

Esteem Needs and the Retention of Community Health Volunteers in Primary Health Care Service Provision in Bungoma County, Kenya

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ABSTRACT

The main objective of this study was to investigate how the self-esteem of the Community health volunteers (CHVs) influences the retention of CHVs in primary health-care (PHC) service provision. The study design was descriptive cross-sectional study design. Cluster samplings followed by systematic sampling methods were adopted to obtain a randomized study sample. Fisher's formula was used to obtain the required sample size of 222 from the current 2010 CHVs and 222 from the former 990 CHVs. Semi-structured questionnaires were used to collect both quantitative and qualitative data from current and former CHVs. Other data collection instruments for qualitative data were key informant interview guide for the CHVs' supervisors; and focus group discussion (FGD) guide for current and former CHVs who were identified from existing records. Data were analyzed through the use of descriptive statistics to calculate distribution and tendencies. Cross tabulation and Chi-square tests were applied in testing the strength of the relationship between variables. To explore the relationship between variables, Chi-square test was done. The key findings from the study were that majority of the CHVs, in Bungoma County; did not have a means of transport provided by either the ministry or its partners. Thus, they had to walk in the course of executing their duties. Among those that had access to a means of transport, most used bicycles then motorcycles. The means of transport contributes to retention of CHVs because it contributes to their esteem while enhancing efficiency in their work. The means of transport that was most preferred by the CHVs in Bungoma were Motorcycle followed by the bicycle. A majority of the CHVs in Bungoma County did not have drug kits available for their use in PHC work. Drug kits were appreciated by the CHVs as an important requirement for their work. The drug kit motivates the CHVs because it facilitates them to execute health functions in community and thus builds their esteem in the community.

Key words: Esteem needs, Community health volunteers, Primary healthcare, Drug kits, Sustainable retention

INTRODUCTION

There were documented programmatic experiences relating to community health volunteers (CHV) motivation; however, there had been little documentation relating to proven CHV retention strategies.^[1] International interest in the potential role for CHVs in health programs had been rejuvenated in part because of concerns about limitations and constraints in human resources for health (HRH). The shortage of HRH was particularly acute in rural, hard-to-reach areas. The shortage of HRH was brought to light due to WHO's renewed focus on primary healthcare.^[2] The pressure to achieve the millennium development goals had also led to an interest in an increased role for CHVs.^[3]

The CHWs roles and activities were tailored to meet the unique needs of their communities. The specific roles of

CHWs also depend whether they work in the health care or social services sectors.^[4] In general, the main role of CHWs was creating connections between vulnerable populations and health-care systems. In fulfilling such a mandate, CHWs were engaged in activities such as managing care and care transitions for vulnerable populations, determining eligibility, and enrolling individuals into health insurance plans, providing culturally appropriate health education on topics related to chronic disease prevention and ensuring cultural competence among health-care professionals serving vulnerable populations.^[4] CHWs also provide physical activity and nutrition; engage in advocacy for underserved individuals to receive appropriate services, provide informal counseling, and build capacity to address health issues.^[4] The specific roles of CHWs were dependent on the context and range depending on advocacy, outreach, education, and clinical services.

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Attrition had been identified as one of the key challenges of lay health worker programs. Attrition levels were reported between 3.2% and 77% in the 1980s.^[2] The problem persists in current programs. For instance, a lay health worker program in the Plurinational State of Bolivia noted a 43% attrition rate; in South Africa, a tuberculosis intervention program lost 11 out of 12 (91.7%) lay health workers in less than a year and, in Bangladesh, implementation of an intervention aimed at improving newborn care lost 32 out of 43 (74.4%) lay health workers over a 4-year period.^[5]

In stark contrast to these high attrition rates stands the experience of the female CHV program in Nepal: The scheme had existed for more than 20 years and had <5% annual attrition.^[5] This case goes to show that beyond financial incentives, the way the CHV program was structured contributes to levels of attrition. This had to do with whether the program as conceptualized gives the CHVs some intrinsic value that motivates them or not.

STATEMENT OF THE PROBLEM

Kenya's Ministry of Health aims at having over 1 million CHVs in Primary Health Care (PHC).^[6] The 1 million CHVs Campaign team was excited to support Kenya in moving forward with the process of designing community health worker (CHW) upgrades. In its efforts to meet the health-related sustainable development goals, Kenya had committed to improve health across the country by increasing access to healthcare through the use of CHVs and the Community Health Extension Workers (CHEWs).

While the use of CHVs had been embraced, the retention of CHVs remained a challenge. This was because retention rates, as shown in a number of studies, varied from between 23% and 97%.^[7] This low retention rate of CHVs in PHC service provision was a big loss and drastically affected the effectiveness of CHV programs. Studies had been done on both factors that motivate CHVs to work. This study sought to generate empirical data on how CHV programs affect the self-esteem of the CHVs, which then determines retention or non-retention of the CHVs in the PHC programs.

