad range of essential primary health care services, mainly focusing on health promotion, disease prevention, basic treatment, and referrals. Participants explained in detail how these services are delivered at community level and their importance in improving access to health care in rural areas.

“In our daily work, we conduct home visits where we educate families about hygiene practices such as handwashing, safe water use, and proper sanitation. We also advise them on nutrition, especially for children and pregnant women, because many households lack this information.” (CHW-001)

“One of the major responsibilities of CHWs is managing uncomplicated malaria cases in children under five years using rapid diagnostic tests and appropriate treatment. This service has greatly reduced delays in seeking care.” (CHW Cell Coordinator-004)

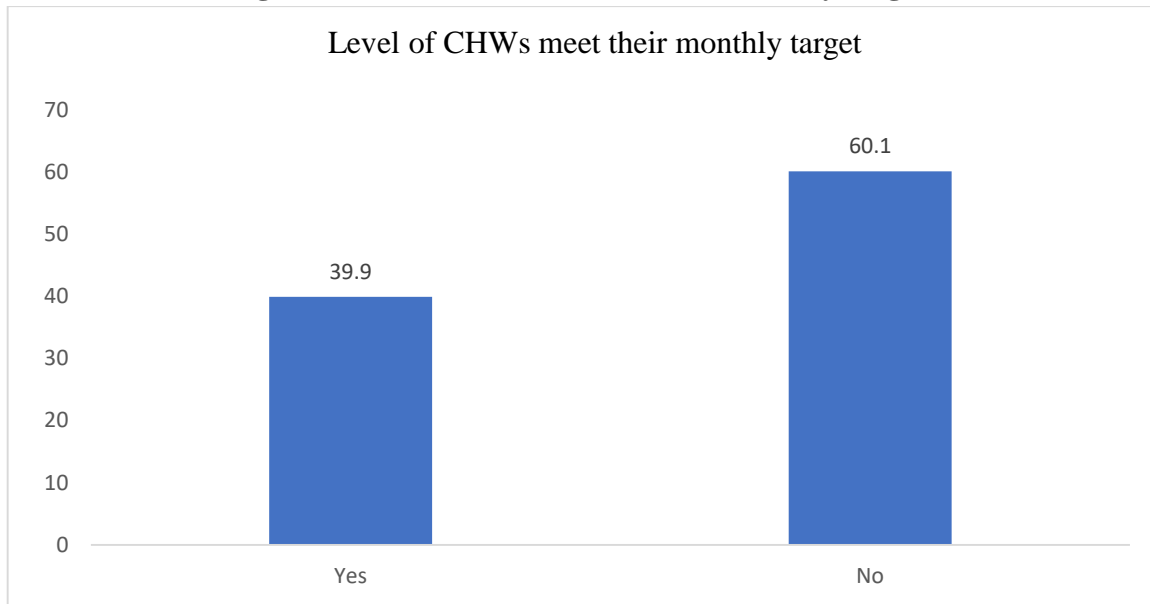
“At district level, we see CHWs as the first point of contact in the community health system. They play a critical role in identifying pregnant women early and ensuring they attend antenatal care services regularly, which contributes to improved maternal health outcomes.” (CEHO/District CHW in-charge)

“When we find a child who is seriously ill or showing danger signs, we immediately refer them to the nearest health center and follow up to ensure they received care. This referral system is very important in saving lives.” (CHW-003)

“CHWs are also actively involved in health promotion campaigns, especially around sanitation and hygiene. They mobilize households to construct latrines and maintain clean surroundings, which helps prevent diseases like diarrhea.” (CHW Cell Coordinator-001)

This figure (2) is presenting the level of CHWS meet their monthly Target.

Figure 3: level of CHWs meet Their monthly targets



This figure (3) presented that level of CHWs meet their monthly Target were 39.9% who replied their meeting target monthly.

Individual factors influencing CHW performance

This table is presenting the Individual factors influencing performance of Community Health Workers.

