THE EFFECTIVENESS OF THE VILLAGE HEALTH TEAMS (VHTS) IN PROMOTING PRIMARY HEALTHCARE IN UGANDA.

A LITERATURE REVIEW

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The Effectiveness of the Village Health Teams (VHTs) in Promoting Primary Healthcare in Uganda.

A thesis submitted in partial fulfillment of the requirements for the degree of

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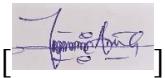
by

Obwol Richard

Declaration: I declare this thesis (**The Effectiveness of the Village Health Teams (VHTs) in Promoting Primary Healthcare in Uganda**). Where other people's work has been used (from either a printed or virtual source, or any other source), this has been carefully acknowledged and referenced in accordance with academic requirements.

The thesis [The Effectiveness of the Village Health Teams (VHTs) in Promoting Primary Healthcare in Uganda] is my own work.

Signature: []

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Abstract:

Introduction: Despite significant gains in Uganda's primary healthcare, about 25% of Ugandans still face substantial barriers to accessing health services due to distance, poverty, and inadequate infrastructure. Village Health Teams (VHTs) were established to bridge these gaps, but there are concerns regarding their reach, effectiveness, and ability to improve community health outcomes.

Methodology: This study systematically reviewed literature published between January 2001 and May 2025, using databases such as PubMed, Google Scholar, AJOL, and the Vrije Universiteit library, along with search engines and websites of organizations including WHO, UNDP, UNFA, the Uganda Bureau of Statistics, and Uganda's Ministry of Health. Study selection, data extraction, and synthesis were guided by the PICO model and an adapted performance measurement framework by Agarwal et al. to analyze the competencies, development, support systems, and accessibility of VHTs within Ugandan communities.

Results: The findings indicate that VHTs are effective in promoting primary healthcare by leveraging their strong community ties to promote health education and disease prevention. Nonetheless, their overall impact is hindered by gaps in practical training, limited and non-standardized support, weak incentive structures, and poor integration with the formal health system, leading to absenteeism, dissatisfaction, and attrition.

Discussion and Implications: While VHTs have transformed aspects of local health service delivery, there is insufficient evidence directly linking their interventions to sustained improvements in community health outcomes. Strengthening training, establishing sustainable support systems, and integrating VHTs into the national health framework are crucial for realizing their potential and achieving broader health gains across Uganda.

Keywords: Community health workers, village health workers, lay health workers, effectiveness, performance.

Word Count: 8,958

Table of contents (including page numbers for chapters and/or sections)

List(s) of tables and figures:

Figures.

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List of abbreviations

AJOL: African Online Journals.

CHWs: Community Health Workers.

GDP: Gross Domestic Product.

HIV/AIDS: Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome.

iCCM: Integrated Community Case Management.

MOH: Ministry of Health.

PBIs: Performance-Based Incentives

TB: Tuberculosis.

ttC: Timed and Targeted Counselling.

UHC: Universal Health Coverage.

UNDP: United Nations Development Programme**.**

UNPFA: United Nations Population Fund Activities.

VHCs: Village Health Committees

VHTs: Village Health Teams.

Glossary of key terms:

Decentralization: Transferring decision-making authorities from the central Ministry of Health to more local administrative levels, especially to the district local government(1).

Effectiveness: In this study, effectiveness is defined by the extent to which VHTs enable communities to access, utilize, and benefit from primary health care services, resulting in improved health outcomes and stronger links to the formal health system(2,3).

Integrated Community Case Management (iCCM): iCCM generally refers to an integrated approach for assessing and classifying signs and symptoms of pneumonia, diarrhea, malnutrition, and malaria in children under five, providing home-based treatment, or referring children presenting with danger signs(4).

Primary Health Care: "A whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people's needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people's everyday environment."(5).

Universal Health Coverage (UHC): Universal health coverage (UHC) means that all people have access to a full range of quality health services they need, when and where they need them, without facing financial hardship. It includes the entire spectrum of essential health services, from health promotion and prevention to treatment, rehabilitation, and palliative care throughout the life course(6).

Village Health Teams (VHTs): The Village Health Team is a community-based (village) structure whose members are selected by the people themselves to promote the health and well-being of the people in their areas of residence/jurisdiction. It is the lowest healthcare delivery structure and serves as Health Centre I(3).

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I want to express my heartfelt gratitude to my family for their unwavering support and encouragement throughout this one-year master's program. My sincere thanks also go to the KIT Fund Scholarship for their generous financial assistance. I am deeply appreciative of the support I received from the course facilitators, my academic advisor, and my thesis advisor, whose guidance has been invaluable during this journey.

1.0. Introduction:

About the Author.

The author is a public health practitioner with six years of experience in health education, sensitization, and community-based rehabilitation. Having worked closely with Village Health Teams (VHTs) supporting children with disabilities in Uganda and CHWs in other low-income countries, he has witnessed the challenges faced in accessing essential services. VHTs are the primary point of contact for patients in most communities in Uganda, especially in remote areas. However, little is known about the effectiveness of their efforts in the communities they serve. This experience inspired the choice of a thesis focused on VHTs in Uganda. The author's future career goal is to strengthen CHW capacity and ensure adequate human resources for health at the community level, improving access to quality health and rehabilitative services for vulnerable populations.

1.1. Background

1.1.1. Demographics Information.

Uganda's population increased by 11.3 million from 34.6 million in 2014 to 45.9 million in 2024, representing a population growth rate of 2.9%, down from 3.0% in 2014, and a life expectancy at birth of 68.2 years. While the figure fluctuates, approximately 73% of Ugandans live in rural areas (7). The proportion of the population living within 5 km of a health facility is estimated to be 72% according to the Annual Health Report 2023/24, indicating that 28% of the population travel more than 5km to access healthcare in a public facility, a reason for the importance of VHTs.

However, statistics on general healthcare access are not clear; some estimate 80%, others 77%, mainly focusing on specific health problems, for instance, HIV/AIDs, maternal health(8,9). Persistent communicable diseases primarily drive Uganda's health burden. Malaria, despite reduced incidence, remains life-threatening, while HIV/AIDS and TB continue to pose significant challenges, accounting for 40.4% of all mortality. Furthermore, the health system struggles with human resource deficits, with only 34% of public facility positions filled, which impacts overall service delivery and progress towards comprehensive health goals (10).

1.1.2. Health Financing.

While Uganda's General Government Expenditure (GGE) as a share of GDP increased from 17% in 2002 to 20% in 2022, only 1% of GDP is allocated to health(11), which is well below the recommended 5% for achieving Universal Health Coverage (UHC)(12). Furthermore, government domestic health spending as a percentage of total health expenditure has experienced only a marginal increase, rising from 17.8% in 2002 to 22.3% in 2022, representing just 4.9% of total government expenditure, far short of the 15% Abuja Declaration target(13).

Out-of-pocket (OOP) payments make up 34.1% of total health spending(14), and health insurance coverage reaches only 1.1% of the population(15). This exposes millions, particularly the poor, to catastrophic health costs, impeding access to essential services and undermining progress toward UHC, which is founded on equity, non-discrimination, and financial protection. Also, external partners finance up to 41.3% of Uganda's total health expenditure, underscoring a high level of donor dependency(14).

1.1.3. Healthcare Delivery and Administration Arrangement.

The Ministry of Health (MoH) serves as the central authority for Uganda's health sector, overseeing the organization, delivery, and management of curative, preventive, promotive, palliative, and rehabilitative health services in line with the Health Sector Strategic Plan II (HSSP II). Health service provision in Uganda is decentralized, with districts and health sub-districts (HSDs) playing pivotal roles in managing and delivering services at their respective levels.

Unlike many other countries, Uganda does not have an intermediate administrative layer, such as provinces. The health system is organized into several tiers: National Referral Hospitals (NRHs), Regional Referral Hospitals (RRHs), general hospitals, Health Centre IVs, Health Centre IIIs, and Health Centre IIs. Health Centre-I does not have a physical facility; instead, it consists of the Village Health Team (VHT), a group that acts as a bridge between the community and health

facilities(16,17). *Please refer to Figure 4 in the appendices below for a detailed description of the healthcare delivery structure in Uganda.*

1.1.4. Origin of the VHTs' Program.

Uganda, through the Health Sector Strategic Plan I in 2001, decentralized healthcare service delivery by establishing Village Health Committees (VHCs) to enhance community health management(18). This followed the establishment of the National Health Policy in 1999, in response to the 1978 Alma-Ata Declaration on Community Health Workers. VHCs were expected to identify communities' health needs, mobilize additional resources, and monitor utilization, overseeing community health services and promoting health-seeking behaviors and lifestyles. Additionally, VHCs were to ensure gender balance in health service delivery and facilitate collaboration across sectors to improve access to health services for marginalized groups(18).

However, the implementation of VHCs was slow until 2010 in when they were rebranded "Village Health Teams (VHTs)". From 2010 through the Uganda National Health Policy (NHP), VHTs were expected to consist of 9-10 members, with at least one-third being women. VHTs have remained the first patient contact and crucial links between communities and formal health providers, enhancing access to essential health services(19).

1.1.5. VHT Implementation:

From 2010, VHTs' implementation became evident, where communities selected trusted members of their own to link them with the formal health system. VHTs work voluntarily, supervised by nurses, involving the community in health activities, preventing illness, treating minor health issues at home, identifying and reporting serious health concerns, and keeping health records updated for the village(3). While the Ministry of Health took up the role of providing policy oversight and training, by 2015, Uganda had 179,175 VHTs actively operating in their respective communities, and 30% of these VHTs had not undergone the recommended 5-day training(20).

CHWs such as VHTs continue to play crucial roles in managing common illnesses like malaria, HIV/AIDS, TB, and diarrheal diseases, which remain the leading causes of morbidity and mortality in Sub-Saharan Africa (16). Many countries in the region depend on CHWs to fill healthcare gaps caused by weak health systems, poverty, and geographic barriers. For example, VHTs have successfully implemented Integrated Community Case Management (iCCM) programs to treat childhood illnesses in Uganda (17).

