Assessing the Effectiveness of Community Health Worker Programs on Healthcare Accessibility and Utilization in Luapula Province, Zambia

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DOI: https://doi.org/10.47772/IJRISS.2026.10200200

Received: 12 February 2026; Accepted: 17 February 2026; Published: 01 March 2026

ABSTRACT

Community Health Workers (CHWs) play a critical role in strengthening primary health care systems and improving healthcare access in underserved communities. However, evidence on the operational effectiveness of CHW programs at sub-national level remains limited. This study assessed the effectiveness of Community Health Worker programs on healthcare accessibility and utilization in Luapula Province, Zambia. A mixedmethods research design was used, combining quantitative and qualitative approaches. Primary data were collected from 95 CHWs, 190 community members, and 15 facility-based health workers using structured questionnaires, interviews, and focus group discussions. Quantitative data were analyzed using descriptive statistics and exploratory factor analysis in SPSS to validate constructs related to training, motivation, logistics, and resource mobilization, while qualitative data were analyzed thematically. Findings show that CHW programs significantly contribute to community health project implementation through training exposure, worker motivation, and community-level engagement. Most CHWs reported receiving periodic training and demonstrated professional service delivery practices. However, major gaps were identified in availability of medicines, transport, diagnostic tools, communication equipment, and referral systems. Motivation mechanisms existed but were inconsistent across programs. Resource mobilization systems were present but weakly funded and lacked transparent community participation. The study concludes that while CHW programs positively influence healthcare accessibility and utilization, their effectiveness is constrained by systemic resource and support limitations. Strengthening phased training models, harmonizing incentives, improving logistics support, and enhancing community resource mobilization structures are essential to improve program performance and sustainability.

Keywords: Community Health Workers, Primary Health Care, Health Systems Strengthening, Community Participation, Program Implementation, Zambia

INTRODUCTION

Community Health Workers (CHWs) play a pivotal role in bridging the gap between communities and formal health systems, particularly in rural and underserved settings. Globally, CHW programs are recognized as costeffective strategies for expanding primary healthcare coverage and advancing universal health coverage goals [1]. Evidence demonstrates that well-supported CHW programs improve maternal and child health outcomes, disease prevention, and health education uptake [2].

In Zambia, CHWs operate within decentralized health structures to deliver promotive, preventive, and selected curative services. The National Community Health Strategy emphasizes task-sharing and community participation as mechanisms for strengthening primary healthcare delivery [3]. However, implementation challenges persist, including inconsistent training models, weak supervision systems, limited incentives, and shortages of essential supplies.

Determinants of CHW effectiveness commonly identified in the literature include training quality, supervision, motivation, logistics availability, and community engagement [4][5]. While national-level assessments exist, provincial-level empirical evaluations within Zambia remain limited. This study addresses that gap by examining CHW program effectiveness in Luapula Province.

Conceptual Framework This study is anchored in the Health Systems Strengthening framework, particularly the WHO health system building blocks (service delivery, health workforce, medical products, financing, governance, and information systems) [1]. Training and motivation relate to the health workforce block; logistics availability aligns with medical products and service delivery; and resource mobilization reflects financing and governance dimensions. By situating CHW performance within this systems perspective, the study examines how structural inputs influence healthcare accessibility and utilization outcomes.

The study was guided by the following research questions: 1. How does CHW training influence healthcare accessibility and utilization? 2. What is the effect of motivation mechanisms on CHW performance? 3. How does availability of logistics and supplies affect service delivery? 4. What role does community resource mobilization play in sustaining CHW programs?

METHODOLOGY

A mixed-methods research design was adopted to integrate quantitative and qualitative evidence. This approach enabled triangulation of findings from CHWs, community members, and facility supervisors. The study was conducted in selected districts of Luapula Province. The target population included approximately 2,000 CHWs operating across 12 districts, community members served by CHWs, and facility-based supervisors.