Table 5: Bivariate analysis for individual factors influencing performance of CHWs

Variables	Meet Monthly target		P-Value
	Yes n(%)	No n(%)	
Adequate Knowledge for CHWs duties			0.074
Agree	77(60.2)	91(47.2)	
Neutral	6(4.7)	12(6.2)	
Disagree	45(35.2)	90(46.6)	
Sufficient Practical skills			0.700
Agree	65(50.8)	95(49.2)	
Neutral	6(4.7)	6(3.1)	
Disagree	57(44.5)	92(47.7)	
Receive Regular Training			0.005
Agree	74(57.8)	82(42.5)	
Neutral	1(0.8)	11(5.7)	
Disagree	53(41.4)	100(51.8)	
Motivated to perform CHWs duties			0.001

Agree	100(78.1)	134(68.4)	
Neutral	9(7.0)	3(1.6)	
Disagree	19(14.8)	58(29.0)	
Community Recognition motivates me			0.073
Agree	62(48.4)	102(52.8)	
Neutral	8(6.3)	3(1.6)	
Disagree	58(45.3)	88(45.6)	
Experience burnout			0.005
Agree	63(49.2)	81(42.0)	
Neutral	4(3.1)	15(7.8)	
Disagree	61(47.7)	97(50.3)	

This table indicates Community Health Workers (CHWs) who meet monthly targets and those who do not, particularly in relation to training, motivation, and burnout. CHWs who met targets were more likely to report receiving regular training (57.8% vs 42.5%, $p = 0.005$), Similarly, motivation levels showed a significant relationship ($p = 0.004$), higher proportion of target CHWs reported being motivated (78.1% vs 69.4%), ($P=0.001$) Burnout also showed a significant association ($p = 0.005$), with more CHWs in the target group reporting burnout (49.2% vs 42.0%), highlighting that higher-performing CHWs may also be experiencing greater workload stress. In contrast, adequate knowledge (60.2% vs 47.2%, $p = 0.074$) and community recognition as a motivator (48.4% vs 52.8%, $p = 0.073$) showed positive but not statistically significant trends, while sufficient practical skills were almost identical between groups (50.8% vs 49.2%, $p = 0.700$), indicating no meaningful difference.

Table 6: Multivariate analysis for Individual factors

Variables	AOR	95%CI	P-Value
Receive Regular Training			
Agree	0.959	0.574-1.600	0.872
Neutral	1.141	0.545-2.388	0.726
Disagree	Ref.		
Motivated to perform CHWs duties			
Agree	2.200	1.230-3.933	0.008
Neutral	8.842	2.166-36.088	0.002
Disagree	Ref.		
Experience burnout			
Agree	1.286	0.804-2.055	0.294
Neutral	0.489	0.153-1.560	0.224
Disagree			

The multivariate analysis shows that motivation to perform CHW duties is the only significant predictor of completing monthly targets. Compared to CHWs who were not motivated, those who agreed that they were motivated were 2.2 times more likely to complete their targets (AOR = 2.200, 95% CI: 1.230–3.933, $p = 0.008$).

Qualitative findings revealed that individual characteristics such as knowledge, skills, motivation, experience, and education level significantly affect how CHWs perform their duties. Participants emphasized that differences in capacity and personal commitment lead to variations in service delivery quality.

“Whenever I attend training and gain new knowledge, I feel more confident when treating patients in the community. I can explain health issues better and make fewer mistakes in my work.” (CHW-002)

“We have observed that some CHWs struggle to follow treatment guidelines because they have limited formal education, which makes it difficult for them to fully understand technical instructions during training sessions.” (CHW Cell Coordinator-003)

“Motivation plays a big role in performance. When CHWs are recognized by the community or supported by health authorities, they become more active and committed to their responsibilities.” (CEHO/District CHW in-charge)

“Over time, experience helps us improve. The more years I work as a CHW, the more confident I become in identifying diseases and managing community health problems.” (CHW-002)

“One challenge is that refresher trainings are not conducted regularly. This makes it difficult for CHWs to stay updated with new health guidelines and protocols.” (CHW Cell Coordinator)

Organizational factors affecting CHW service delivery

This table is presenting organizational factors affecting CHWs performance to deliver community Health service to their community members.

Table 7: Bivariate analysis organizational factors affecting Community Health service delivery

Variables	Meet monthly target		P-Value
	Yes n(%)	No n(%)	
Receive Regular Training from Health facilities			0.834
Agree	51(39.8)	81(42.0)	
Neutral	18(14.1)	23(11.9)	
Disagree	59(46.1)	89(46.1)	
Supervision is regular and supportive			0.038
Agree	45(35.2)	47(24.4)	
Neutral	17(13.3)	19(9.8)	
Disagree	66(51.6)	127(65.8)	
Receive Feedback after supervision			0.425
Agree	43(33.6)	75(38.9)	
Neutral	17(13.3)	18(9.3)	
Disagree	68(53.1)	100(51.8)	
Essential medical supplies are available			0.038
Agree	31(24.2)	51(26.4)	
Neutral	19(14.8)	30(15.5)	
Disagree	78(60.9)	112(58.0)	
Reporting tools are always available			0.267
Agree	40(31.3)	58(30.1)	
Neutral	17(13.3)	39(20.2)	