As highlighted again by the World Health Organization (WHO) in 2018, strengthening Community Health Worker (CHW) programs has been shown to improve health outcomes, especially in achieving Sustainable Development Goals (SDGs) related to health. Community health workers (CHWs) are acknowledged as a foundation of primary healthcare, particularly in low- and middle-income countries (LMICs).

Their contributions are vital for advancing universal health coverage (UHC) and addressing the health needs of underserved populations. CHWs are often responsible for delivering essential health services, such as health education, disease prevention, and management of common illnesses (18). As part of Uganda's health sector reforms aimed at increasing access to essential healthcare services, these community-based volunteers play a key role in providing primary healthcare in rural areas with limited infrastructure and personnel. VHTs are expected to promote

health, prevent disease, and manage common illnesses such as malaria, respiratory infections, and diarrheal diseases. They are also expected to mobilize the community for health actions, report and refer sickness to health facilities, and maintain village records (11,19).

1.2. Problem statement, Justification, Objectives:

1.2.1. Problem Statement.

Uganda's health story is shaped by rapid population growth, where the predominantly rural population, and people living in urban slums below the poverty line, still face significant barriers to accessing medical care. Despite decentralization and efforts to expand health services, more than a quarter of Ugandans still live too far from a health facility to receive timely care(7)(8). Chronic underfunding and staff shortages mean that government resources fall short, leaving many public health positions unfilled, and families shouldering high out-of-pocket expenses. In this setting, preventable diseases such as malaria, HIV/AIDS, and tuberculosis continue to have a devastating impact, while maternal and child mortality, though improved, still exceed national targets (10). To bridge these persistent gaps, Uganda has placed Village Health Teams (VHTs) at the center of its community health strategy(21). According to the health sector strategic plans I, II, and III, these volunteers are entrusted with delivering basic health services, education, and disease prevention to the most vulnerable and hard-to-reach communities(16,22).

However, concerns remain about the effectiveness of VHTs, and questions persist as to whether they can genuinely reach all who need them and achieve sustained health improvements at the community level(23). Gaps in coverage, inconsistent support, and other system-level challenges have left some communities underserved, casting doubt on the full potential of this approach(24).

As Uganda works toward achieving universal health coverage amid ongoing health threats and resource limitations, the effectiveness of VHTs is becoming a critical issue that requires urgent investigation. Understanding what influences or hampers the effectiveness of VHT is now a national priority. Without solid evidence and action, Uganda risks leaving its most vulnerable rural populations behind, far from achieving the goal of equitable and accessible healthcare for all.

1.2.2. Justification.

Despite ongoing health sector reforms in Uganda, many rural residents and urban poor still face significant barriers to healthcare, including distance, poverty, and inadequate health infrastructure. Village Health Teams (VHTs), launched over two decades ago, play a central role in bridging these gaps by delivering community-based health education and services. However, persistent challenges in training, motivation, and community support hinder their impact.

Doing nothing would mean accepting preventable disease, avoidable deaths, and continued health inequity for millions, contrary to Uganda's national goals and global commitments such as the Sustainable Development Goals. Failure to critically review and strengthen the VHT approach risks further eroding public confidence and allowing resource limitations and system weaknesses to undermine national progress. As Uganda's demographic and urbanization patterns shift, those in both remote rural areas and poor urban suburbs remain vulnerable unless targeted, effective interventions reach them. Although a local study indicates that communities with VHTs have

higher healthcare utilization and satisfaction(25), current evidence is fragmented and often limited to specific districts or health outcomes, providing limited insight into broader impacts, such as disease prevention, maternal and child health, or health knowledge across all at-risk groups.

Major national reviews highlight that VHT contributions and challenges vary by context, and that comprehensive, up-to-date evidence is lacking(20). Critical gaps remain around how well VHTs serve hard-to-reach populations and what system or program changes could increase their effectiveness across Uganda. This study addresses these essential gaps by systematically reviewing literature from across Uganda to assess the actual effectiveness of VHTs, focusing not only on rural communities but also on people living in poverty in urban and peri-urban settings. By doing so, the research will generate actionable, evidence-based recommendations for the Ministry of Health and its partners to optimize VHT support, improve healthcare equity, and prevent avoidable illness and death among the country's most vulnerable citizens.

1.2.3. General Objective:

To review the effectiveness of the Village Health Teams (VHTs) in promoting primary healthcare and the general health outcomes of the communities in Uganda, focusing on VHTs' competency, development, supportive systems, and access.

1.2.3.1. Specific Objectives:

1. Analyze the VHTs' programmatic processes, focusing on development and supportive systems for their operation.
2. To determine the community Health Systems' performance in promoting primary health care through VHTs in Uganda.
3. To identify major changes in community health outcomes from VHTs' services.
4. Provide recommendations to the Ugandan Ministry of Health and implementing partners for enhancing the VHTs program, including its sustainability.

2.0. METHODS AND ANALYTICAL FRAMEWORK:

2.1. Methods.

This study will employ a comprehensive literature review as the primary method to assess the effectiveness of VHTs in promoting primary Healthcare.

2.1.1. Search Strategy

Four academic databases and search engines, including PubMed, Google Scholar, AJOL, and the Vrije Universiteit library, will be utilized in this study to search for relevant articles. These will provide diverse resources for researching VHTs in Uganda. They offer access to peer-reviewed, local, and multidisciplinary research, supporting comprehensive study through free, region-specific, and institutionally accessible materials.
Keywords to develop search string include "Community health workers, village health teams, VHTs, village health committees, VHCs, lay health workers, village health workers, effectiveness, evaluation, impact, evaluation, performance, utilization, value, effect, efficiency", connected by the Boolean operators 'AND' and 'OR'. (*See the search combination table .1 in the appendices below for more details*.)

2.1.2. Search Strings

PubMed, AJOL, and Google Scholar:
("Village Health Team*" OR "lay health worker*" OR "village health worker*" OR VHT OR "community health worker*" OR "village health committee*"OR VHC) AND (effectiveness OR impact OR evaluation OR performance OR development OR competency OR wellbeing OR utili?ation OR value OR effect OR efficiency OR productivity OR yield OR efficacy OR result OR competence OR functionality OR outcome OR success OR access OR benefit OR achievement OR influence OR quality OR improvement OR potency) AND (Uganda).

Vrije University:
("community health worker*" OR "village health team*" OR VHT OR "village lay worker*" OR "village health committee" OR VHC OR "village health worker*") AND (effectiveness OR utili?ation*) AND (Uganda).

The literature search focuses on relevant studies published in databases, repositories, and search engines mentioned above between 2001 and 2025, primarily in English. To ensure a thorough exploration of the subject, the search also included websites such as the Ministry of Health (MoH) Uganda, the World Health Organization (WHO), UNDP, UNFA, and the Uganda Bureau of Statistics (UBOS).

2.1.3. Eligibility Criteria

Studies published from January 2001 to May 2025 on VHTs, VHCs, or CHWs in Uganda, including peer-reviewed original articles, government reports, and reputable gray literature, will be included. Studies published before 2001, those conducted outside Uganda, those not written in English, those not directly relevant, and opinion pieces lacking primary research data shall be excluded. Additionally, studies that do not conform to the selected components of PICO, that is, Population, Intervention, and Outcome (PIO), will not be considered.

2.1.4. Study Selection Process

Only the author of this paper was involved in the selection and screening of articles in this study. Up on application of the search string on the databases, the search yielded N=15,315 papers which were imported to Mendeley reference manager, and after thorough and systematic initial screening, N=3,860 duplicates were removed using Mendeley referencing manager, and N=2,954 by the author for other ineligibility reasons (not limited to cost levy, although attempts were made to reach out to authors, no response was received in the review period, and non-English). N=9,140 were selected for the topic and abstract screening stage, and after skimming through the list using the selection criteria, N=932 were manually removed by the reviewer/author. Out of the N=112 that underwent full-text eligibility screening, including N=23 from other sources, N=53 articles were selected for review. *Refer to the PRISMA flow chart (Figure 5 in the appendices) for details on article selection.*

2.1.5. Data Extraction

The selected papers are entered manually by the author on the Excel data extraction template, capturing the year of publication, authors, study characteristics, participants' details, and outcomes.
The article selection framework utilized elements of the PICO model, focusing on Village Health Teams (Population) and VHT programs/activities (Intervention), to analyze the effectiveness of VHTs in promoting primary healthcare (Outcome). This structured approach ensured a comprehensive analysis of VHT effectiveness in Uganda.

For this study, the ranking of 'low' (below 50% rating) and High (Above 50% rating) may be used to describe the performance of VHTs in promoting primary health care to their communities.

