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The Role of Community Health Workers in Bridging the Primary Health Care Gap: A Case of Tiko Health District, Cameroon

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Abstract

Community Health Workers (CHWs) play a central role in improving access to primary health care (PHC), particularly in low- and middle-income settings where shortages of trained personnel persist. In Cameroon, the Community-Directed Intervention (CDI) approach has been adopted to support community-based service delivery. However, evidence on the extent of CHWs' contribution to bridging gaps in PHC remains limited. This study assessed the role of CHWs in the Tiko Health District. A convergent mixed-methods cross-sectional study was conducted among 464 participants, including household heads, CHWs, and key stakeholders. Quantitative data were analyzed using IBM SPSS version 27, while qualitative data from key informant interviews were analyzed thematically. Statistical significance was set at $p < 0.05$. Awareness of CHWs was high (96.9%), and 78.1% of respondents reported having received CHW services, while 97.6% indicated that CHWs were accessible when needed. Overall satisfaction was reported by 81.4% of participants. There was a significant positive correlation between awareness and utilization of CHW services ($r = 0.315$, $p < 0.001$). CHWs contributed mainly to immunization mobilization (30.4%), referrals (28.9%), and health education (27.9%), whereas their involvement in maternal and child health (9.9%) and disease surveillance (8.9%) was lower. Although most CHWs reported receiving supervision, training, and incentives, important gaps were identified in transport support, availability of essential medicines, and reporting tools. Support factors were significantly associated with service utilization ($p < 0.001$). CHWs contribute meaningfully to improving access to PHC in the Tiko Health District. Addressing gaps in logistics, supervision, and system support is essential to strengthening their effectiveness and long-term sustainability.

Keywords: *CHW, Bridging Gap, Primary healthcare, Community-Directed Interventions, Health System Integration, Cameroon.*

Introduction

Community Health Workers (CHWs) play an increasingly important role in strengthening primary health care (PHC) systems, particularly in low- and middle-income countries where shortages of trained health professionals limit access to essential services [1, 2]. As members of the communities they serve, CHWs support health promotion, disease prevention, early detection of illness, referral, and follow-up care. Their involvement has been associated with improved service utilization and increased community participation in health programmes [1, 2].

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The Alma-Ata Declaration of 1978 established primary health care as the cornerstone for achieving “Health for All” and emphasized the importance of community participation in health service delivery [3, 7]. Community-based approaches, including the use of CHWs, have since been widely adopted to extend essential health services to underserved populations [2].

In Cameroon, community-based health strategies have evolved through the adoption of the CDI approach, initially developed for onchocerciasis control [4]. The CDI strategy has since been expanded to support a range of interventions, including malaria prevention, maternal and child health services, health education, and disease surveillance [4]. Within this framework, CHWs serve as frontline actors, linking communities with formal health facilities [5]. However, the extent to which CHWs are effectively integrated into the health system and contribute to broader PHC delivery remains insufficiently documented.

Despite their recognized importance, the integration of CHWs into health systems remains uneven. Challenges related to training, supervision, motivation, financing, and role clarity continue to limit their effectiveness and sustainability. In Cameroon, CHWs often operate within loosely structured systems where institutional support, incentives, and coordination mechanisms remain inadequate [6].

These challenges are particularly pronounced in the South-West Region of Cameroon, where socio-political instability has disrupted health services delivery and limited access to care [13, 16]. In this context, CHWs play an increasingly important role in maintaining access to essential health services and supporting disease surveillance, health education, and community engagement.

The Tiko Health District, located in the Fako Division of the South-West Region, provides an important context for examining the integration of CHWs into the health system. Although the CDI strategy has been implemented in the district for several years, limited empirical evidence exists regarding the extent to which CHWs are effectively integrated into the national health system and how this integration influences service delivery and community perceptions. Understanding the level of CHW integration within the health system is essential for identifying structural barriers, strengthening community-based health interventions, and informing policy decisions to improve primary health care delivery.

This study aims to assess the role of community health workers in bridging the primary health care gap using the Tiko Health District. Specifically, the study examined community awareness and utilization of CHW services, assessed their contributions to PHC delivery, and identified key system-level barriers and facilitators influencing their effective integration.