Disagree	71(55.5)	96(49.7)	
Lack of Resources affect my performance			0.013
Agree	46(35.9)	52(26.9)	
Neutral	8(6.3)	32(16.6)	
Disagree	74(57.8)	109(56.5)	

This table presents organizational factors influencing community health service delivery show that supervision and resource availability play a more significant role in CHW performance than training and reporting tools. Regular and supportive supervision was significantly associated with meeting monthly targets (35.2% vs 24.4%, $p = 0.038$), Similarly, the availability of essential medical supplies was also significantly associated with performance ($p = 0.038$), In addition, perceived lack of resources affecting performance was statistically significant (35.9% vs 26.9%, $p = 0.013$), reinforcing the importance of adequate inputs for effective CHW functioning. In contrast, receiving regular training from health facilities showed no significant difference between groups (39.8% vs 42.0%, $p = 0.834$), suggesting that training alone may not translate into improved performance without supportive systems. Likewise, receiving feedback after supervision ($p = 0.425$) and availability of reporting tools ($p = 0.267$) were not significantly associated with meeting monthly targets, despite slight variations in proportions.

Table 8: Table of multivariate

Variables	AOR	95%CI	P-Value
Supervision is regular and supportive			
Agree	1.785	1.067-2.986	0.027
Neutral	1.721	0.829-3.574	0.145
Disagree	Ref.		
Essential medical supplies are available			
Agree	0.851	0.493-1.469	0.563
Neutral	1.030	0.528-2.009	0.931
Disagree	Ref.		
Lack of Resources affect my performance			
Agree	1.239	0.748-2.051	0.406
Neutral	0.359	0.155-0.833	0.017
Disagree	Ref.		

The multivariate analysis highlights that supportive supervision is the strongest predictor of CHWs meeting monthly targets, while the effects of resource availability are more nuanced. CHWs who agreed that supervision is regular and supportive were about 1.8 times more likely to meet their targets compared to those who disagreed (AOR = 1.785, 95% CI: 1.067–2.986, $p = 0.027$), indicating a statistically significant association. Those who were neutral also showed a higher likelihood (AOR = 1.721), Regarding perceptions of resource constraints, CHWs who were neutral about whether lack of resources affects their performance were significantly less likely to meet their targets (AOR = 0.359, 95% CI: 0.155–0.833, $p = 0.017$).

The findings indicated that organizational support systems such as supervision, training, availability of supplies, and reporting tools play a crucial role in determining CHW effectiveness. Lack of these resources

was reported as a major barrier to optimal performance.

“Sometimes we go to the field without enough medicines or basic tools like gloves and registers. This makes it difficult to properly manage patients or record our activities.” (CHW-003)

“Regular supervision from health center staff is very helpful because it allows CHWs to receive guidance, correct mistakes, and improve the quality of services they provide.” (CHW Cell Coordinator-003)

“At the district level, we ensure that CHWs are supervised and coordinated effectively. Strong supervision structures improve accountability and help maintain service quality across all cells.”(CEHO/District CHW in-charge)