2.2. Analytical Framework.

At the initial stages of the project writing, the study adapted the framework of Agarwal et al. *Human Resources for Health*(26), (*Figure 6 in the appendices below*), developed through a systematic review and comprehensive consultations to measure the performance of Community Health Workers worldwide, the measure was adapted since it closely reflects the original objectives of the Village Health Teams program, as stated in Section ***1.1.5*** of the VHT implementation. This framework provides a list of indicators, domains, and criteria for measuring the performance and effectiveness of the community health workforce. The adaptation included the removal of Input Sections, economic evaluation, Equity, gender, and accountability sections, as well as a subsection on community support, to fit the contextual relevance of Uganda and provide adequate answers to the objectives of this study. (*See the adapted framework in Figure .1 below).*

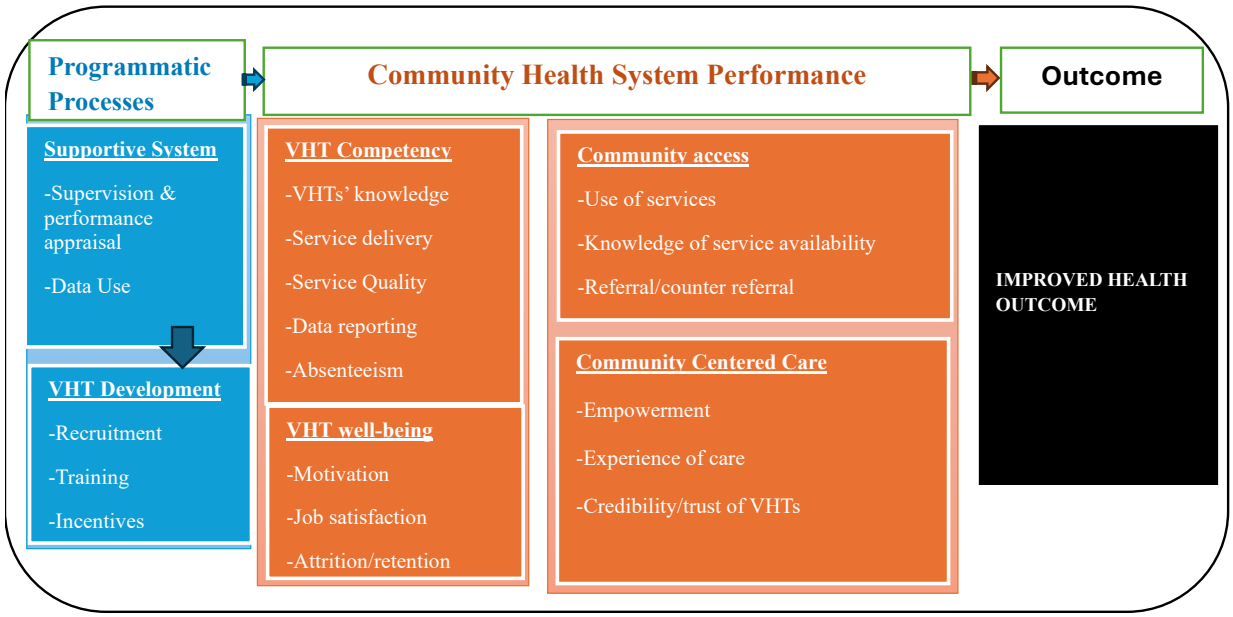

Figure 1. Adapted framework from Agarwal et.al, 2019

3.0. STUDY RESULTS/FINDINGS:

This section begins with a general overview of the literature included in the review, followed by a quick summary of papers on the effectiveness of Village Health Teams, and a brief description of the framework used for structuring the results.

3.1. Overview of Records.

As shown in the adapted PRISMA diagram (*See **figure 2** below for more details*), the literature search yielded 15,315 records from four databases and 33 additional sources (organizational reports and snowballing). After removing 3,860 duplicates and excluding 2,954 records for other reasons, including paywalled access, 10,529 records remained for title and abstract screening. Of these, 112 articles were selected for full-text review, and 53 studies ultimately met the inclusion criteria(*Please, also refer to **Table 2** in the supplementary appendix for full list of studies included*).

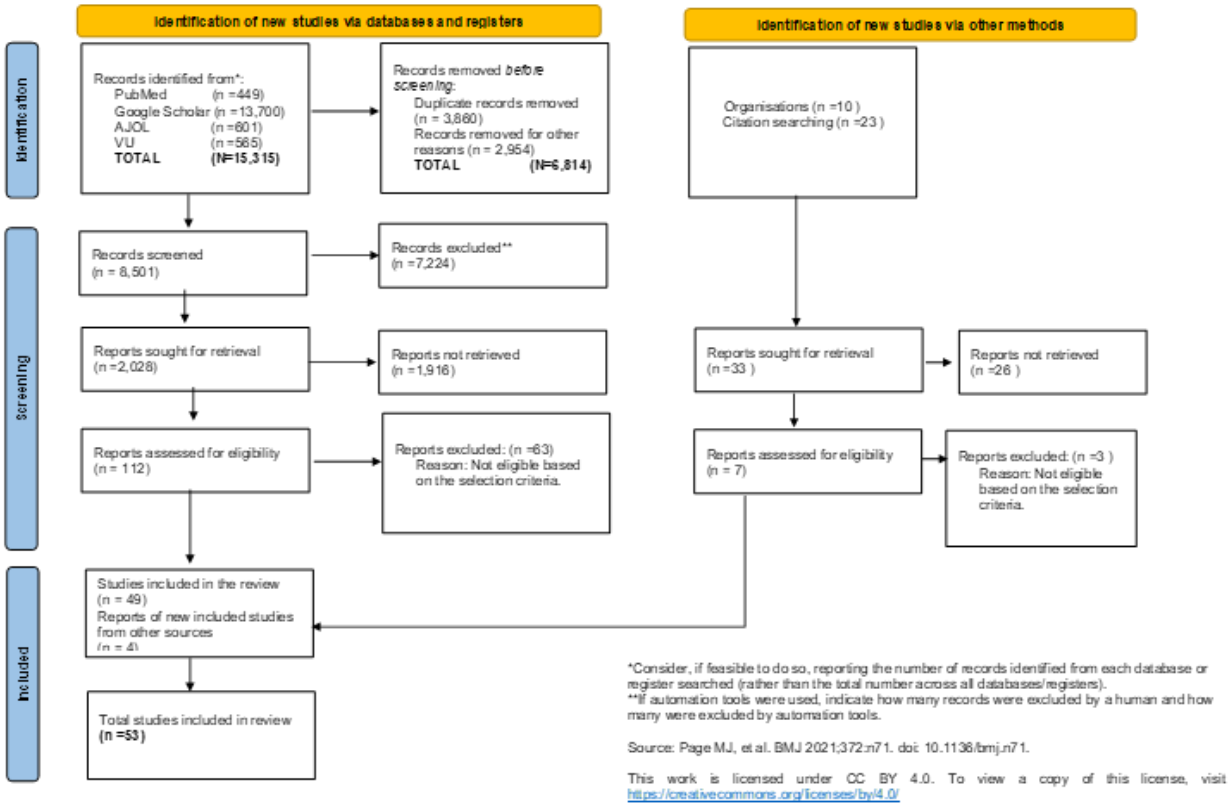

Figure 2. PRISMA flow chart.

Despite a comprehensive search in the above databases using a range of strategies, no literature was found between the years 2001 and 2009. The included studies span the years 2010 to 2025, with a bimodal distribution peaking around 2015 and again in 2021/2022. (*see Figure 3, line graph below*). These studies covered diverse thematic areas, including maternal and newborn health (24/53), infectious diseases (9/53), non-communicable diseases (2/53), disease surveillance (1/53), and general health promotion and community mobilization (17/53). They represented five regions of Uganda: Eastern (11), Western (13), Central (14), Northern (3), and 12 studies did not specify their regions. Of the included records, 49 were peer-reviewed articles and 4 were from the gray literature. Study methodologies included 12 qualitative, 19 quantitative, and 22 mixed-methods studies.

Figure 3. The bimodal distribution of papers included for review by year of publication.

Of the 53 studies selected, 22 utilized mixed methods (combining both qualitative and quantitative approaches), 20 relied exclusively on quantitative methods, and 11 collected data solely through qualitative techniques, as shown in *fig. 4, below*.

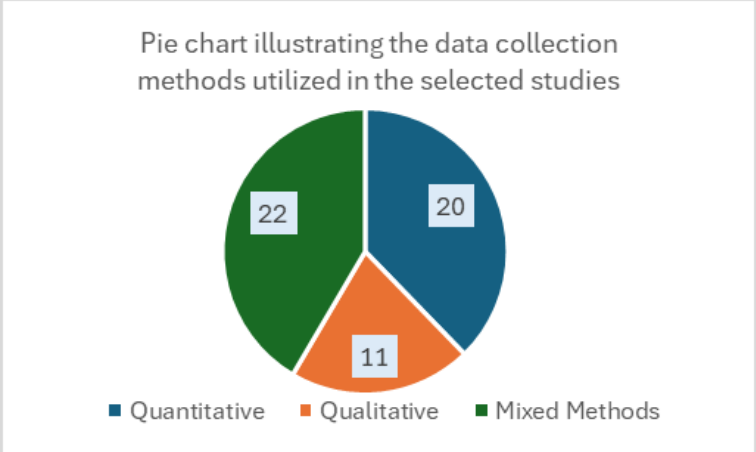

Figure 4. The study methods used by the papers included in the review.

3.2. Effectiveness of VHTs.

VHTs' effectiveness, as measured by their performance levels, varied significantly across reviewed studies. Of the 53 studies analyzed, 25/53 reported on the performance of Village Health Teams (VHTs). Notably, 18/53 of the articles rated VHTs as high performers, with scores above 50% on key performance indicators such as health education and community mobilization(27,28,29). In contrast, 6/53 of the studies reported low performance, with scores below 50%(30,31), while the remaining 8/53 did not document the performance of VHTs. These disparities highlight regional differences, with the Western and Central regions consistently demonstrating higher performance compared to other areas of the country.

Analysis of temporal trends reveals an evolution in the VHT program focus from early emphasis on communicable diseases(32, 33), maternal and child health (34,35) to the more recent expansion into non-communicable diseases(36) and specialized roles like hypertension or diabetic care(37) including dementia(38) Similarly, early studies (2010-2018) predominantly focused on service delivery and acceptability, while recent research (2019-2024) has increasingly examined sustainability and integration factors (39,40,41).

3.3. Framework analysis of VHT's effectiveness

The results of this review are organized using a modified analytical framework from Agarwal et al. (26), which frames community health workforce performance within primary health systems. This model provided a comprehensive approach to reviewing the evidence across three key areas: programmatic processes, community health system performance, and health outcomes. Using this structure enabled a systematic exploration of how supportive systems and VHT development efforts influence key performance measures, ultimately shaping health outcomes.

The following sections detail the results according to each domain of the framework, starting with programmatic processes and supportive systems, then discussing community health system performance metrics, and concluding with reported health outcomes and their connection to the corresponding performance elements as discussed below.