LITERATURE REVIEW

Studies increasingly show that retention of CHVs in the PHC was not dependent on financial incentives. Olang'o *et al.*^[7] did a study in Western Kenya and found out an attrition rate of 33% among the CHVs because of the cultural environment within which CHVs operated; lack of adequate support from area NGOs; poor selection criteria for CHVs; and power differences between NGO officials and CHVs which fostered lack of transparency in the NGOs' operations. The gap in this study was a lack of suggestions or recommendations for the sustainable retention of CHVs volunteer health-care services.

A study^[8] in Busia County, Western Kenya, and found out the dropout rate among CHVs after 1 year was 17.3%. The retention rate of CHVs was 30% after 3 years because CHVs were not being given any financial incentives. The CHVs reported that what would motivate them to continue working as CHVs included 75% the working materials (bags, IEC materials, notebooks, and pens) and 25% financial incentives. There was an increase from their pre-recruitment expectations where 43% of CHVs expected financial incentives. Financial incentives were linked to increase CHV retention, but they were not the most important consideration.

A study^[2] found out that the CHW programs may receive funding from Federal, State, or local agencies, foundations, community organizations, and other funders. These funds may be used for program management, employee salaries and benefits, program materials, facilities, transportation, and other resources. The CHWs who received means of transport such as bicycles or motor-cycles to carry out their services were often more motivated than those who did not receive such means of transport.

Volunteer CHWs may be compensated for their participation through incentives (such as gift certificates or reimbursement for travel). Some implementers of CHW programs require that CHWs maintain an independent tracking log to record information such as the number of outreach visits and mileage per visit INSTAT Madagascar^[9] found that means of transport might differ from one site to another. For example, in Lesotho, many times the accompagnatos needed to hire a horse or a car to bring a sick patient to the clinic and fee was always covered by the clinic and when a patient referred to a hospital whether for X-ray or for admission the clinic covers the transportation fees. Using transport to improve access to community health services in Madagascar, in 2013, Transaid began supplying the CHWs in Menabe and Sofia regions with 300 bicycles and training to ride and maintain them safely.

To reach their patients, attend village meetings and return home CHWs previously made arduous journeys through jungle on foot, for the CHWs concerned the bicycle project had already resulted in increased number of household visits of patients, health-promoting activities at wider community levels and visits to restock essential health goods and greater areas covered on visits in less time and more time for CHWs to spend at home. The gaps in this study were lack of findings on the retention rates of the CHVs after project period and on the operations and maintenance of the means of transport given to CHVs.

As it was captured by Christian Aid,^[10] Kenya was a low-income country with crippling levels of rural poverty. Poor infrastructure means rural communities were extremely isolated and underserved, particularly in terms of healthcare and economic development opportunities. Isle of Man Overseas Aid Committee targeted Eastern and Nyanza

provinces – the most vulnerable people including those living with HIV, lived in isolated villages many miles from their nearest health clinic. Most could not afford the transport costs to reach a hospital to receive treatment or antiretroviral drugs.

Roads were too poor for public transport such as buses, so people had to walk for 3 h just to reach a main road, or were pushed in wheelbarrows or carried if unable to walk.^[10] This project had worked to address the critical need for practical transport solutions for the provision of healthcare to marginalized communities. Through the provision of Motorbikes to CHWs, the riders spend half of their time delivering essential medical services to remote communities that can only be reached by motorbike.^[10] The rest of the time, volunteers used the bikes to start small business, such as taxi services, or to improve existing livelihood activities such as gaining access to markets for agricultural produce.

Overall, this project was benefitting 12,500 people who had received and continued to receive improved health-care services as well as 31 trained workers who were able to increase their household income and develop businesses.^[10] The gap in the study was lack of findings on the effectiveness of the means of transport given to CHVs and on associations/relationships between means of transport given and CHVs retention rates in PHC service provision.

Bungoma County, with its rugged terrain and long-distance coverage, it was not known if the means of transport given to CHVs had an influence on their retention in PHC service provision. Further, it was not known whether or not the means of transport given to CHVs were well maintained and repaired for sustainable usage. It was also not known if there were other alternative arrangements for those CHVs who did not receive means of transport from the government or NGOs in the study area. The type of transport means that CHVs used had a great impact on service delivery.

CHV kits were a backpack filled with health supplies that CHVs used to identify and address important health issues particularly of under-fives and pregnant mothers and provide basic first aid and family planning services, for example: For children's health rehydration salts, deworming pills, and malnutrition measuring tape (MUAC tape) to identify and respond to things such as dehydration or worms or malnutrition. For pregnancy –condoms, prenatal vitamins and training materials (well-baby calendar, infant nutrition poster, and healthy pregnancy pamphlet). For basic first aid – thermometer, bandages, disinfectants and latex gloves, face masks, waterproof medical tape, hand sanitizer, iodine disinfectant, gauze, alcohol prep pads and Band-Aids.