Materials and Methods

Research Design

This study employed a convergent mixed-methods cross-sectional health systems evaluation design. Mixed-methods approaches are particularly valuable in health systems research, as they allow integration of quantitative outcomes with qualitative insights into stakeholder experiences and system dynamics [19]. The design was guided by the WHO Health Systems Building Blocks framework [8], which provides a structured approach for assessing service delivery, health workforce performance, health information systems, access to essential medicines, leadership and governance, and health financing. The quantitative component consisted of a descriptive survey using structured questionnaires administered to household heads, CHWs, and community pharmacy attendants, complemented by facility-based audits of service delivery processes, supervision practices, and availability of essential commodities using

standardized checklists. These tools were used to generate indicators on CHW contribution to health promotion, disease surveillance, maternal and child health services, and referral linkages.

The qualitative component involved key informant interviews with district health managers, facility heads, CHW supervisors, and community leaders to explore perceptions of CHW effectiveness, community engagement mechanisms, supervision challenges, and health system support structures. Qualitative findings were used to contextualize and triangulate quantitative results. Both datasets were collected during the same study period and integrated during analysis to provide a comprehensive understanding of how community participation and health system factors influence the effectiveness and integration of CHWs in primary health care delivery.

Study Area and Setting

The study was conducted in the Tiko Health District, located in the Fako Division of the South-West Region of Cameroon. The district comprises nine health areas and approximately 94 communities, with an estimated population of 104,224 following the 2021 population census [9]. Health services in the district are delivered through a decentralized health system involving district health authorities, health facilities, and community-based health workers implementing CDI.

Study Population and Sampling

The study population comprised key stakeholders involved in community health service delivery in Tiko Health District, including household heads, Community Health Workers (CHWs), community leaders, district health administrators, CHW supervisors, and members of community dialogue committees. Household heads were included because they are primary decision-makers regarding health-seeking behaviour within households. Other stakeholder groups were selected due to their roles in governance, policy implementation, supervision, supply chain coordination, community mobilization, advocacy, and monitoring of CHW activities.

For the quantitative component, a minimum sample size of 464 participants was determined using the single-population proportion formula, assuming a 95% confidence level, a 5% margin of error, and an assumed prevalence of 50%. Health areas and communities were selected through simple random sampling to ensure geographical representation across the district. Within selected communities, household heads were recruited using convenience sampling due to the absence of a comprehensive household sampling frame and the operational constraints of a conflict-affected setting. In addition, two CHWs were purposively selected from each community, resulting in a total sample of 40 CHWs included in the study.

Data Collection Tools and Procedures

Data was collected using a combination of structured questionnaires, standardized checklists, and semi-structured interview guides to obtain both quantitative and qualitative information on the role and integration of Community Health Workers (CHWs) in primary health care delivery.

Household Survey Questionnaire: A structured questionnaire was administered face-to-face to household heads using the Kobo Collect mobile data collection platform. The tool captures information on awareness of CHWs, utilization of CHW services, accessibility, satisfaction, and perceptions of CHWs' impact on household health-seeking behavior.

CHW Survey Questionnaire: A semi-structured tool was administered to actively serving CHWs to obtain data on socio-demographic characteristics, scope of work, training and supervision history, incentives received, reporting practices, workload, and

challenges. The tool also assessed CHWs' perceptions of their integration into the health system, community acceptance, and linkages with health facilities. Data was collected through face-to-face interviews supported by the Kobo Collect platform.

Service Delivery Checklist: A standardized checklist was used to assess CHW service delivery activities, including health promotion, disease surveillance, maternal and child health support, referral practices, and community mobilization. A data template was developed to evaluate CHWs' activities. This was done using the face-to-face approach on a physical questionnaire.

Key Informant Interview Guides: Semi-structured interview guides were used to conduct Key Informant Interviews (KIIs) with district health officers, facility heads, CHW supervisors, program coordinators, community leaders, and members of community dialogue committees. These interviews explored perceptions of CHW effectiveness, mechanisms for community participation, challenges in supervision, and support structures within the health system.

Validity of Data Collection Instruments

The validity of the data collection instruments was ensured through content, construct, and face validity procedures. The instruments were reviewed by a public health research supervisor and a statistician to assess clarity, relevance, and alignment with study objectives. A pilot study was conducted in one health area in Buea Health District, which was not included in the final sample, to test comprehensibility, feasibility, and contextual appropriateness. Feedback from the pilot informed refinement of questionnaire wording, response categories, and data collection procedures.