3.3.1. Programmatic Processes:

3.3.1.1. Supervision and Performance Appraisal

Supervision and performance appraisal emerged as central themes in shaping the effectiveness of VHTs across multiple dimensions of primary health care. 25/53 of the studies reviewed documented regular and multi-level supervision involving district health providers, trained professionals, and project staff, who monitored VHTs as they deliver primary health care services. Health promotion activities are supported through routine oversight, with VHTs consistently reporting to health facilities and receiving feedback on community mobilization campaigns focusing on hygiene, nutrition, and healthy behavior(27,34,42). Supervision also played a pivotal role in disease prevention: supervisors conducted bi-monthly visits to villages, verifying at least 70% of VHT-reported activities, and ensuring initiatives such as mosquito net distribution and vaccination drives were effectively implemented. These supervisory visits are most often scheduled when a VHT records a minimum of eight activities, thereby optimizing the efficient use of resources (43). In the domain of health education, parish-level meetings led by project staff

helped VHTs adopt new procedures, improve record-keeping, and manage complex interactions, such as addressing caregiver concerns about withheld treatments(44). Screening for health conditions is reinforced through direct observation by trainers, although only about 20% of VHTs reported being assessed in this manner, to ensure adherence to protocols and quality standards (45). Support is further maintained through group meetings, phone calls, and in-person visits from local health facility staff (44), as well as representatives from organizations such as UNICEF and various NGOs (46). These platforms enabled ongoing performance feedback, sustained accountability, and promoted best practices in therapeutic care and community engagement(47–49). Despite these supportive mechanisms, significant barriers are reported. In one study, 80% of VHT members cite inadequate supervision as a key challenge, while high proportions also identify drug supply shortages (90%), insufficient training (76%), limited political commitment (67%), policy framework gaps (78%), and the lack of financial allowances (90%) as factors negatively affecting their service delivery(50). 26/53 of the studies have not documented any aspect of supervision or performance appraisal, indicating that nearly half of the reviewed literature failed to capture data on these critical elements of VHT support(29,41,51–53).

3.3.1.2. Data use by VHTs

While demonstrating the effective use of digital tools as a critical component of integration with the formal health system, VHTs collect and promptly share data with health facilities, enabling facility-based health workers to provide timely feedback and targeted support. These regular interactions between VHTs and their supervisors not only reinforced initial training but also helped maintain high standards of practice throughout service delivery.(27,46,54,55)

3.3.1.3. VHTs' Recruitment

In addition to the effective use of data, the recruitment of VHTs also played a crucial role in their overall effectiveness. VHTs were especially valued when they were chosen by the communities they would serve. This community-based selection fostered trust and increased the legitimacy of VHT programs(23,56). However, challenges arose when the selection process lacked transparency or excluded input from the wider community. In such cases, the involvement of only local leaders in choosing VHTs sometimes led to distrust among community members and undermined confidence in the program's legitimacy(57,58).

3.3.1.4. VHTs' Training

Training has been a fundamental component in enabling VHTs to promote effective primary healthcare in Uganda. Initial training, as documented in 14 studies, typically ranged from three to ten days, with a duration of five days being the most common, as reported in seven studies. Before 2015, the focus was mainly on maternal and child health, empowering VHTs to lead health promotion and disease prevention efforts through instruction on child health, basic illness management, newborn care, and family planning(34,59). Regular refresher sessions and practical exercises helped sustain knowledge and outreach(60).

From 2015 to 2019, training content expanded to address broader community health needs: education modules incorporated non-communicable diseases such as hypertension and diabetes, alongside continued emphasis on communicable diseases, sexual and reproductive health(46), and

the introduction of mobile technologies for data collection and patient monitoring(37, 46, 61). More frequent refresher courses, certification opportunities, and performance-based incentives further strengthened VHTs' skills in health education, screening, and therapeutic care(37,40,45,53,61–63). Between 2020 and 2023, the curriculum expanded to include topics such as health ethics, confidentiality, management of sensitive disclosures, nutrition, mental health, HIV care, prevention, and management of chronic illnesses, including public health reporting systems, thereby reinforcing comprehensive care and community mobilization (64,36). Nevertheless, gaps remain, as 17 out of the 53 studies reviewed did not report on the training component, underscoring the need for better documentation and standardized training to ensure that all VHTs are equipped for their diverse roles in primary health care(65–67).

3.3.1.5. Incentives, Materials, and Resources

Since the inception of the VHTs' program, the support VHTs receive in the form of incentives, materials, and resources has undergone significant evolution. In the early years, before 2015, VHTs operated primarily on a volunteer basis, with established operational guidelines in place.(3), recommending basic non-financial kits such as gumboots, raincoats, job aids, stationery, T-shirts with identification badges, and bicycles. Additional non-monetary support included reporting templates, branded bags, essential medicines, certificates of appreciation, opportunities for further education, and occasional mobile phones to assist them in fulfilling their duties (54,55). While these items provided some recognition and practical support, the provision of incentives was neither consistent nor comprehensive(27,48).

As the program matured, the conversation about VHT motivation broadened, and non-financial incentives also diversified, encompassing not just uniforms and certificates but also opportunities for further training, avenues for professional recognition, public awards, and, occasionally, household support items such as soap or banana seedlings. VHTs were increasingly equipped with updated tools such as pens, pictorial manuals, counseling cards, digital thermometers, medicine boxes, and even "doctor bags" containing essential diagnostic supplies.(43,68,69) Alongside these developments, a noticeable shift occurred from 2015 onward, as financial incentives became more institutionalized. Some programs began providing daily transport and lunch allowances, periodic payments for attending meetings or submitting reports, and monthly facilitation stipends of approximately 50,000 Uganda Shillings.(39,44). Despite substantial progress, however, challenges remain. A study indicates that less than 15% of VHTs in some regions report having access to all basic supplies, demonstrating that, while the approach to supporting VHTs has grown more sophisticated and supportive over time, significant disparities in resource distribution and sustainability persist to this day.(70).

3.3.2. Community Health System Performance:

3.3.2.1 VHTs' Knowledge

VHTs have established a strong foundation of knowledge and practical skills that support their effectiveness across all aspects of primary healthcare. In terms of health promotion, VHTs have reported significant improvements in interpersonal skills, responsibility, and practical abilities such as hygiene and healthy eating, enabling them to guide communities toward healthier behavior

effectively. (52). For disease prevention, quantitative findings show that 93% of VHTs provided treatment for childhood illnesses following clinical guidelines, with particularly high adherence for fever cases (95.5%) and strong implementation for pneumonia (90.1%)(68). Concerning health education, the capacity of VHTs expanded notably after targeted training. For example, knowledge of maternal and newborn health increased from 41.3% to 79.9% a year post-training (40). Additionally, 73.9% of VHTs reported acquiring new skills that enabled them to better educate families on issues such as nutrition and illness management(71).

In the area of screening for health conditions, 75% of VHTs accurately classified malaria according to gold-standard protocols(35), and 75.3% could correctly define non-communicable diseases, with most able to cite key examples such as high blood pressure, diabetes, and cancer(36). Therapeutic care practices were also robust, with 96% of VHTs completing referral forms accurately and 63% achieving high proficiency (with a pass mark above 90%), while most also demonstrated competence in diabetes testing, hypertension assessment, and basic first aid, these core competencies directly informed community mobilization efforts, as improved practical skills and growing confidence enabled many VHTs to proactively provide NCD counseling and referrals, even without formal training, thereby strengthening their role as trusted mobilizers and advocates for primary healthcare within their communities. (71)

3.3.2.2. Service Delivery

VHTs demonstrate outstanding effectiveness in promoting public health through widespread community engagement. Performance-based incentives have helped sustain their motivation.(43). VHTs played a vital role in disseminating information on COVID-19 prevention, vaccination, and hygiene, ensuring communities were well-informed about critical health practices. They also support community-wide disease surveillance by reporting suspected COVID-19 cases to local health facilities.(50,55). Their efforts often extended beyond conventional roles, offering practical assistance such as fetching water and accompanying patients to health facilities.(72). As trusted community members, VHTs maintained strong visibility, enabling them to identify and respond to a broad spectrum of health and social issues.(65).

Disease prevention is a central component of VHT service delivery, involving early screening and detection of health conditions. They successfully identified pregnancies and ensured timely maternal and newborn health interventions(73). VHTs typically conduct two prenatal visits and three postnatal visits within the first week after birth to provide health education and preventive care. On average, households receive 3–4 visits within six weeks, with more frequent visits during pregnancy and postpartum periods(39,43). These prevention efforts are closely linked to their health education responsibilities, which are delivered through home visits(40), counseling, and phone-based communication(41). Health education forms a cornerstone of VHT activities. VHTs provide comprehensive guidance on family planning, distribute various contraceptives (e.g., pills, injectables, condoms), and offer counselling on correct usage. They also mobilize communities for surgical camps, offering long-acting and permanent family planning methods, effectively integrating education with access to services(60).

Their educational role extends to HIV testing and counselling, ensuring communities have accurate information about prevention and treatment options(34). Their screening capabilities are demonstrated through home visits and assessments conducted in accordance with clinical

guidelines, enabling standardized and systematic screening. Additionally, VHTs provide basic therapeutic care, addressing immediate health needs such as minor ailments, using doctor bags to deliver services directly to households(40,45). Their responsibilities also include follow-up care for pregnant women, newborns, and individuals requiring long-term treatment, offering ongoing support and monitoring(73). Community mobilization is another key strength of VHTs; their trusted status and visibility enable them to lead public health campaigns and initiatives effectively(66). They also serve as a vital link to the formal health system by referring clients for further care or management of side effects. This referral function connects communities to essential healthcare services, although referral rates for eligible children remain below optimal levels(40,45,61). Overall, service data underscores their high level of community engagement and their pivotal role in expanding access to essential health services across all aspects of community health(40,48).

3.3.2.3. Service Quality

VHTs play a multifaceted and evolving role in their communities, with efforts spanning health promotion, disease prevention, health education, screening, therapeutic care, and community mobilization. They contributed actively to health promotion by organizing campaigns, distributing mosquito nets, supporting immunization drives(74), and offering family planning advice, while also engaging in disease prevention through HIV counseling and sensitization on maternal and child health(41,48). Their services were highly valued by community members who cited their accessibility, dedication, and provision of effective medicines.(75), especially anti-malarial, and strong referral practices as key strengths(33). Satisfaction rates were strikingly high: among those using VHTs as a first point of care, 98% expressed satisfaction(32)and overall ratings averaged 4.1 out of 5(25).