For miscellaneous work, Swiss army knife, waterproof cover and umbrella were provided. A plan to sustain and support each cycle of health programs was established, the cycle

worked like this; external funding provides the catalysts to establish the social enterprises and the programs. Once established the programs drive business to the social enterprises and profit from the social enterprises provide ongoing, social funding for programs.

The first cycle worked with health workers program, it provided Segá's 17 CHVs with medical kits for home visits, away to keep those kits supplied without having to rely on outside funding and a source of personal income.^[11] Kits had been supplied in the past by different aid agencies but when the supplies ran out, the CHVs were left with nothing; the challenge was to find a way for the CHVs to sustain an inventory of supplies without depending on outside organizations or funding.^[11]

Parlato and Favín^[12] in review of 52 projects found out that CHVs credibility suffered when drugs supplies were irregular. Closely linked to the importance of providing curative care was CHVs access to and supply of drugs. The kind of medicine CHVs should be allowed to administer which had been the subject of much debate. Many were concerned that treatment with antibiotics and anti-malaria, in particular, might lead to overuse and misuse of these medicines and eventual increases in drug resistance. The respect and status of CHVs in their communities unquestionably increases when they had drugs at their disposal.^[12]

Winch and Peter^[13] found out that Save the Children USA, in collaboration with the Ministry of Health, had established more than 300 village drug kits in the southern region of Mali. CHVs received 35 days of literacy training, followed by 1 week of training in drug-kit management.^[13] Assessment of sick children was based on a history of fever. Children were treated with chloroquine tablets or syrup, and in pilot areas CHVs also sold SP (Fansidar[®]) as intermittent presumptive treatment for pregnant women.^[13]

When CHVs saw a child requiring referral, they recorded the child's name and the reason for referral in a notebook, placed the notebook in a "referral bag," and instructed the caregiver to take the sick child, along with the referral bag, to the nearest community health facility.^[13] The gap in this study was lack of findings on the frequency and adequacy of drug kits given to CHVs.

Gray and Ciroma,^[14] in Nigeria's Gongola State, found out that village health workers (VHWs) were trained to work in remote villages to treat common diseases with basic drugs and provide health education. An operations research study conducted to determine what contributed to the high VHW attrition rate found that one of the main reasons was villager's dissatisfaction with the VHWs limited curative role.^[14] The VHWs lack training or licenses to give injections created a discrepancy between what the community wanted and what the VHW could provide.

In Kenya, at stakeholder meeting hosted by the Kenyan MoH, the 1 million CHV Campaign team reviewed the details of the draft of the planning document and it was resolved that drug kits should be provided to CHVs to make them functional in the communities they serve.^[6] It was not known whether or not the drug kits given to CHVs had an influence on their self-esteem. It was further not known if the drugs kits were contributing to the retention of CHVs in Bungoma County.

METHODOLOGY

Study Site

Bungoma County was the study site. It was situated in Western region of Kenya and comprised of nine sub-counties, namely: Kanduyi, Bumula, Sirisia, Kabuchai, Kimilili, Webuye East, Webuye West, Tongaren, and Mt Elgon. The County borders Busia County and Republic of Uganda to the West, Trans Nzoia County to the East and North, and Kakamega County to the South. The County lies between latitudes 00 25' and 10 20' North of the Equator and longitudes 360 31' and 370 15' to the East.

It had area coverage of 3032 km² with a population of 1,700,000 and population density of 453.5/km². The females constitute 52% (884,000) of the total population whereas males form 48% (816,000). The annual growth rate was 3.15% and 53% live below poverty line. It has 134 health facilities spread in all the nine sub-counties with major concentration in urban areas and 132 active community units (CU).^[15]

There were 132 active CUs spread in all the nine sub-counties of the study area with a total of 2010 CHVs. Each CU had an average of 15 CHVs and each CHV was in-charge of 20 households, which were 100 people. The ratio of male CHVs to female CHVs was approximately 1:2 and all of them (CHVs) know how to read and write.^[6]

Study Design

This study adopted descriptive cross-sectional study design to meet the four objectives of the study. Descriptive cross-sectional study design was adopted because the study estimated the retention of CHVs in segments of the population characterized by age, sex, education, and social-economic status. The study focused on describing the characteristics of respondents and how such characteristics affected the retention of non-retention of the respondent in the CHV program.

Study Population

The study population consisted of current 2010 CHVs attached to 132 active CUs in Bungoma County and had been working for at least 1 year before the study. The 132 active

CUs were almost evenly spread in all the nine sub-counties. Each CU had an average of 15 CHVs both males (5) and females (10) in the ratio of 1:2. The study population also included 990 former CHVs who had dropped out of PHC service provision. These former CHVs were also almost evenly distributed in the nine sub-counties of the study area. These two study populations generated comparative data for the evaluation of strategies for the CHVs sustainable retention in PHC service provision.