Reliability of Data Collection Instruments

The internal consistency of the quantitative instruments was assessed using Cronbach's alpha coefficient. The reliability coefficients ranged from 0.522 to 0.905 for the household questionnaire and 0.688 to 0.974 for the CHW questionnaire, indicating acceptable to excellent internal consistency. For qualitative tools, reliability was enhanced through expert review and pilot testing to ensure clarity and consistency in interpreting the questions. Data collection procedures were standardized to minimize measurement errors.

Ethical Consideration

Ethical approval for this study was obtained from the Ethics Committee of the Regional Delegation of Public Health for the Southwest Region, and administrative authorization was granted by the Regional Delegate of Public Health. Participants were informed of the study's purpose and procedures before data collection. Participation was voluntary, and respondents were free to decline or withdraw at any time without any negative consequences. Informed consent was obtained from all participants prior to interviews and questionnaire administration. Confidentiality and anonymity were maintained by not recording personal identifiers, and all information collected was used strictly for research purposes and reported in summary form.

Data Analysis

Data from household and Community Health Worker (CHW) surveys, service delivery assessments, and facility Quantitative data collected from household surveys and Community Health Worker (CHW) questionnaires were exported from the Kobo Collect platform and analyzed using IBM SPSS Statistics version 27 after appropriate data cleaning to ensure completeness and consistency. Descriptive statistics, including

frequencies, percentages, means, and standard deviations, were used to summarize socio-demographic characteristics, CHW activities, and key service delivery indicators. Associations between categorical variables were assessed using the chi-square test, while Spearman's rank correlation was used to examine the relationship between awareness and utilization of CHW services, with statistical significance set at $p < 0.05$. A composite index was developed to assess the level of CHW integration into the health system based on selected indicators aligned with the World Health Organization Health Systems Building Blocks framework, combining scores from domains such as service delivery, supervision, training, logistics, and community participation, where higher scores indicated better integration; details of the index construction are provided in supplementary materials. Qualitative data from key informant interviews were audio-recorded, transcribed verbatim, and analysed thematically using ATLAS.ti software, with codes generated inductively and grouped into broader themes to complement and support the interpretation of quantitative findings.

Results

Socio-Demographic Characteristics of CHWs and HHHs

A total of 464 participants were included in the study, comprising 40 Community Health Workers (CHWs), 415 household heads, and 9 key stakeholders, including community leaders and health personnel. The majority of CHWs were female (80.0%) and aged 25-54 years (95.0%), with most having attained secondary education (57.5%). Similarly, most household heads were female (61.2%), with the majority aged 25–54 years (71.1%) and having at least secondary education (48.2%) (Table 1).

Table 1. Socio-Demographic Characteristics of CHWs n=40 and HHHs n=415

Variable	Category	CHW		HHH	
		Frequency	Percent	Frequency	Percent
Sex	Male	8	20.0	161	38.8
	Female	32	80.0	254	61.2
Age group	16-24	0	0.0	67	16.1
	25-54	38	95.0	295	71.1
	55-64	2	5.0	49	11.8
	>64	0	0.0	4	1.0
Level of Education	None	0	0.0	7	1.7
	Primary	8	20.0	78	18.8
	Secondary	23	57.5	200	48.2
	Tertiary	9	22.5	130	31.3

HHHs' Awareness and Utilization of CHW Services

Awareness and accessibility of CHW services were high among household heads. Nearly all respondents (96.9%) were aware of CHWs in their communities, while 97.6% reported that CHWs were accessible when needed. More than three quarters (78.1%) had previously received services from CHWs, and 81.4% expressed satisfaction with those services. Regular household visits were reported by 75.4% of respondents (Table 2).

Table 2. HHHs' (n=415) Awareness and Utilization of CHW Services

Indicator	**Yes n (%)**	**No n (%)**
Aware of CHWs in community	402 (96.9%)	13 (3.1%)
Ever received service from CHW	324 (78.1%)	91 (21.9%)
CHWs accessible when needed	405 (97.6%)	10 (2.4%)
Regular household visits	313 (75.4%)	102 (24.6%)
Satisfied with CHW services	338 (81.4%)	77 (18.6%)

There was no statistically significant association between socio-demographic characteristics and awareness of CHW services ($p > 0.05$) (Table 3). However, a moderate positive correlation was observed between awareness and utilization of CHW services ($r = 0.315$, $p < 0.001$), indicating that higher awareness was associated with increased use of CHW services (Table 4).