Using Yamane's (1967) formula at a 10% margin of error, 95 CHWs were selected through simple random sampling from district registers. A 1:2 ratio was applied to include 190 community members who had interacted with CHWs within the previous 12 months. Fifteen facility-based supervisors were purposively selected based on their oversight responsibilities. Structured questionnaires were developed based on established CHW performance domains identified in prior studies [4][5]. The instruments contained Likert-scale items measuring training adequacy, motivation mechanisms, logistics availability, resource mobilization, and perceived healthcare utilization outcomes. Content validity was ensured through review by public health experts. A pilot test was conducted in a non-study district to refine wording and enhance reliability.

Quantitative data were analyzed using descriptive statistics (frequencies, percentages, and means). Exploratory factor analysis was conducted to confirm construct grouping and internal coherence of items. Only factor loadings above 0.5 were retained for interpretation. The analysis was exploratory and intended to validate measurement constructs rather than establish causal inference. Qualitative data from interviews and focus group discussions were transcribed verbatim and analyzed thematically. Coding categories were aligned with the study objectives, and representative participant quotations were used to enrich interpretation.

Ethical Considerations Ethical approval was obtained from UNZABREC. Participation was voluntary and informed consent was secured from all respondents.

RESULTS

Demographic Characteristics Among CHWs surveyed, 58% were female and 42% male. The majority were aged between 31 and 50 years. All respondents had at least primary education, with many possessing secondary-level qualifications, supporting functional literacy for training uptake.

Factor analysis confirmed validity of constructs for training, motivation, facility availability, resource mobilization, and program implementation using acceptable loading thresholds.

Training indicators showed that most CHWs reported receiving initial training prior to deployment and periodic refresher training. Factor analysis confirmed clustering of training-related variables, indicating internal consistency in measuring training adequacy. However, exposure visits and benchmarking opportunities were limited.

Motivation mechanisms such as allowances, community recognition, and supervisory support were reported. Implementation was inconsistent, with some CHWs indicating irregular financial incentives. Qualitative findings revealed that community recognition enhanced morale, but lack of standardized incentive frameworks affected retention.

Logistics and supply availability of medicines, transport (such as bicycles), diagnostic kits, and communication equipment was reported as insufficient in several catchment areas. Limited referral coordination and transport support reduced effectiveness in emergency response situations.

Resource mobilization structures through Community-level resource mobilization committees existed but were weakly funded and lacked structured financial planning mechanisms. Participation in budgeting processes was limited, affecting long-term sustainability.

DISCUSSION

The findings demonstrate that CHW programs in Luapula Province positively influence healthcare accessibility and utilization through training, community engagement, and basic service provision. Consistent with global evidence [2][4], training enhances competency and confidence in service delivery.

However, logistical constraints emerged as significant operational barriers. Shortages of medicines and transport reduce CHWs' capacity to reach remote households effectively. This aligns with health systems literature emphasizing that workforce capacity must be supported by adequate medical products and service delivery infrastructure [1].

Motivation mechanisms were present but fragmented. Harmonized and standardized incentive systems are essential to ensure sustainability and reduce attrition. Weak community financing mechanisms further limit longterm program resilience.

By providing provincial-level analysis, this study highlights contextual operational realities that may be obscured in aggregated national assessments. The mixed-methods design strengthens interpretive depth by triangulating quantitative patterns with qualitative insights.

Study Limitations

The study relied primarily on self-reported data, which may introduce response bias. The quantitative component employed descriptive and exploratory analyses without inferential modeling; therefore, causal relationships cannot be established. Additionally, the findings are specific to Luapula Province and may not be fully generalizable to other regions of Zambia.

CONCLUSION

CHW programs in Luapula Province contribute significantly to healthcare accessibility and utilization but remain constrained by logistics, incentives, and resource system weaknesses. Strengthened phased training, harmonized incentive frameworks, improved supply and transport systems, and participatory resource mobilization are critical to maximizing program impact and sustainability.

ACKNOWLEDGEMENTS

The author acknowledges all participating Community Health Workers, community members, and health facility staff for their valuable contributions to this study.

Conflict Of Interest

The author declares no conflict of interest.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable academic request

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