Inclusion and Exclusion Criteria

Inclusion criteria (current and former CHVs)

This included CHVs who were providing PHC services during the study period had been in this service for at least the past 3 years; working in a defined geographical area, attached to a specific CU and supervised by a CHEW. This included a CHV who had dropped out of PHC service provision at least 1 year ago; worked in a defined geographical area, was attached to a specific CU and supervised by a CHEW.

Exclusion criteria (current and former CHVs)

This included a CHV who had dropped out of PHC service provision; had not been in this service for at least the past 3 years; worked in non-defined geographical area, not attached to a specific CU and not supervised by a CHEW. This included a CHV who had not dropped out of PHC service provision; had dropped out of PHC service provision but had not lasted at least 1 year; worked in a non-defined geographical area, was not attached to a specific CU and not supervised by a CHEW.

Study Variables

The independent variables in this study IGAs ran by the CUs the CHVs belong to were motivational and demotivation factors for CHVs which included: Stipend payments, income-generating activities, and means of transport and drug kits. The dependent variable was retention of CHVs in the PHC programs. This was measured in terms of willingness to continue working as CHVs and length in service in the PHC.

Sampling Design

The sampling frame was the list of all 132 CUs in the entire county of Bungoma. Cluster sampling followed by systematic random sampling design was adopted in this study. Cluster sampling involved grouping the population and then selecting the groups or the clusters rather than individual elements for inclusion in the sample. Systematic random sampling involved randomness where random numbers were used to pick up the unit with which to start. All the nine sub-counties in Bungoma County had established functional CUs to which CHVs were attached. The sub-counties were considered to be clusters where CUs were selected from using cluster

sampling, followed by systematic random sampling of the CHVs in the selected CU. Bungoma County had 2010 CHVs according (Bungoma County Reports, 2016). The sample size was determined by the formula below, as described by Fisher *et al.*, cited in Mugenda and Mugenda.^[16]

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

Where:

n = the desired sample size if the target population was >10,000.

Z= the standard normal deviation at the required confidence interval.

P = the proportion in the target population estimated to had characteristics being measured.

q = 1-p.

d = the level of statistical significance set.

According to the formula, if the target population was <10,000, the sample size was adjusted as follows:

$$= \frac{nnf}{1 + \frac{n}{N}}$$

Since the total population of CHVs in Bungoma county was <10,000, the above alternative formula was used to calculate the sample size.

Where: nf = the desired sample size when the population was <10,000.

n = the desired sample size when the population was >10,000.

N = the estimate of the total population size.

No estimate was available; therefore, the recommended 50% was used.

Since: $N = (1.96)^2 (0.5) (0.5) / (0.05)^2 = 384.16$.

Therefore, the sample size was: $384 / 1 + (384/357) = 185.004$, approximated to 185 + 20% of non-responsive respondents or spoilage of data instruments; therefore, sample size was = 222 CHVs.

Sample Size Determination for Former CHVs

The sample size was determined using the formula below:^[16]

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

Where:

n = the desired sample size if the target population was >10,000.

Z= the standard normal deviation at the required confidence interval.

P = the proportion in the target population estimated to had characteristics being measured.

q = 1-p.

d = the level of statistical significance set.

According to the formula, if the target population was <10,000, the sample size was adjusted as follows:

$$= \frac{nnf}{1 + \frac{n}{N}}$$

Since the total population of CHVs in Bungoma County was <10,000, the above alternative formula was used to calculate the sample size.

Where: nf = the desired sample size when the population was <10,000.

n = the desired sample size when the population was >10,000.

N = the estimate of the total population size.

No estimate was available; therefore, the recommended 50% was used.

Since: $N = (1.96)^2 (0.5) (0.5) / (0.05)^2 = 384.16$.

Therefore, the sample size was: $384 / 1 + (384/357) = 185.004$, approximated to 185 + 20% of non-responsive respondents or spoilage of data instruments; therefore, sample size was = 222 CHVs.

Data Collection Tools

Data were obtained through the administration of a pre-tested semi-structured questionnaire, key informant interviews (KIIs), and FGDs. The study used KII schedules and FGDs as triangulation in data collection.

Data Collection Procedures

Data were collected by the principal investigator and his 18 research assistants, who constituted the research team. The research assistants comprised all the nine sub-county Public Health Officers (SCPHOs) and 9 CHEWs drawn from the nine sub-counties in the study area. These two cadres of HRH were competent and conversant with the operations of CHVs thus their selection as research assistants. The role of the research assistants was to collect primary data from the respondents using the above-mentioned data collection instruments, clean the data and submit them to the principal investigator. The principal investigator collected primary qualitative data (from KIIs and FGDs), further cleaned the primary data, coded the data, and entered them into the computer for analysis on a daily basis.

Data Analysis

To show the distributions in the data, descriptive statistical analysis was performed. This involved determining frequency distributions, percentages, and measures of central tendency; particularly the mean. To show the strength of relationships between variables, Chi-square tests were carried out. This supplemented the descriptive statistics but also helped in determining the levels of significance of the relationship between variables. Thematic analysis was adopted to analyze qualitative data. The thematic analysis involved classifying and presenting the qualitative data collected under given themes as dictated by the research questions. Direct quotations from the respondents, who were interviewed, were presented.