Table 3. Association between Demographic Characteristics and Awareness of CHWs' Services n=415

Variable	**Categories**	**Awareness of CHW services**		**χ2-test (P-value)**
		Yes % (n)	**No % (n)**	
Sex	Male	95.7%(154)	4.3%(7)	0.258
	Female	97.6%(248)	2.4%(6)	
Age group	16-24	100%(67)	0.0%(0)	0.426
	25-54	284%(96.3)	3.7%(11)	
	55-64	96.9%(47)	4.1%(2)	
	>64	100%(4)	0.0%(0)	
Level of Education	None	100%(7)	0.0%(0)	0.946
	Primary	96.2%(76)	3.6%(3)	
	Secondary	97.0%(194)	3.0%(6)	
	Tertiary	96.9%(126)	3.1%(4)	

Table 4. HHHs' Awareness and Utilization of CHW Services

Spearman's rho		**Utilization**
Awareness	Correlation Coefficient (R)	0.315**
	Sig. (2-tailed) / P-value	0.000
	N	415

Household perceptions indicated that CHWs contributed primarily to preventive and promotive health services. The most frequently reported activities were immunization mobilization (30.4%), referral of sick individuals (28.9%), and health education (27.9%). In contrast, lower levels of contribution were reported for maternal and child health services (9.9%) and disease surveillance (8.9%) (Table 5).

Table 5. HHHs' (n=415) Perception of the Contribution of CHWs to Primary Health Care Services

PHC Service Area	Frequently (%)	Occasionally (%)	Never (%)
Health education	116 (27.9%)	282 (68.0%)	17 (4.1%)
Home visits	85 (20.5%)	228 (54.9%)	102 (24.6%)
Referral of sick persons	120 (28.9%)	272 (65.5%)	23 (5.5%)
Support for ANC/PNC	41 (9.9%)	197 (47.5%)	177 (42.6%)
Immunization mobilization	126 (30.4%)	271 (65.3%)	18 (4.3%)
Disease surveillance	37 (8.9%)	109 (26.3%)	269 (64.8%)

CHWs reported relatively high levels of support in terms of supervision (87.5%), refresher training (92.5%), and financial incentives (95.0%). However, significant gaps were identified in key operational areas, including transport support, which was reported as absent by 95.0% of CHWs, as well as limited availability of essential medicines (25.0%) and reporting tools (40.0%) (Table 6).

Table 6. CHWs' (n=40) Perception of Health System Support for CHWs

Support Indicator	Frequently (%)	Occasionally (%)	Never (%)
Regular supervision	35 (87.5%)	5 (12.5%)	0 (0.0%)
Refresher training	37 (92.5%)	3 (7.5%)	0 (0.0%)
Financial incentives	38 (95.0%)	2 (5.0%)	0 (0.0%)
Reporting tools available	8 (40.0%)	6 (30.0%)	6 (30.0%)
Essential medicines available	5 (25.0%)	5 (25.0%)	10 (50.0%)
Transport support	0 (0.0%)	1 (5.0%)	19 (95.0%)

Table 7. Association between CHW Support and Service Utilization

Variable	Utilization High (%)	Utilization Low (%)	p-value
Supervision regular	28 (70.0%)	12 (30.0%)	0.000
Incentives available	12 (30.0%)	28 (70.0%)	<0.001
Training received	12 (30.0%)	28 (70.0%)	<0.001

Significant associations were observed between selected CHW support factors and service utilization ($p < 0.001$). Regular supervision was associated with higher service utilization, while inadequate incentives and limited training were associated with lower utilization (Table 7).

Community participation in CHW activities was generally high. All CHWs (100%) reported the existence of community dialogue committees, while 90.0% indicated receiving support from the community. However, only 60.0% reported that communities were involved in the selection of CHWs (Table 8).

Table 8. Community Participation as Perceived by CHWs n=40

Community engagement variable	Yes (%)	No (%)
Existence of dialogue committee	40 (100%)	0 (0.0%)
Community supports CHWs	36 (90.0%)	4 (10.0%)
Community involved in CHW selection	24 (60.0%)	16 (40.0%)
Community contributes to CHW activities	34 (85.6%)	6 (14.4%)

Both CHWs and household heads reported high overall positive perceptions of community-directed interventions and CHW integration into the health system. Among CHWs, overall perception was 94.3%, while among household heads it was 88.0%. Despite these positive perceptions, important gaps were identified in areas such as monitoring and evaluation, disease surveillance, chronic disease management, and follow-up of health interventions (Figures 1 and 2)