VHTs were especially trusted for their health education initiatives, offering guidance on nutrition, repeat HIV testing(63), and maternal care, with targeted programs such as timed and targeted counselling (ttC), further boosting early antenatal care attendance and the quality of integrated case management services(69). However, challenges persisted; only about 21% of VHTs were directly involved in mobilization and referrals, and engagement with youth on family planning remained limited due to concerns about privacy. In the area of non-communicable disease prevention, VHTs were hindered by inadequate training, poor knowledge, and negative community perceptions(36).

3.3.2.4. Absenteeism

No study was found on this aspect among the selected articles.

3.3.2.5. Retention, Motivation, Job Satisfaction, and Attrition among VHTs

VHTs in Uganda report motivation and job satisfaction associated with community appreciation, social recognition, modest incentives(56), and improved medicine supply systems, notably aided by using mobile phones to reduce transport costs and ensuring timely delivery(46). Effective performance is reported in connection with supportive supervision and good relationships with healthcare workers(76). Key motivators identified include access to transport, proper identification, and opportunities for ongoing training(77). National quantitative data indicate that VHT functionality is suboptimal, with a low national performance. Regional disparities in

functionality are evident, with Karamoja performing higher than the Central region. Additionally, supervision, performance evaluations, and referral processes are often reported as partially functional or non-functional(78). Training coverage is insufficient, with VHTs having received three days of training, and most lacking refresher training for over a year(50). Declines in knowledge retention following initial training are observed, with knowledge on newborn danger signs and essential newborn care dropping after one year(40). Challenges leading to attrition and dissatisfaction include loss of follow-up, absentee supervision, limited collaboration with health facility staff(76), poor supervision, inconsistent training, and weak integration with the health system(48).

3.3.2.6. Use of Services and Experience of Care

Following targeted interventions, health promotion efforts led to substantial increases in postnatal care attendance among HIV-infected mothers(41), while the accessibility of family planning and postnatal services improved through the trusted, approachable presence of Village Health Teams (VHTs)(65). These teams became the preferred first point of contact for caregivers and families (42), with growing acceptance of innovations like ultrasound at health centers(47). In disease prevention, VHTs played a vital role in increasing the uptake of HIV self-testing, particularly among men(79), and ensured timely management of febrile childhood illnesses, helping families bypass barriers such as distance and cost(53).

Health education activities by VHTs were significant, as high levels of awareness about available services (65% for free family planning) and comfort discussing health topics (82%) were reported, even if only half of the households spoke directly to a VHT(65). Screening for health conditions expanded alongside community acceptance of diagnostic technologies and the direct delivery of HIV self-testing(80). In therapeutic care, VHTs provided crucial first-line treatment, with 68% of children receiving care in the public sector, mainly through VHTs(46), and they remained the primary contact for febrile illnesses in 64% of households. Meanwhile, over half of caregivers used integrated management for children under five(32). Community mobilization was evident in the increasing reliance on VHT-supported services, including a higher likelihood of HIV status disclosure, which reached a prevalence of 74.4% with VHT involvement(64). Despite these advances, some challenges persisted: occasional lingering concerns around blood collection, fears of HIV transmission, and cultural suspicions continued for a minority, and in rural communities, barriers such as negative facility attitudes and limited direct VHT contact remained obstacles for a segment of the population(33).

3.3.2.7. Knowledge of service availability

Numerical evidence from the literature highlights the measurable impacts of community health interventions led by Village Health Teams (VHTs), who are widely recognized as a vital link between households and health facilities(81). In Kitgum district, for example, community engagement and training activities organized by VHTs significantly expanded access to essential health services. Their outreach has notably increased maternal health knowledge, as most mothers have become well-informed about birth planning and the benefits of antenatal care; 72% of mothers demonstrated awareness of the advantages of antenatal care(51). one study reported that infant HIV testing rates were lower, linked to a significant reduction in home births(69). VHTs

have also played a key role in facilitating HIV status disclosure and bridging gaps in healthcare access, earning trust and satisfaction among caregivers(64).

Their ongoing engagement has included raising awareness about COVID-19 and providing support for home-based care, further cementing their position as trusted resources for community health(55). Despite these advances, some persistent challenges remain. High levels of maternal health knowledge and awareness of antenatal care did not consistently translate into higher rates of attendance at antenatal visits, with interviews indicating that barriers to participation persist. Additionally, one study reported a decline in infant HIV testing rates corresponding with a reduction in home births(53).

3.3.2.8. Referrals, counter-referrals, and data reporting

The literature highlights how VHTs enhanced the integration between communities and the formal health system, primarily through improved referral, counter-referral, and data reporting processes. VHTs played a pivotal role in strengthening referral pathways, ensuring more seamless connections between households and health facilities(40,81). Their involvement contributed to smoother referrals of patients for laboratory confirmation, further management, and follow-up at health centers, including effective tracking of HIV-infected mothers at postnatal clinics(81,41,34,64). The sharing of appointments, feedback, and medications between VHTs and health facilities further supported these linkages, with health facility staff generally recognizing and acting on VHT referrals(27).

Data reporting and information flow benefited from VHTs' efforts, as they gathered vital community-level health data and shared it directly with health facilities for compilation and action, thereby helping to close gaps in patient tracking and service delivery(55,61). The introduction of mobile phones significantly improved referral efficiency by enabling two-way communication; VHTs could alert health facility staff before referrals, allowing facilities to prepare and respond more quickly(46,61). This was complemented by using direct contacts, ambulances, and vehicles to support timely patient transfers and treatment, while the supervision of VHTs by health workers further strengthened the referral network (43). Referral processes employed by VHTs were diverse; nearly half used formal referral forms, whereas others relied on notebooks or verbal communication, reflecting local adaptations to available resources(78).

Despite these advances, integrating VHTs with the formal health system often faces challenges. Collaboration between VHTs and facility-based health workers was generally weak, with only 38% of VHTs reporting close working relationships with healthcare professionals(52). There were also misunderstandings and tensions surrounding roles, as facility staff sometimes viewed VHTs as non-experts, leading to reluctance in providing preferential support or participating in collaborative activities (2).

3.3.2.9. Empowerment

VHTs have shown a strong ability to empower both individuals and communities. At the individual level, VHTs supported adults living with HIV through home visits, counseling, and peer groups(41), which significantly increased HIV status disclosure rates(64) and promoted open discussions about health(37). Their educational outreaches in communities make them the primary

source of vital information on pregnancy and childbirth for most mothers in intervention areas(40), and their participation encourages more husbands to accompany their wives to antenatal visits(47).

At the community level, VHTs foster dialogue(53,80) by actively participating in various gatherings, such as church services, school sessions(2,67), and informal youth hangouts, delivering essential health messages, and involving residents in collaborative care planning(72). Community support for VHTs is evident through formal recognition and shared feedback(78), and their impact is further expanded as they mobilize neighborhoods for larger public health campaigns, including COVID-19 response efforts and malaria awareness(55,68). On a larger scale, VHTs utilize mobile phones(46) and regular meetings to connect underserved households with health professionals and district services(43,67), thereby improving overall health knowledge, increasing service utilization, and encouraging male involvement in maternal and child health care.

3.3.2.10. Credibility/Trust of Village Health Teams (VHTs)

The literature reveals varying degrees of acceptance of community health interventions implemented by VHTs. Many community members and healthcare workers appreciated these interventions, especially valuing the use of rapid diagnostic tests when VHTs were well-educated, trained, and supported in their roles. This positive perception contributed to greater trust and acceptance of VHT activities, with notable appreciation expressed where VHTs demonstrated competence and received ongoing backing from the health system(33).

However, mixed attitudes persisted within some communities, as questions about the qualifications of VHTs occasionally led to disengagement and doubts about the quality of the services offered(57). Despite the overall welcome, a range of challenges and concerns remained. Poor community participation and limited family support often hinder the success of health initiatives(50). In some cases, community members were reluctant to fully engage with VHTs, sometimes viewing volunteers with suspicion or dismissing their impact(82). Additional concerns focused on the use of rapid diagnostic tests that involve blood collection, with fears about potential HIV exposure, unauthorized testing, or superstitions like witchcraft. Confidence in VHTs was also affected by perceived gaps in their training, especially regarding non-communicable diseases, causing some people to hesitate in seeking help for these conditions (36). Logistical challenges, including difficulties with patient follow-up and delays in restocking medical supplies, further hindered VHTs' ability to serve the community effectively (33).

3.3.3. Health Outcomes:

VHTs have played a key role in transforming community health in Uganda through various coordinated efforts. Their work in health promotion is evident among children and women, with most mothers now accessing crucial information on maternal and newborn health during home visits and community discussions, resulting in increased awareness and a higher proportion of births attended by skilled health professionals in health facilities(40). Through disease prevention efforts, VHTs have increased HIV testing among both men and women(34) and promoted practices that have reduced common childhood illnesses like diarrhea, malaria, and undernutrition(30). Their active involvement in health education continues to empower families, making VHTs the primary source of practical advice on childbirth, infant care, and nutrition in most areas(40).

VHTs have brought screening services directly into homes, encouraging timely HIV testing and skilled deliveries, and have become first responders for childhood fevers and diarrhea cases, trusted by mothers to provide quick and effective care(39). Community mobilization led by VHTs has not only increased awareness of urgent local issues, such as poor drainage, hygiene, nutrition, and adolescent health, but also encouraged collective action to address these problems(74). Some community members observed notable improvements, including reductions in mortality rates(74), healthcare access, and greater community empowerment in their areas linked to VHTs' efforts (40,56). Despite significant progress, ongoing challenges remain; regional disparities have left VHTs in the Northern and Eastern regions with fewer resources and less training, resulting in lower service coverage(27,41,43). Additionally, across all areas, rates of antenatal care visits and facility-based deliveries are still below optimal levels(51).