FINDINGS

Response Rate

Of the total questionnaires that were distributed to be administered to 222 Current CHVs and 222 Former CHVs only two were not returned. Thus, the response rate was highly sufficient to facilitate further analysis of the data in response to the research questions.

Means of Transport, Self-Esteem, and Retention of CHVs in PHC

The study explored the contribution of means of transport to self-esteem and resultant retention of CHVs in PHC. The study sought to establish the means of transport that the respondents used in executing their duties as CHVs in the community. The findings are presented in Figure 1.

CHVs were involved in home to home visits promoting good health practices. It was for this reason that the means of transport became crucial. The findings presented in Figure 1 show that 50 (22.6%) of former CHVs used bicycles in their PHC work, 51 (23.1%) motorcycles, 7 (3.2%) cars, and 113 (51.1%) none, that was, walked. Among the current CHVs, 35 (15.8%) used bicycles, 77 (34.8%) used motorcycles, 20 (9.0%) used cars, and 89 (40.3%) walked.

To explore the issue of how means of transport affects retention of CHVs, the respondents were asked to indicate the extent to which they agreed to number of statements that related to the means of transport they used. They were to rate the statements on a scale of 1–5, where (1) = Strongly disagreed, (2) = Disagreed, (3) = Medium/neutral, (4) = Agreed, and (5) = Strongly agreed. The mean ratings on the level of agreement for each of the statements on means of transport are provided in Table 1.

Findings presented in Table 2 show that the majority (83%) of the respondents agreed to the statement that; “I use my own means of transport to reach out to the clients” (mean

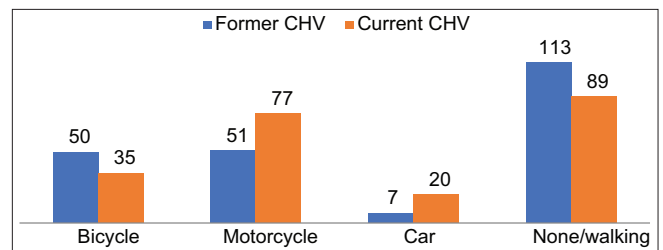


Figure 1: Distribution of community health volunteers by means of transport used while on primary health-care service provision

Table 1: Health facilities in Bungoma county

Type of health facility	GoK owned	FBO/NGO/private owned	Total
Hospitals	10	4	14
Nursing homes	0	3	3
Health centers	25	1	26
Dispensaries	83	8	91
Community units	100	32	132

Source: (15)

rating of 4.12). A considerable majority (67%) also agreed to the statement “Means of transport given to CHVs contribute to retaining them in PHC service provision” (mean rating of 3.50). Another statement to which a clear majority agreed was “Local shops and garages had spare parts and skilled personnel to maintain/repair donated bicycles and motorcycles” (mean of 3.22). A majority (68.6%) of the respondents agreed to the statement “I often hire motorcycles for use in reaching out to the clients” (Mean Rating 3.8).

The statements where a majority of the respondents did not agree include “Motorbikes and bicycles donated to CHVs were regularly maintained/ repaired” (mean rating of 1.87; 77.2% disagreed), “Ministry of health at times gives us their vehicles for use” (mean rating of 2.24, 69.5% disagreed), “I received donation of a motorcycle to use in my daily operations” (mean rating of 2.45, 59% disagreed), and “At times I find it very difficult to reach out to the clients who were in the remotes areas” (Mean of 2.15, 84% disagreed);

The findings generally tended to show that a means of transport were important but there were some challenges in access and use. From a majority of FDGs and KIIs, it was reported that CHVs experienced difficulties in reaching out to their clients because of either lack of means of transport or inappropriate means of transport. For example, a bicycle cannot be used in muddy/poor terrain areas. In some situations, the CHVs used public means of transport such as motorcycle, taxi (matatus) and were not refunded their fares. The study sought to establish the kind of transport challenges that the CHVs experienced in the course of delivering PHC. The findings are presented in Figure 2.

As shown in Figure 2, the major challenge that affected current CHVs was the long distances they had to cover, which

Table 2: Mean rating of the level of agreement to statements on means of transport

Statements on means of transport	1	2	3	4	5	Mean	Std. D
	30.40 (%)	28.60 (%)	14.60 (%)	18 (%)	8.40 (%)		
I received donation of a motor cycle to use in my daily operations	40	42.90	5.70	11.40	0.00	1.89	0.98
I use my own means of transport to reach out to the clients	5.70	5.70	5.70	37.20	45.70	4.12	0.90
Many areas were not accessible using bicycles	40.00	46	0.00	8.70	6	1.95	0.74
Ministry of health at times gives us their vehicles for use	28.60	40.90	14.20	10.60	5.70	2.24	1.29
At times I find it very difficult to reach out to the clients who were in the remotes areas	50.30	33.70	12	9	5	2.15	0.87
I often hire motorcycles for use in reaching out to the clients	8.60	5.70	17.1	34.3	34.3	3.8	1.03
Means of transport given to CHVs contribute to retaining them in PHC service provision	14.30	14.30	4.70	41.90	25	3.50	1.39
Motorbikes and bicycles donated to CHVs were regularly maintained/repared	46	31.50	15.10	5.70	2.00	1.87	0.76
Local shops and garages had spare parts and skilled personnel to maintain/repair donated bicycles and motorcyrcles	14.00	20.00	9.00	44.00	13	3.22	1.28