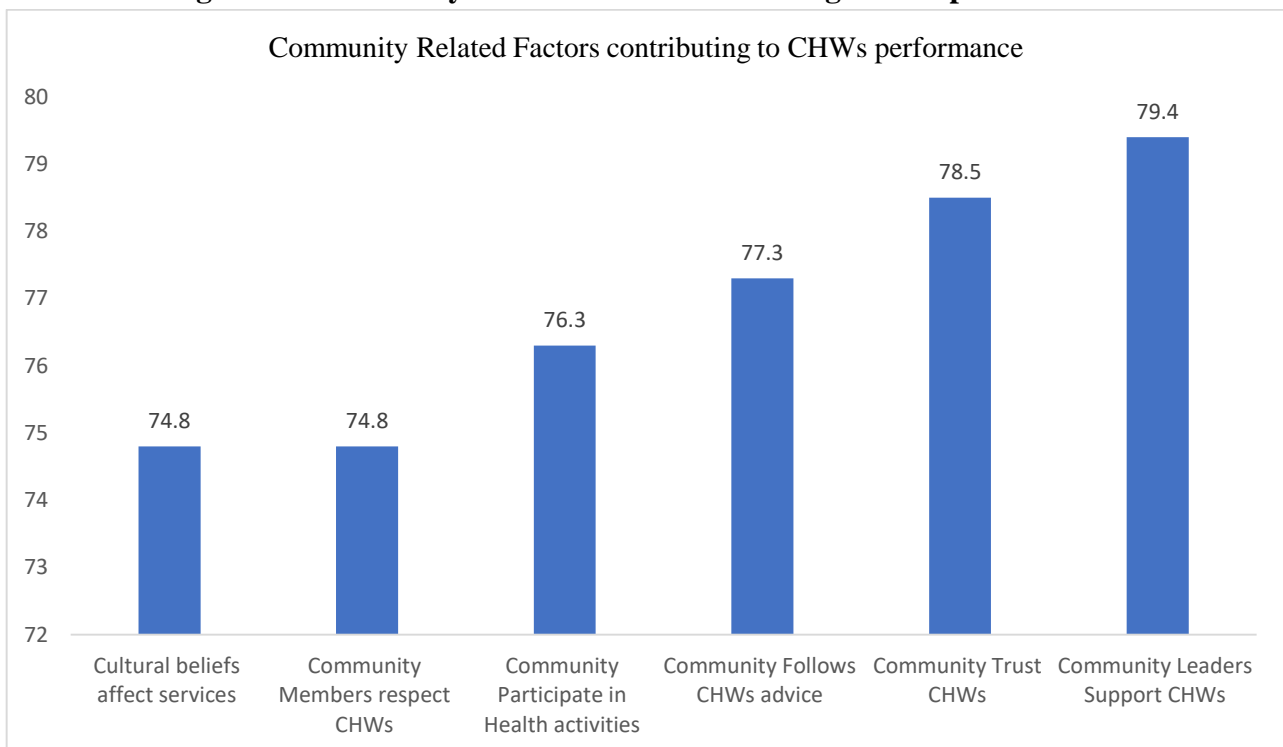
“We often experience shortages of reporting materials such as registers and forms, which delays documentation and affects proper reporting of our activities.” (CHW-003)

“Although training is provided, it is not always frequent or comprehensive enough to address all the emerging health challenges in the community.” (CHW Cell Coordinator-001)

Community-related factors influencing CHW effectiveness

The study found that community attitudes, participation, cultural beliefs, and leadership support significantly influence the effectiveness of CHWs. While some communities are supportive, others show resistance or limited engagement, affecting service delivery outcomes.

Figure 1: Community Related factors influencing CHWs performance



This figure (4) presents a high proportion of respondents reported that community trust in CHWs is strong (78.5%), and even slightly higher levels were observed for community leaders’ support (79.4%), indicating solid institutional and social backing at the leadership level. Community adherence to CHW advice (77.3%) and participation in health activities (76.3%) are also relatively high, suggesting good engagement and responsiveness from community members in health interventions. Similarly, community respect for

CHWs is substantial (74.8%), reflecting a generally favorable perception of CHWs within the community. However, cultural beliefs affecting services (74.8%).

In addition, during qualitative conduction we found that “Some households trust us and follow our advice, especially when it comes to child health and hygiene practices, but others still prefer going directly to health facilities even for minor illnesses.” (CHW-008)

“Community participation increases significantly when CHWs organize regular sensitization meetings and health campaigns at village level.” (CHW Cell Coordinator-005)

We have noticed that when local leaders actively support CHWs, community members are more likely to accept and trust the services provided.” (CEHO/District CHW in-charge)

“Follow-up activities can be challenging when some community members are uncooperative or do not prioritize health advice given by CHWs.” (CHW Cell Coordinator-004)

DISCUSSION

This study aimed to assess community health service delivery and the factors influencing performance among community health workers in Nyanza District; relatively low proportion of CHWs meeting monthly targets (39.9%). For instance, a study conducted in South Africa found that only about 45–55% of CHWs consistently achieved expected performance indicators, with significant variability across districts due to differences in supervision and system support (Rotheram-Borus et al., 2023). Similarly, a global systematic review reported that less than 50% of CHW programs in low- and middle-income countries achieve full implementation of expected service packages, largely due to structural constraints such as inadequate supervision, limited resources, and weak health system integration (Ahmed et al., 2022).