3.3.4. Relationship across the framework

The literature consistently demonstrates that strong programmatic processes, such as effective supervision, regular training, and adequate incentives, are essential for developing and sustaining competent and motivated VHTs(36,48,78). These foundational elements directly enhance VHT knowledge, service delivery, service quality, and reporting, while also reducing absenteeism(30,75). As a result, the performance of the community health system improves, leading to greater community access to health services, increased awareness of available care, more effective referral systems, and higher levels of trust and empowerment among community members(51,64). These improvements are reflected in positive health indicators, notably higher antenatal care attendance and an increased number of births attended by skilled midwives, which serve as essential proxies for reduced under-five and maternal mortality(39,74). Conversely, when programmatic processes are weak, VHT motivation and performance decline, resulting in lower community engagement and poorer health outcomes(66,83,84).

4.0. DISCUSSION:

This study reviewed the effectiveness of VHTs in promoting primary healthcare and the general health outcomes of communities in Uganda, focusing on VHTs' competency, development, and well-being, as well as supportive systems, access, and community-centered care.

This review adapted an analytical framework from Agarwal et. al. (26) to examine the performance of the community health workforce within primary health systems, providing a comprehensive lens through which to understand the effectiveness and impact of VHTs in Uganda. The framework's structured approach revealed both the complexity and interconnected nature of factors influencing community health system performance, while simultaneously highlighting critical evidence gaps that constrain our understanding of optimal VHT program design and implementation.

The results show that VHTs are generally effective in promoting primary health care in Uganda. VHTs play a crucial role in health promotion, disease prevention, health education, screening for health conditions, therapeutic care, and community mobilization, despite weak processes, including inadequate incentives, insufficient training, limited supervision, and restricted collaboration with the formal health system. Unlike nurses, who are formally trained and fully paid to work at the same level(85), VHTs' performance is closely tied to a strong commitment to support their very own communities, driven by close cultural and social bonds between them and their clients.

The framework analysis demonstrated clear pathways linking programmatic processes to community health system performance, with supportive systems and VHTs development emerging as fundamental determinants of VHT effectiveness in Uganda. The evidence synthesis revealed that supervision, performance appraisal, data use, recruitment, training, and incentive mechanisms significantly influence VHT competency, well-being, access/coverage, and community-centered care indicators, consistent with the framework's theoretical underpinnings, which position these elements as essential inputs for workforce performance. Studies in rural Kenya show similar findings, where community health volunteers (CHVs) who received supervision were found to be four times more likely to achieve higher performance compared to those who did not receive supervision(86). This positive effect is further amplified when digital devices are used, as they foster a sense of community, facilitate the exchange of communication and information, and enhance the overall quality of health services delivered(87).

However, the analysis also exposed substantial variation in how these supportive systems are implemented and measured across different contexts, suggesting that the framework's components may require contextual adaptation rather than standardized application. For example, a study in Ethiopia reveals that the training for Health Extension workers is inconsistent, shallow, and poorly delivered, with limited regional access and minimal practical content. Screening services, such as for diabetes, were largely unavailable due to equipment shortages. Trainers also lacked adequate skills, which was exacerbated by the use of insufficient teaching materials and inadequate hands-on training during pre-service education. In addition, HEWs often attend training sessions for financial incentives, leading to repeated participation by some and limited access for others (88).

Additionally, in Kenya, the majority of Community Health Volunteers (CHVs) have received only basic training modules focused primarily on health system operations. Only a small proportion have accessed specialized technical training modules through the non-governmental organizations that equip them with skills for screening and managing diseases such as malaria, diarrhea, respiratory infections, and HIV/AIDS, among others(89).

Although non-governmental organizations in Uganda facilitate most VHTs' engagement, limited community involvement in the selection process, short training durations, inadequate supervision, and irregular access to supplies continue to hinder the effectiveness of Uganda's VHTs, suggesting inadequate collaboration and commitment by implementing partners and the Ministry of Health to the initial program design and operational strategies. Thus, it is essential to strengthen community participation, expand practical training, ensure consistent resources, and enhance supervision and digital integration to maximize their impact in the community.

Within the community health system performance domain, the framework identified variations in the quality of evidence across different indicators. Although measures of VHT competency, especially knowledge and service delivery, were well-supported by evidence in this study, the framework exposed significant gaps in evaluating and reporting VHT well-being indicators such as motivation, job satisfaction, and attrition rates. This study reveals a complex interplay between programmatic processes and community health system performance, encompassing how initial steps, including recruitment, training, supervision, and incentives, influence motivation, job satisfaction, and ultimately, the retention, absenteeism, or attrition of VHTs in their roles. This suggests that current evaluation methods may not fully capture the sustainability aspects of community health programs, potentially undermining their long-term success, even if short-term results appear strong. This situation arises from a shift in focus away from assessing the original objectives of VHTs toward measuring intervention-specific outcomes.

Research agendas shaped by donor or affiliate priorities often emphasize organizational and project goals, overlooking essential community health outcomes and the real challenges VHTs face in promoting primary healthcare. Therefore, it is recommended that future assessments and research frameworks prioritize community-defined outcomes and directly address the challenges encountered by VHTs, ensuring that interventions remain aligned with both the communities' needs and the foundational goals of the VHT program.

Studies in Rwanda also show that Community Health Workers (CHWs), despite challenges such as poor supervision, inadequate training, and limited resources, were able to reach households in their communities with health promotion activities and therapeutic services. A harsh and unsupportive work environment led to demoralization and attrition of CHWs from their very fundamental roles(90,91).

The framework's focus on community access and community-centered care was particularly valuable in highlighting the two-way relationship between VHT performance and community engagement. The evidence review revealed that community trust and the credibility of VHTs are both outcomes of effective service delivery and essential for the ongoing success of the program. For example, this study found that many community members and healthcare workers appreciate the interventions, especially when VHTs are selected by their very own people, well-educated,

trained, and supported in their roles. In some cases, community members are reluctant to engage with VHTs fully, sometimes viewing VHTs with suspicion or dismissing their impact, with fears about potential HIV exposure, unauthorized testing, or superstitions like witchcraft, indicating feedback loops that are not fully reflected in the framework's straightforward process. This is in line with a multinational study in the East and South African Region, which noted that Community-centered care faces distrust due to poor CHW training, unreliable services, weak health system links, and ethnic tensions. Limited awareness and gender norms, especially restricting female CHWs, further hinder effectiveness(92).

Trust is the foundation of effective community-centered care, yet it remains fragile in Uganda. Addressing mistrust requires more than technical fixes; it demands a holistic approach that integrates cultural sensitivity, gender equity, and strong health system linkages. Without community confidence in VHTs, even well-designed interventions risk failure. Therefore, investing in VHTs' capacity, ensuring consistent service delivery, and fostering inclusive community dialogue must be central to efforts aimed at strengthening the health system. Sustainable care models hinge not only on what is delivered, but on who delivers it, how, and within what social context.

This study consolidated evidence that Village Health Teams (VHTs) have transformed health services at the community level in Uganda, bringing care directly into families' homes, with some community members reporting that their efforts have even helped reduce mortality rates. However, the results do not clearly explain how health outcomes at the community level can be measured or attributed to the involvement of VHTs. For example, a study in Ethiopia found that although Health Extension Workers (HEWs) are expected to enhance all aspects of maternal health service use, their success has been mainly in improving family planning, antenatal care, and HIV testing, with less effect on facility deliveries, postnatal checkups, and iodized salt use. Literate women, who listen to the radio, earn income, or are part of model families, utilize maternal health services more effectively(93). This has significant implications for program design, indicating that community engagement should be integrated into every stage of implementation rather than viewed as a final step.

Applying this framework to this VHT research also highlighted key measurement challenges that could limit the applicability of the findings across various health system contexts, particularly at the outcome level; therefore, it did not fully answer objective three of this study. The framework's broad scope revealed inconsistencies in how indicators are defined, measured, and reported across studies, making it challenging to draw definitive conclusions about the optimal VHT program configurations. These methodological issues emphasize the need for standardized measurement tools and reporting standards to strengthen the evidence base for community health workforce initiatives.

4.1. Study Limitations

- There is an unequal distribution of local research across Uganda's regions, with most studies focused in the western and central areas, while significantly fewer have been conducted in the northern and eastern parts of the country.
- Some key grey literature from the Ministry of Health is not accessible online when the device is recognized as an external device, despite this being an online-based study. For example, not all Annual Health Sector Performance Reports were available on the official MoH website or other platforms, forcing the author to rely on personal networks to obtain them.

5.0. CONCLUSIONS AND RECOMMENDATIONS:

5.1. Conclusion

This study analyzed the effectiveness of VHTs in Uganda by reviewing their skills development, well-being, support systems, accessibility, and community engagement.

The review demonstrates that VHTs continue to play a vital role in Uganda's community-based primary healthcare strategy, with notable successes in health promotion, disease prevention, and community mobilization. Their strong ties to their communities build trust and legitimacy, often partially making up for the lack of formal health training. However, while community connections are a strength, significant systemic challenges still exist. First, VHTs' skills development is hindered by inadequate, inconsistent, and largely theoretical training, leaving many VHTs without the practical skills necessary to respond effectively to evolving community health needs.

Additionally, the well-being of VHTs, including motivation, job satisfaction, and retention, is weakened by weak incentive systems, poor recognition, and irregular, non-standardized supervision. The lack of firm support and performance review systems leads to high turnover and absenteeism, which negatively affects both service continuity and quality. The analysis also highlights poor integration between VHTs and the formal health system, resulting in fragmentation, inefficiencies, and inconsistent care standards. Most support systems, including supervision, training, supply logistics, and performance monitoring, are managed by non-governmental organizations rather than being part of the national system. This weakens sustainability and limits VHTs' ability to serve as a seamless extension of formal healthcare within communities.