CHVs: Community health volunteers

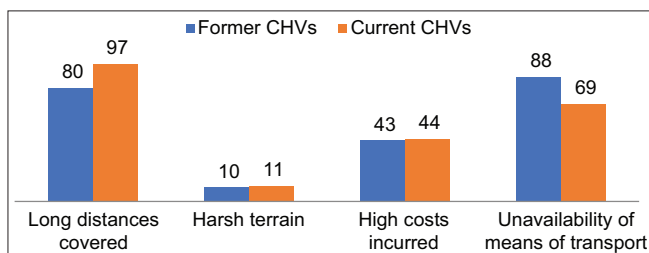


Figure 2: Distribution of community health volunteers by difficulties encountered in reaching their clients

was followed by unavailability of means of transport then high costs incurred. In contrast, the former CHVs were most affected by unavailability of means of transport then long distances then the transport costs, which they incurred. What came out through the FGDs and KIIs was a contradiction to the difficulties identified as presented in Figure 3. For instance, one KI had the following to say regarding means of transport:

Means of transport ought not to be a challenge for CHVs considering the area they cover. In the county, it was estimated that there were 10 CHVs per sub-location. This means that one CHV handles 100 households. Considering Bungoma County had a high population density, the 100 households were estimated to be found within an area of 3 km² in rural areas and 1 km² in urban setups. Such an area was considered to be a walking distance, and the means of transport only helps to reduce response time.

The responds were asked to identify their preferred means of transport. This was aimed at identifying the most convenient means of transport that most CHVs would be comfortable with. Out of bicycle, car, motorcycle, and walking the preferences of the respondents are presented in Figure 3.

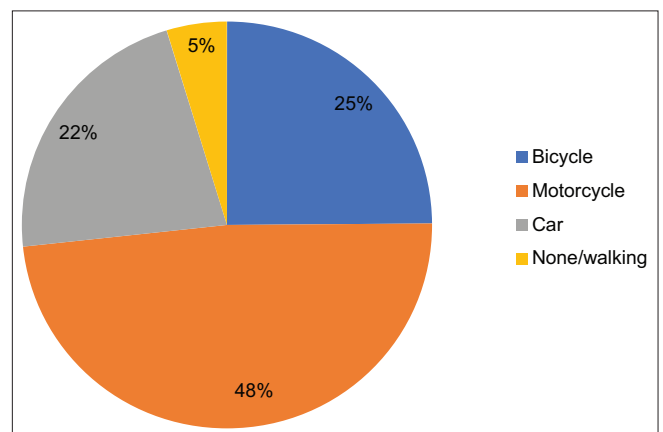


Figure 3: The most preferred means of transport by community health volunteers

The most preferred means of transport for the CHVs, as shown in Figure 3, were the motorcycle (48%). This was followed by the bicycle (25%) then car (22%) and only 5% prefer walking. The maximum kilometers as CHV can cover per day were 3 km and from the household furthest from their homestead. The challenges of road network and maintenance costs lead to the motorcycle being the most preferred, followed by the bicycle. Prestige and Maintenance costs were key concerns when it comes to preferred means of transport. This was what one of the respondents had to say during the FGDs:-

Personally, I use a bicycle when visiting households. I prefer a bicycle because it allows for flexible travelling as I can pass through any route and even use short cuts. The bicycle was easy to maintain as it does not require fuel and depending on how it was used, it does not breakdown easily. However, when I had to move quickly and the place was far, I often had to use motorcycle taxi services. They were accessible and were not very expensive. Using a motorcycle also tends to give the user some prestige.

The study sought to establish the challenges faced in maintaining the different vehicles used as a means of transport by the CHVs. The CHVs were asked to comment about maintenance of vehicle (means of transported) donated to them for their work as CHVs; their responses are presented in Table 3.

As shown in Table 1, only 40 respondents felt that the means of transport were maintained regularly. Out of 442 respondents, 71 indicated that maintenance was not a problem because spare parts were available in local shops and garages. Apart from spare parts being available, 97 had the confidence that skilled local people/repairers were readily available and thus the vehicles or means of transport could be repaired locally. However, majority (234) felt maintenance of donated vehicles not done at all or the vehicles were not available.