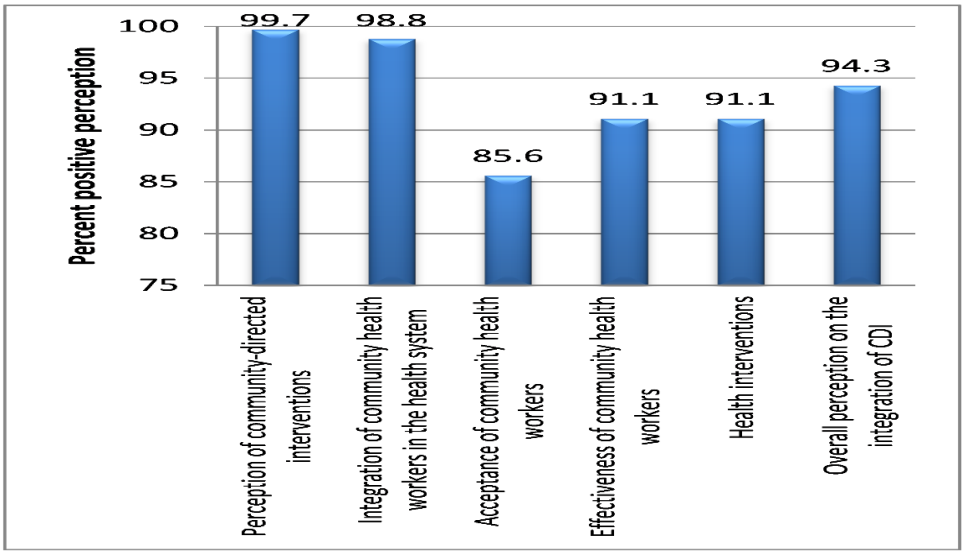

Figure 1. Comparing CHWs' perception among conceptual components

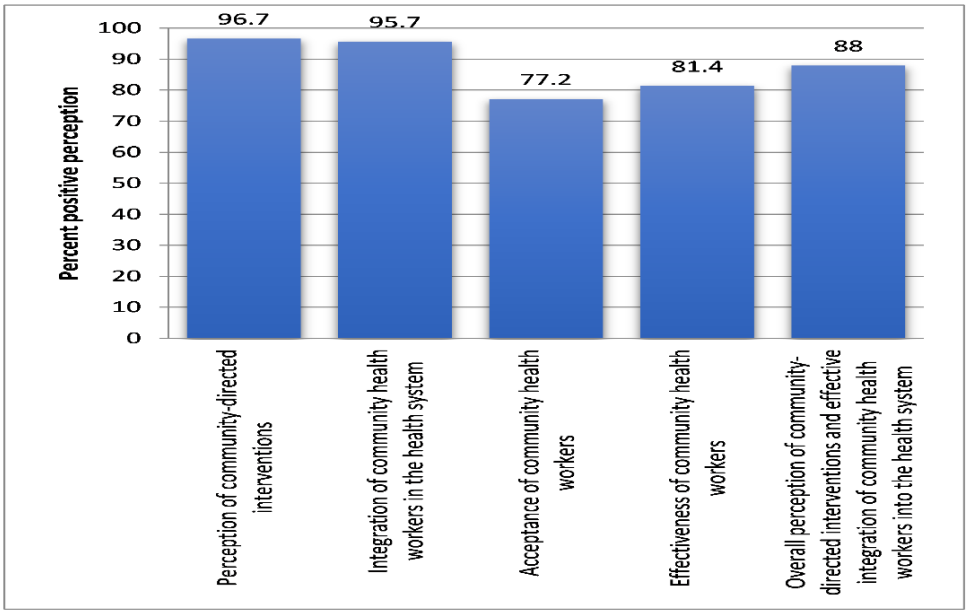

Figure 2. Comparing Household Head's Perception among Conceptual Component

Qualitative findings supported the quantitative results, highlighting the important role of CHWs in improving access to health services, particularly in remote communities. Stakeholders emphasized their contribution to health education, disease surveillance, and delivery of essential interventions. However, key challenges identified included weak supervision, inadequate logistics, delayed incentives, and issues related to community acceptance and workload. These challenges were consistently reported across stakeholder groups (Table 9).