Community participation acts as both an enabler and a challenge. When VHT selection and feedback processes are driven by the community, trust and service use tend to increase. However, in many areas, weak community engagement leads to mistrust, suspicion, and low utilization of VHT services, issues further worsened by gender norms, misinformation, and socio-cultural barriers. Despite progress, critical discussions remain about how to best structure VHT training and incentives, develop sustainable support systems within resource constraints, and accurately measure health outcomes directly linked to VHT activities. These gaps highlight the urgent need for more rigorous, participatory research, clear national standards, stronger accountability, and full integration of VHTs into Uganda's health system. Addressing these issues is essential for maintaining and expanding the impact of VHTs in Uganda's pursuit of universal health coverage.

5.2. Recommendations

1. Institutionalize Competency-Based Training and Regular Supervision (Ministry of Health)

- The Ministry of Health should develop and enforce standardized, practical VHT training programs along with regular supervision protocols, utilizing district-level health professionals and digital tools for continuous mentoring and skill updates.
- Existing incentive systems should be reviewed and improved by including regular monetary stipends, non-monetary recognition, and performance-based rewards to increase motivation, job satisfaction, and retention, while being mindful of available resources.

2. Integrate VHTs into the Formal Health System (District Health Officers)

- District health facilities should officially recognize VHTs as part of the health workforce, aligning supply chains, data reporting, supervision, and referral systems to ensure smooth collaboration and accountability across all levels of care.

3. Promote Community-Led Selection and Accountability (Implementing partners)

- All VHT recruitment and performance review processes should focus on authentic community involvement, ensuring that VHTs are selected, supported, and assessed by local leaders and beneficiaries to enhance public trust and service utilization.

4. Develop and Implement Standardized Monitoring and Evaluation Tools

- The Ministry of Health, in partnership with implementing partners, should develop simple, standardized tools to monitor VHT activities, well-being, and community health outcomes. This data should be reliable, actionable, and consistently used to inform program improvements.

5. Focus on Research for Sustainable Models and Impact Measurement

- Donors and research institutions should promote participatory, mixed-methods studies to identify the most effective VHT support models and develop methodologies that directly link VHT activities to improvements in community health outcomes, shaping policies and resource distribution.

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7.0. Appendices:

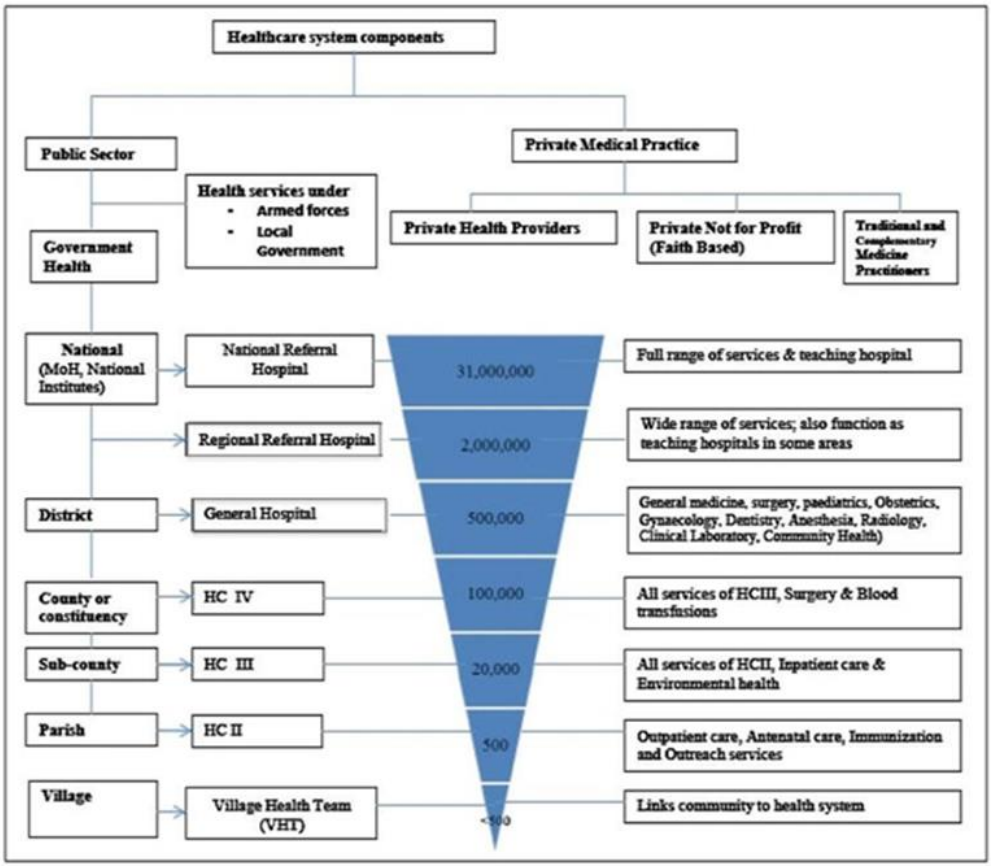

Figure 5. Healthcare Delivery Arrangement from the Ministry of Health, Uganda 2023.

8.0. Table 1. Search Combination:

OR	Problem	AND	Factors (OR)	AND	Geographical scope (OR)
	"Community health workers"		effectiveness		Uganda
	"village health teams"		evaluation		
	"village health committees"		impact		
	"lay health workers"		performance		
	"village health workers"		utilization		
			value		
			effect		
			efficiency		
			productivity		
			yield		
			efficacy		
			result		
			competence		
			functionality		
			outcome		
			success		
			benefit		
			achievement		
			influence		
			quality		
			improvement		
			development		
			potency		
			"Support system"		
			"community-centered care"		

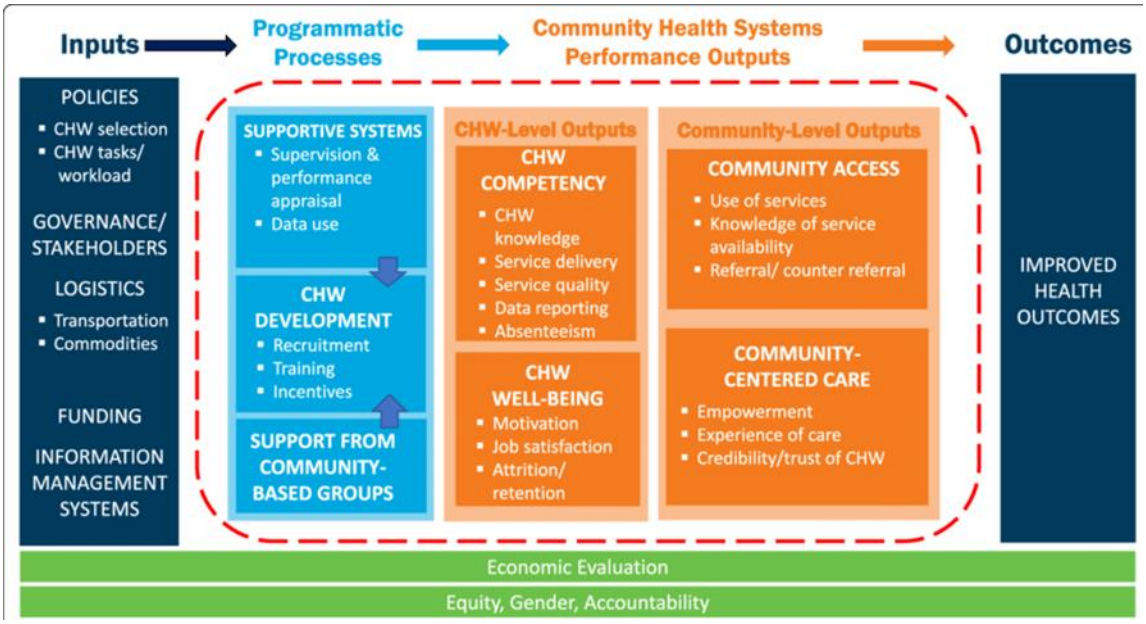

Figure 6. Original conceptual framework from Agarwal et.al. 2019.

9.0. ANNEXES

9.1. Annex 1.

KIT Institute (Masters or Short course) Participants Declaration for Use of Generative AI (GenAI)

Please complete and submit this form as an annex on the last page of your assignment file; and not as a separate document.

Check the box that applies to your completion of this assignment:

☐ I confirm that **I have not used** any generative AI tools to complete this assignment.

☒ I confirm that **I have used** generative AI tool(s) in accordance with the ***"Guidelines for the use of Generative AI for KIT Institute Master's and Short course participants"***. Below, I have listed the GenAI tools used and for what specific purpose:

Generative AI tool used	Purpose of use
1. Chat GPT	Brainstorming ideas and sourcing some literature, including government documents.
2.	
…	

10. SUPPLEMENTARY APPENDIX

Supplementary Table 2. List of all studies included

First Author	Publication year	Publication title	Publication type (Peer reviewed vs grey)	Study method	Study region	VHT Program focus
Kozuki Naoko	2018	Measuring productivity and its relationship to community health worker performance in Uganda: a cross-sectional study.	Peer reviewed	Quantitative	East	Maternal and child health
Teddy Kyomuhangi	2015	The contribution to mothers' health by village health team promotion practices: A case study of Kyabugimbi subcounty, Bushenyi District	Peer reviewed	Qualitative	West	Reproductive health
Zubair Lukyamuzi	2022	Community Health Workers Improve HIV Disclosure Among HIV-Affected Sexual Partners in Rural Uganda: A Quasi-Experimental Study	Peer reviewed	Quantitative	Uganda (Not specified)	HIV/AIDS
Alberto Nettel-Aguirre	2017	Where there is no doctor: can volunteer community health workers in rural Uganda provide integrated community case management?	Peer reviewed	Quantitative	West	iCCM
David Musoke	2021	Community health workers' involvement in the prevention and control of noncommunicable diseases in Wakiso District, Uganda	Peer reviewed	Mixed methods	East	Maternal and Child health
Gertrude Namazzi	2017	Working with community health workers to improve maternal and newborn health outcomes: implementation and scale-up lessons from eastern Uganda.	Peer reviewed	Mixed methods	East	Maternal and Child health
Babughirana Geoffrey	2017	Utilization of the Community Health Worker Assessment and Improvement Matrix to Strengthen Village Health Team Systems in Uganda: A Case for Kitgum District	Peer reviewed	Mixed methods	North	General duties
Zikulah Namukwaya	2015	Use of peers, community lay persons and Village Health Team (VHT) members improves six-week postnatal clinic (PNC) follow-up and Early Infant HIV Diagnosis (EID) in urban and rural health units in Uganda: A one-year implementation study	Peer reviewed	Quantitative	Central	PMTCT-HIV/AIDS
Emmanueil Benon Turinawe	2016	Towards Promotion of Community rewards to Volunteer Community Health Workers? Lessons from Experiences of Village Health Teams in Luwero, Uganda	Grey	Qualitative and observational	Central	General duties
Aure´lie Brunie	2014	Keeping community health workers in Uganda motivated: key challenges, facilitators, and preferred program inputs	Peer reviewed	Mixed methods	Uganda (Not specified)	Reproductive health