Contribution of CHV Drug Kits to Self-Esteem and Resultant Retention of CHVs

The study sought to determine the contribution of drug kits as a strategy of CHVs retention. To explore the use of drug kits among the CHVs, the respondents were provided with statements relating to use of drug kits among CHVs. The respondents were asked state the extent to which they agreed to the statements.

The ratings were on a scale of 1–5, where (1) = Highly disagree, (2) = Disagree, (3) = Neutral, (4) = Agree, and (5) = Strongly agree. The frequency distributions for the responses against each of the statements are provided in Table 4.

Table 4 presents the levels to which the respondents agreed to various statements on availability and use of drug kits by the CHVs. The statement “*I had and use an emergency or home or CHV’s drug kit*” had a mean rating of 3.34 with 48.6% agreeing and 14.3% disagreeing while 37.1 were not sure. This means that 52% of the respondents did not had or were not confident about the drug kits they had. This finding

shows that some CHVs had access to drug kits while others did not.

The Statement I receive regular supply of CHV’s drug kits received a low level of agreement (22.8% of the respondents agreed while 42.9% disagreed and 34.3% were not sure) with a mean of 2.71. However, the statement “*CHV’s drug kit contains all the necessary items needed by the community*” received a more respondents (62.9%) agreeing to it (mean rating of 3.46). This seemed to imply that the drug kits were not readily available but when available the drug kits had all that the community needed and facilitated optimal CHVs response.

With a mean rating of 2.89, the respondents tended to be neutral about the statement that drug kits were appreciated by the communities served. Looking at the percentages 40% disagreed, and 31.4% agreed while 28.6% were not sure. This implies that the drug kits were appreciated in some cases while in some instances they were not. This situation as captured through the sentiments shared in FGDs was precipitated by community members not having faith in CHVs using the drug kits to effectively treat diseases.

Further, the respondents were divided on the statement that CHVs understand how to use drug kits (51.4% agreed, and 31.7% disagreed while 114% were not sure). The CHV program was designed such that CHVs were trained on use of the drug kit items. However, unless the CHVs were provided with drug kits and get practical feel or appreciation of using the kits in the field, they were likely not to understand the use of drug kits in their work. The statement drug kits motivate CHVs in their PHC work was agreed to by the majority of the respondents (67.1%) with 25.8% disagreeing while 7% were not sure (mean rating 3.20). The statement drug kits receive adequate funding from government and partners had a mean rating of 2.11; 75% disagreed to the statement while 24% agreed and 1% were not sure.

There was variance in the responses to the statements on drug kits. To determine whether the variation was caused by differences in opinion across the two categories of respondents (former and current CHVs, cross-tabulation was done and the p-value from the Chi-square test was considered). The results are given in Table 5.

Table 5 shows the strength of relationship between ratings given to various statements on drug kits and the gender of category of CHVs. Considering the significance levels provided; there was no relationship between category of CHVs and respondents’ levels of agreement on four statements. The statements were “*I had and use an emergency or home or CHV’s drug kit*” ($P = 0.249$) “*I receive regular supply of CHV’s drug kits*” ($P = 0.626$), “*CHV’s drug kit contains all the necessary items needed by the community*” ($P = 0.487$), and “*Drug kits receive adequate funding from Government and partners*” ($P = 0.224$).

Table 3: Distribution of CHVs on maintenance of donated means of transport

Maintenance and repair of donated means of transport	CHV status		Total
	Former CHV	Current CHV	
Regularly done	18 (8.1%)	22 (10.0%)	40
Spare parts were available in local shops and garages	31 (14.0%)	40 (18.1%)	71
Skilled local people/repairers were available	40 (18.1%)	57 (25.8%)	97
Not done at all/not available	132 (59.7%)	102 (46.2%)	234
Total	221	221	442

CHVs: Community health volunteers

Table 4: Level of agreement with statements on drug kits

Statement on use of drug kits by CHVs	1	2	3	4	5	Mean	Std. Dev
I had and use an emergency or home or CHV's drug kit	5.7%	8.6%	37.1%	42.9%	5.7%	3.34	0.94
I receive regular supply of CHV's drug kits	14.3%	28.6%	34.3%	17.1%	5.7%	2.71	1.10
CHV's drug kit contains all the necessary items needed by the community	8.6%	20.0%	8.6%	42.9%	20.0%	3.46	1.27
Drug kits were appreciated by the communities served	20.0%	20.0%	28.6%	14.3%	17.1%	2.89	1.37
CHVs understand how to use drug kits	14.3%	22.9%	11.4%	25.7%	25.7%	3.26	1.44
Drug kits motivate CHVs in their PHC work	8.70%	17.1%	7.10%	30%	37.1%	3.70	1.18
Drug kits receive adequate funding from Government and partners	48.00%	27.00%	1.00%	14.00%	10.00%	2.11	1.38
Valid N (listwise)	442						

CHVs: Community health volunteers

Table 5: P-value for the relationship between the category of CHVs and response to statements on drug kits