Table 9. Stakeholders' Perception of the Challenges Associated with the Integration of Community Health Workers in the Health System of Cameroon and in their Community in Particular

Theme	**Sub-theme**	**Illustrative Quote**
Weak supervision	Infrequent supervisory visits	*"Supervision should be followed to it latter at all time" (CHW)* *"So, a coordinator from the PMI or the health centre should go with them, even right to the remote areas." (Community leaderW)* *"Be under direct supervision of chief of health area and also chief of quarter / head of community" (Member of COSADI / Health district dialogue committee)* *"Periodic visits to monitor progress and address challenges should be monthly and effectively" (CHWs' supervisors)*
Logistic challenges	Lack of CHW kits	*"Personal protective equipment, badges, uniform" (Member of COSADI / Health district dialogue committee)* *"The necessary material needed by CHWs should be made available, e.g. medicines, PPE, diagnostic tools" (CHW supervisor)* *"All the time that they have been coming out to work, even if they give them transport allowance, that transport allowance take time before it comes. So some of the volunteers just work, because they have interest in the community, because the transport allowance will come, sometimes it takes three months." (Community leader)* *"Limited CHW in the community" (CHW)* *"Community is large for implementation of effective work" (CHW)* *"There's nothing to protect the body from rain or sun" (CHW)* *"Shortage of fields materials like umbrella, uniforms and first aid kit" (CHW)*
Community trust	Inadequate acceptance of CHWs	*"Not familiar with the community of work; the CHW should be used in his quarter of living for acceptance" (CHW)* *"Follow very good / defined procedure to select CHWs for better acceptance and trust from the communities they serve" (Member of COSADI / Health district dialogue committee)* *"Define procedure to recruit CHWs" (CHWs' supervisors)* *"Community health workers should be selected from their community and accepted by all" (CHWs' supervisors)*
Motivation issues	Irregular incentives	*"But what I am encouraging the government health department to do, if there is possibility, they should be giving them transport allowance on the spot before they go out. They will go and work like this, strain before they are given 5000 coming through the phone. When you are going out and you are having your transport with yourself, you are doing it happily" (Community leader)*

		"Their compensation, what they are paying them, it should be added, because they complain, at times they move without even having water to drink and so on, that is a very big challenge, they should motivate them much better than what they have been doing." (Community leader) *"Motivation should be giving early immediately after the activity" (CHW)* *"They need to be integrated into the health system and paid, and some monthly, so that they can cater for their own family and the motivation they usually give them always take time, 3 months, 4 "Some stipends should be kept or provided by the government consistently" (CHWs' supervisors)*

Discussion

This study contributes to the limited empirical evidence on the integration of Community Health Workers (CHWs) within primary health care systems in Cameroon, particularly in fragile and conflict-affected settings. While previous studies have highlighted the potential of CHWs in improving access to care, there remains a gap in understanding how health system factors influence their effectiveness and integration at district level.

The findings of this study suggest that CHWs are widely recognized and utilized within the Tiko Health District, indicating their important role as a bridge between communities and the health system. This is consistent with global evidence showing that CHWs improve access to essential health services, particularly in underserved populations, by facilitating early care-seeking care and community engagement [1, 2, 19]. The observed association between awareness and utilization further suggests that community sensitization and engagement may play a critical role in enhancing service uptake. Similar patterns have been reported in other low- and middle-income countries, where awareness of CHW roles is closely linked to increased utilization of preventive and curative services [2, 17].

Stakeholders in this study expressed overwhelmingly positive perceptions of CHWs, highlighting their important contribution to implementing and sustaining the CDI strategy. CHWs were widely recognized for improving access to health services, and enhancing community engagement, consistent with findings from previous studies [18]. These findings are consistent with earlier studies which reported that community-based health workers play a crucial role in improving health access and equity through preventive health actions, increased health awareness, and strengthened community participation in health programs [2] and the effectiveness of community health worker programmes depends largely on the extent to which they are formally integrated into national health systems through clear governance structures, supervision mechanisms, and logistical support [10]. The positive perception observed in this study also aligns with the principles of the Theory of Human Caring, which emphasizes the importance of humanistic and community-centered approaches in healthcare delivery. In fragile or crisis-affected settings such as the South-West Region of Cameroon, CHWs appear to play an even more critical role by maintaining basic health service delivery and supporting disease surveillance when health facility operations are disrupted. The findings of this study therefore support the priorities outlined in Cameroon's National Health Development Plan (NHDP 2021–2025), which

underscores the importance of strengthening primary health care through community participation and the institutional integration of community-based health workers to improve equitable access to essential health services.