Alison Cheng	2014	Community Delivery of integrated family planning/HIV testing and counseling services by VHTs in Uganda	Peer reviewed	Quantitative	Uganda (Not specified)	
David Mukanga	2010	Community acceptability of use of rapid diagnostic tests for malaria by community health workers in Uganda	Peer reviewed	Qualitative	East	Malaria
Emmanueil Benon Turinawe	2015	Selection and performance of village health teams (VHTs) in Uganda: lessons from the natural helper model of health promotion	Peer reviewed	Qualitative	Central	General duties
Joan N Kalyango	2023	Performance of community health workers under integrated community case management of childhood illnesses in eastern Uganda	Grey	Mixed methods	East	General duties
James Bagonza	2014	Performance of community health workers managing malaria, pneumonia, and diarrhoea under the community case management programme in central Uganda: a cross-sectional study	Peer reviewed	Quantitative	Central	Malaria, Pneumonia and diarrhoea
Temitope Tabitha Ojo	2017	Exploring knowledge and attitudes toward non-communicable diseases among village health teams in Eastern Uganda: a cross-sectional study	Peer reviewed	Mixed methods	East	NCDs
Franco Aluma	2021	Factors Influencing The Performance Of Village Health Teams (VHTS) In Health Promotion. A Cross-Sectional Study of Namuyoga Town Council Tororo District.	Peer reviewed	Mixed methods	East	Health promotion
Katsigazi Enock	2022	Factors Affecting Functionality of Village Health Teams (VHTs) in Lyantonde District, Uganda.	Peer reviewed	Quantitative	Central	General duties
Esther Alice Nalugga	2023	It Takes A Village; Involvement of Village Health Teams to Develop Tools and Resources to Communicate about Antiretroviral Use in Pregnancy and Breastfeeding at Community Level in Uganda.	Grey	West	West	HIV/AIDS, maternal and child health
Laban Kashaija Musinguzi	2017	Linking communities to formal health care providers through village health teams in rural Uganda: lessons from linking social capital	Peer reviewed	Qualitative	Central	General duties
David Mukanga	2012	Access, acceptability and utilization of community health workers using diagnostics for case management of fever in Ugandan children: a cross-sectional study	Peer reviewed	Quantitative	East	General health for children
Samantha Perry1	2019	Outsiders, insiders, and intermediaries: village health teams' negotiation of roles to provide high quality sexual, reproductive and HIV care in Nakaseke, Uganda	Peer reviewed	Qualitative	Central	General duties
Daniel C. Mays	2017	Supporting and retaining Village Health Teams: an assessment of a community health worker program in two Ugandan districts	Peer reviewed	Mixed methods	Central	General duties
Aggrey Siya	2021	Uganda Mountain Community HealthSystem—Perspectives and Capacities towards Emerging Infectious Disease Surveillance	Peer reviewed	Mixed methods	East	Surveillance
Joanita Nangendo	2023	Uptake and perceptions of oral HIV self-testing delivered by village health teams among men in	Peer reviewed	Mixed methods	Central	HIV/AIDS testing and counselling

		Central Uganda: A con-current parallel mixed methods analysis.				
Naiim S. Ali	2015	Using Village Health Teams for Effective Ultrasound Education in Rural Uganda	Peer reviewed	Mixed methods	Uganda (Not specified)	Ultrasound
Babughirana Geoffrey	2016	Village Health Team Functionality in Uganda: Implications for Community System Effectiveness	Peer reviewed	Mixed methods	Uganda (Not specified)	General duties
Joseph Okello Mugisha	2021	We shall have gone to a higher standard": Training village heath teams (VHTs) to use a smartphone-guided intervention to link older Ugandans with hypertension and diabetes to care	Peer reviewed	Qualitative	Central	NCDs and Ageing
Jerome Kabakyenga	2016	A demonstration of mobile phone deployment to support the treatment of acutely ill children under five in Bushenyi district, Uganda.	Peer reviewed	Mixed methods	West	mHealth
Crystal Zheng	2019	A Performance-Based Incentives System for Village Health Workers in Kisoro, Uganda	Peer reviewed	Quantitative	West	PBIs
Muhumuza, G	2016	Acceptability and Utilization of Community Health Workers after the Adoption of the Integrated Community Case Management Policy in Kabarole District in Uganda	Peer reviewed	Quantitative	West	iCCM
Richard Ndyomugyenyi	2016	Appropriate targeting of artemisinin-based combination therapy by community health workers using malaria rapid diagnostic tests: findings from randomized trials in two contrasting areas of high and low malaria transmission in south-western Uganda.	Peer reviewed	Quantitative	Uganda (Not specified)	Malaria
JenniferL.Brenner	2011	Can Volunteer Community Health Workers Decrease Child Morbidity and Mortality in Southwestern Uganda? An Impact Evaluation	Peer reviewed	Mixed methods	West	Child health
Yusufu Kuule	2017	Community Health Volunteers in Primary Healthcare in Rural uganda: Factors influencing Performance	Peer reviewed	Quantitative	West	General duties
DoreenNabukalu	2019	Community health workers trained to conduct verbal autopsies provide better mortality measures than existing surveillance: Results from a cross-sectional study in rural western Uganda	Peer reviewed	Quantitative	West	Verbal autopsies/vital registration
Zubair Lukyamuzi	2022	Community Health Workers Improve HIV Disclosure Among HIV-Affected Sexual Partners in Rural Uganda: A Quasi-Experimental Study	Peer reviewed	Quantitative	Central	HIV/AIDs
Shivani Pandya	2022	Understanding Factors That Support Community Health Worker Motivation, Job Satisfaction, and Performance in Three Ugandan Districts: Opportunities for Strengthening Uganda's Community Health Worker Program	Peer reviewed	Qualitative	Uganda	General duties
Robert Zavuga	2022	Level of reporting and factors associated with Reporting of Public Health Signals by Village Health Team Members in the Event-Based Surveillance System, Kabarole District, Uganda, July 2022−March 2023	Peer reviewed	Mixed methods	West	Surveillance
Wanduru, Phillip	2016	The performance of community health workers in the management of multiple childhood infectious	Peer reviewed	Mixed methods	North	Childhood illnesses

		diseases in Lira, northern Uganda. A mixed methods-cross-sectional study				
Micheal Mazzi	2018	Proximity to a community health worker is associated with utilization of malaria treatment services in the community among under-five children: a cross-sectional study in rural Uganda	Peer reviewed	Quantitative	East	Malaria service utilization
David Musoke	2024	Involvement of community health workers in the COVID-19 pandemic response in Uganda: A qualitative study	Peer reviewed	Qualitative	Uganda	COVID-19
Aurélie Brunie	2016	Expanding HIV testing and counselling into communities: Feasibility, acceptability, and effects of an integrated family planning/HTC service delivery model by Village Health Teams in Uganda	Peer reviewed	Mixed methods	Uganda (Not specified)	Reproductive health and HIV/AIDS
Robert Kalyesubula	2021	Youths' perceptions of community health workers' delivery of family planning services: a cross-sectional, mixed-methods study in Nakaseke District, Uganda	Peer reviewed	Mixed methods	Central	Family planning
Nicholas, Kaziro	2025	Effectiveness of Village Health Teams (VHTs) in Promoting Primary Healthcare in Rural Communities of Uganda. A Case Study: Ministry of Health Uganda -Village Health Team Program	Peer reviewed	Quantitative	Uganda (Not specified)	General duties
Valentine Ojoro	2022	Factors associated with management of pneumonia among children by Community Health Workers in Abim district, Uganda	Peer reviewed	Mixed methods	North	Pneumonia among children
Michael T. Wagaba	2023	Does mHealth influence community health worker performance in vulnerable populations? A mixed methods study in a multinational refugee settlement in Uganda	Peer reviewed	Mixed methods	Uganda (Not specified)	mHealth
Smisha Agarwal		Understanding community health worker incentive preferences in Uganda using a discrete choice experiment	Peer reviewed	Qualitative	Uganda (Not specified)	Incentives preferences
Teralynn Ludwick	2018	Supportive supervision and constructive relationships with healthcare workers support CHW performance: Use of a qualitative framework to evaluate CHW programming in Uganda	Peer reviewed	Qualitative	West	Supervision
Gershim Asiki	2018	Feasibility of using smartphones by village health workers for pregnancy registration and effectiveness of mobile phone text messages on reduction of homebirths in rural Uganda.	Peer reviewed	Quantitative	Central	mHealth on reproductive health
Monica Okuga	2015	Engaging community health workers in maternal and newborn care in eastern Uganda.	Peer reviewed	Qualitative	East	Maternal and child health
Geoffrey Babughirana	2023	Effects of timed and targeted counselling by community health workers on maternal and household practices, and pregnancy and newborn outcomes in rural Uganda	Peer reviewed	Quantitative	West	Maternal and child health
Sham Lal	2016	Community health workers' adherence to referral guidelines: evidence from studies introducing	Peer reviewed	Quantitative	West	Malaria

		RDTs in two malaria transmission settings in Uganda				
Christine Kayemba Nalwadda	2013	Community health workers – a resource for identification and referral of sick newborns in rural Uganda	Peer reviewed	Quantitative	East	Child health