Similarly, the significant association between regular household visits ($p = 0.047$) and increased community utilization of CHW services ($p = 0.007$) strongly aligns with evidence from recent studies. Research conducted in Malawi (2023) demonstrated that a substantial portion of CHWs' time is dedicated to household-level activities, emphasizing their central role in service delivery and community engagement (Aron et al., 2023). Moreover, studies across sub-Saharan Africa consistently show that CHWs who maintain frequent contact with households achieve better service uptake and stronger health outcomes, reinforcing the importance of outreach activities as a key performance driver (Buthelezi et al., 2025).

Moreover, the findings on individual factors particularly the significant role of training ($p = 0.005$) are supported by recent research showing that continuous training improves CHWs competence and effectiveness. Motivation to perform CHW duties is the only significant predictor of completing monthly targets. Compared to CHWs who were not motivated, those who agreed that they were motivated were 2.2 times more likely to complete their targets (AOR = 2.200, 95% CI: 1.230–3.933, $p = 0.008$). This is similar to the study conducted in Tanzania Integrated Programme. While a greater majority reported to be satisfied by their capacity to perform and meet community needs (71–81 %) (Mpembeni et al., 2015). A recent study from Benin (2024) found that CHWs who received refresher training and supervision had significantly better knowledge and performance outcomes compared to those without such support (Wouékpé et al., 2025). Furthermore, the strong association between supportive supervision and CHW performance (AOR = 1.785, $p = 0.027$) is highly consistent with existing evidence. A large body of research shows that supervision is a critical determinant of CHW effectiveness, with one review of 55 studies identifying supervision as one of the most important program components influencing performance (Gopalakrishnan et al., 2021). Additionally, a scoping review (2025) confirmed that supportive supervision improves CHW motivation, accountability, and service quality across multiple settings. This supports the conclusion that

CHWs in this study who received supportive supervision were significantly more likely to achieve better performance outcomes.

In addition, the influence of resource-related factors observed in this study aligns with findings from another recent research. The significant association between perceived lack of resources and reduced performance (AOR = 0.359, $p = 0.017$) reflects similar evidence from studies highlighting those shortages of supplies, transport, and equipment are major barriers to effective CHW service delivery. For instance, research from Madagascar (2024) identified availability of tools, equipment, and logistical support as one of the top five priorities for improving CHW effectiveness. This suggests that even when CHWs are trained and motivated, inadequate resources can significantly limit their ability to perform (*Voices from the Front Line: Community Health Workers' Perspectives on Effectiveness and Needs in Madagascar's Tuberculosis Response* | medRxiv, n.d.).

Finally, the strong community-related findings such as high trust (78.5%), participation (76.3%), and leadership support (79.4%) are widely supported by recent literature emphasizing the role of community engagement in CHW effectiveness. Studies show that CHWs embedded in supportive communities are more likely to achieve better service uptake and adherence to health interventions (Uysal et al., 2024). However, the influence of cultural beliefs (74.8%) observed in this study also aligns with other research, which identifies cultural norms as persistent factors that can either facilitate or hinder health service delivery.

Conclusion

This study concludes that Community Health Workers (CHWs) in Nyanza District play a vital role in delivering essential primary health care services, including health education, maternal and child health follow-up, disease management, referrals, and community mobilization. However, their overall performance in meeting monthly targets remains moderate, with only 39.9% achieving expected targets. The study established that CHW performance is influenced by a combination of individual, organizational, and community-related factors, with motivation and supportive supervision emerging as the most significant determinants. While CHWs generally possess adequate knowledge and skills, these alone are not sufficient to ensure optimal performance without strong motivation and continuous system support.

The study further concludes that organizational constraints, particularly inadequate supervision consistency and shortages of essential resources, significantly limit CHW effectiveness, even when motivation is high. At the same time, strong community trust, participation, and leadership support positively contribute to service delivery, although cultural beliefs and varying perceptions still pose challenges in some areas.

Acknowledgement

I sincerely thank Almighty God for His guidance, strength, and blessings throughout this study. I extend my heartfelt appreciation to my supervisor for the invaluable guidance, encouragement, and constructive comments that greatly contributed to the successful completion of this research. I am grateful to Mount Kenya University Rwanda for providing a conducive academic environment and the knowledge that made this work possible. My sincere thanks also go to the management of Nyanza District, the Community Health Workers, and all respondents who willingly participated in this study. I deeply appreciate my family, friends, and colleagues for their continuous encouragement, patience, and support throughout my academic journey. Finally, I thank everyone who contributed directly or indirectly to the successful completion of this research.

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