Basically, this study reveals that Community Health Workers (CHWs) are more engaged when it comes health education, getting people to appointments, and organizing immunisation drives. However, their involvement in other health domain like maternal health or disease surveillance remains limited besides the traditional CDI interventions [22]. It likely comes down to the questions: do they have the right trainings, the specific tools, close supervision, a clear term of reference, is the heath system running on a vertical approach? Previous studies have shown that, vertical programs (disease-specific, donor-funded initiatives) often lead to parallel, uncoordinated delivery structures that fragment CHW roles. While they can boost focused outcomes, they often cause duplication of effort, overburden CHWs, create unsustainable "vertical" roles, and undermine comprehensive, primary health system strengthening [24]. CHWs tend to perform more effectively in roles that rely on community engagement and behaviour change, while their effectiveness in clinical or surveillance functions depends on the level of training, supervision, and system support provided [10, 20].

Looking at the health system, this study reveals a disconnect between the support designed to CHWs and what they experience on the ground. While programs for supervision, training, and incentives technically exist, there are major "blind spots" in the day-to-day operations, specifically a lack of reliable transport, stock out of essential medicines, and lack of reporting tools. These findings suggest that the presence of support mechanisms alone may not be sufficient; rather, the quality, timeliness, and adequacy of these supports are critical determinants of CHW performance. For example, although financial incentives were reportedly available, qualitative findings indicate delays in payment and insufficient compensation, which may explain the observed mismatch between reported incentives and lower levels of motivation. This apparent contradiction has been documented in other studies, where irregular or inadequate incentives undermine CHW motivation despite the existence of incentive schemes [13-14].

The significant association observed between supervision and service utilization further underscores the importance of supportive supervision as a key driver of CHW performance. Effective supervision provides not only technical guidance but also motivation, accountability, and linkage with the formal health system. This finding aligns with WHO recommendations, which emphasize supportive supervision as a critical component of high-performing CHW programmes [16, 20].

The crucial role played by CHWs in face of outbreaks underpinned by this study context was experienced in America whereby the health departments had employed more CHWs as part of their COVID-19 pandemic response-efforts [11]. However, they were points of concerns ranging from the database not digitalized and still on paper-based, monitoring and evaluation, research, DOT, community involvement in supervision and work overload as also stemming from large coverage area due to inadequate availability of CHWs. By placing emphasis on remote areas generally faced with poor health coverage, CDI in the study context abide to the vision of the Declaration of Alma Ata aimed to achieve ‘Health for All’ [3] by utilizing and sustaining earlier initiatives in this prospect [4, 9]. Service delivery checklist for CHWs unfolded respect of protocol and guidelines then referrals as strengths while supervision, antenatal and post-natal assistance, equipment and records were weaknesses. It was earlier emphasized that, given their vital role as frontline providers of primary healthcare, CHWs are strategically positioned to bridge gaps in service delivery [12]. Global evidence

further highlights that CHWs contribute significantly to achieving universal health coverage when effectively supported and integrated into national health systems [21] However, their limited integration into the national health system hampers their effectiveness and sustainability as depicted by the findings of this study.

Despite the overwhelmingly positive perception of CHWs and CDI, important gaps persist in specific programmatic areas. Both CHWs and households identified weaknesses in monitoring and evaluation systems, disease surveillance, management of chronic diseases, maternal and child health services, and follow-up of health interventions. These findings point to systemic limitations in the integration of CHWs into broader health system functions beyond vertical programme delivery. Weak integration into health information systems and limited use of community-level data for decision-making have been identified as major bottlenecks in CHW programmes globally [8, 10].

The qualitative findings provide further insight into the structural and contextual factors affecting CHW performance. Challenges such as inadequate logistics, weak supervision, delayed incentives, and community trust issues were consistently reported across stakeholder groups. These findings are consistent with evidence from other fragile and conflict-affected settings, where CHWs often operate under constrained conditions with limited institutional support [13, 14]. The issue of large coverage areas and insufficient numbers of CHWs also suggests workload imbalances, which may negatively affect service delivery and quality of care.

Importantly, the study context characterized by socio-political instability adds a critical dimension to the interpretation of findings. In such fragile settings, CHWs play an essential role in maintaining continuity of care, supporting outbreak response, and ensuring access to basic services when health facilities are disrupted. This aligns with global evidence demonstrating that CHWs are particularly valuable in crisis and post-conflict settings, where they contribute to system resilience and continuity of essential health services [13, 14].

Overall, the findings suggest that while CHWs are highly effective in improving access to primary health care, their full potential remains constrained by systemic weaknesses in supervision, logistics, monitoring systems, and workforce planning. Addressing these gaps requires a shift from viewing CHWs as stand-alone community actors to recognizing them as an integral part of the formal health system, supported by strong governance, sustainable financing, and functional health system components, as recommended in WHO guidelines [15]. These findings have important implications for national health policy and donor-funded programmes. Strengthening CHW integration requires sustained investment in supervision systems, logistics, and digital health tools.

Conclusion

This study demonstrates that Community Health Workers (CHWs) play a critical and effective role in bridging gaps in primary health care delivery in the Tiko Health District. High levels of awareness, accessibility, and satisfaction among community members highlight the relevance and acceptance of CHWs as frontline actors in improving access to essential health services, particularly in underserved and fragile contexts.

CDI generally was positively perceived given the established health benefits as CHWs effectively bridge the community and the health system making health care accessible to remote and underserved communities. It critically surfaced from the findings that community directed intervention has proven to be instrumental in this context of socio-political crisis with so many displaced people and the disruption of the proper functioning of some health facilities.

However, the study also identifies important systemic constraints that limit the full potential of CHWs. These include gaps in supervision, inadequate logistical support (particularly transport and equipment), uneven distribution of CHWs, and weaknesses in monitoring and evaluation systems. These challenges highlight the need for stronger institutional integration of CHWs within the health system.

To maximize their impact, CHWs should be recognized not merely as community volunteers but as an essential component of the health workforce. Strengthening supervision systems, ensuring regular and adequate incentives, improving access to essential tools and commodities, and enhancing data and monitoring systems are critical to improving performance and sustainability.

Overall, strengthening the integration of CHWs into the national health system represents a strategic opportunity to advance equitable access to primary health care, improve health outcomes, and enhance the resilience of health systems, particularly in fragile and resource-constrained settings. This finding is linked to global policy guidance from the World Health Organization highlights that the successful integration of CHWs into national health systems requires adequate supervision, training, and institutional recognition to ensure the sustainability of community-based health interventions [5, 15, 23].

Limitations

This study was conducted in a region affected by socio-political instability, which limited access to certain communities. Despite these limitations, the study provides valuable insights into the integration of CHWs within the health system in the Tiko Health District.

Recommendations

To enhance the effectiveness, sustainability, and integration of Community Health Workers (CHWs) within the health system, the following recommendations are proposed:

Determine the governance structure for CHW integration: Integrating CHWs into national health systems entails formalizing core functions in public policy, including CHW planning, selection, education, certification, deployment, remuneration, management, supervision and support. The initiative requires an institutional anchor to be identified from the beginning. Existing local or community-level governance structures and mechanisms should be identified and assessed to explore how these can be supported or strengthened to support CHW integration.

Strengthening recruitment, training, and retention strategies: To enhance CHW performance and retention, the recruitment criteria streamlining to ensure active involvement of communities and proper communication of CHW roles to all stakeholders. CHWs recruitment criteria should be improved and operationalized to avoid ambiguity. Standardizing capacity building by using uniform training materials and appropriate technology to help CHWs performance and retention.

Enhance motivation and incentive mechanisms: Develop sustainable and timely incentive systems, including financial compensation and non-financial recognition, to improve CHW motivation, retention, and performance.

Improve monitoring, evaluation, and data use systems: Strengthen community-level data collection, reporting, and use by integrating CHWs into digital health information systems and promoting data-driven decision-making at all levels of the health system.

Enhance community engagement and ownership: Strengthen community participation mechanisms, including the role of community dialogue committees, to improve

CHW acceptance, accountability, and effectiveness.

Supportive supervision: Establish appropriate supervisor-CHW ratios, train and resource supervisors to provide meaningful, regular performance evaluation and feedback; and Use supervision tools, data and feedback to improve quality.

Improve logistical and operational support: establish structured and regular supervision mechanisms at the district and health area levels, including clear supervision plans, standardized tools, means of movement and accountability frameworks to improve the quality of CHW service delivery.

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Disclaimer

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Competing Interest Statements

The authors have declared that there is no competing interest existing with respect to this study and publication.

Author Contributions

Afanji S N, Sebit M, and Ajonina M. participated in all stages of this paper, from the study design, method, data collection, analysis and paper writing. Nana C. participated in methods and data analysis.

Ethical Approval

Ethical approval was obtained from the Ethical committee of the Southwest Regional Delegation of Public Health, Cameroon. Ref. No873/CRERSH/SW/C/04/2025.

Data Availability

The primary data collected and analyzed in this study are available from the corresponding author on reasonable request.

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