Statement on use of drug kits by CHVs	P-value
I had and use an emergency or home or CHV's drug kit	0.249
I receive regular supply of CHV's drug kits	0.626
CHV's drug kit contains all the necessary items needed by the community	0.487
Drug kits were appreciated by the communities served	0.087
CHVs understand how to use drug kits	0.119
Drug kits motivate CHVs in their PHC work	0.086
Drug kits receive adequate funding from government and partners	0.224

CHVs: Community health volunteers

This implies the sentiments of the respondents on these issues were not dependent on their category; the issues did not affect former or current CHVs in a more profound way. When the sentiments were CHV category-specific, it means the issue the category of CHVs profoundly; thus, the different categories had markedly different opinions in comparison to the other categories. Therefore, the sentiments of the respondents on those statements were cross-cutting and were not influenced by category of CHVs.

The relationship between category of CHVs and statements on drug kits was not significant at the 95% confidence level. However, at the 90% confidence levels, three statements showed that there was a significant relation with $P < 0.1$. The statement "CHVs understand how to use drug kits" had a $P = 0.086$, "Drug kits were appreciated by the communities served" had $P = 0.87$ while "Drug kits motivate CHVs in their PHC work" had $P = 0.119$. Although the relationship was weak, the responses to these statements were influenced by whether the respondent was a current or former CHV.

From FGDs and KIIs conducted, it was reported that availability of CHV drug kits motivated CHVs to carry out PHC work. The drug kits were also appreciated by the community and increased the credibility of CHVs. However, it was also reported that the supply of the kits was irregular. "We get more respect and appreciation from the community when

we had drug kits than when we do not have them, however, we do not receive drug kits regularly." From the FDGs and KIIs, it was reported that the availability and utilization of drug kits by the CHVs were appreciated by the community and in return the CHVs were also appreciated. The absence of the drug kit by the CHVs made their credibility in the community suffer because of limited basic curative services. It was also reported that a supply of the drug kits was not regular.

DISCUSSION OF RESULTS

CHVs were involved in home to home visits promoting good health practices. Most of the CHVs (51%) do not had a means of transport provided by either the ministry or its partners. This means that half the CHVs had to find a means of transport every time they had to move around and execute their mandate in the community. Given they do not had high incomes to hire a means of transport; they had to walk in the course of executing their duties. Among those that had access to a means of transport, most use bicycles then motorcycles and only 3.2% indicated they use car as a means of transport.

The majority of the respondents, 67% agreed that the means of transport given to CHVs contributed to the retention of CHVs in PHC service provision. The findings showed that the means of transport used by CHVs. Comparing current and former CHVs, the study established that the former CHVs were most affected by unavailability of means of transport. The means of transport most preferred by the CHVs in Bungoma was Motorcycle (48%), followed by the bicycle (25%), then car (22%), and walking (5%). This finding was consistent with a study by INSTAT,^[9] which established that bicycles given to the CHVs resulted into increased number of household visits of patients/clients, greater area of coverage, less time spent on PHC work, and more time spent at home by CHVs. This scenario motivated CHVs and consequently positively impacted on their retention in PHC work.

Another study,^[17] in Madagascar, on CHV mobility program showed that the use of quality bicycles increased performance and motivated CHVs. Quality bicycles improved the mobility, motivation, and even social status of CHVs and were

recommended for future community-based health programs where CHVs experienced transport challenges.

The study^[17] further recommended the provision of bicycles with the training on safe riding, maintenance, and repair of the bicycles and provision of repair kits to prolong the useful life of the bicycles and in some cases improve the safety of the CHVs. The CHV mobility model should be linked with local bicycle shops for continuous training and sustainability of local maintenance and repair.

Only 48.6% of the respondents indicated that they had a drug kit. This means that 52% of the respondents did not had or were not confident about the drug kits they had. This finding shows that some CHVs had access to drug kits while others did not. Most of the respondents (62.9%) agreed that the CHV's drug kit contains all the necessary items that were needed by the community. The drug kits were not readily available but when available the drug kits had all that the community needed and facilitated optimal CHVs' response to health issues in the community. However, many respondents (40%) indicated that drug kits were not appreciated by the community. While the drug kit was appreciated by the CHVs, the community does not pay much attention or was not keen on the drug kit. The challenge arises from what CHVs had been able to achieve relating to treatment of people in the community.

The majority of the CHVs (67.1%) agreed that drug kits motivate CHVs in their PHC work. This finding was in agreement with a study by 12 that found out that the respect and status of CHVs in their communities unquestionably increases when they had drug kits at their disposal and CHVs credibility suffered when drug kits supplies were irregular.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The majority of the CHVs, in Bungoma County, did not have a means of transport provided by either the ministry or its partners. Thus, they had to walk in the course of executing their duties. Among those that had access to a means of transport, most use bicycles then motorcycles. The means of transport contributes to retention of CHVs because it contributes to their esteem while enhancing efficiency in their work. The means of transport most preferred by the CHVs in Bungoma were motorcycle followed by the bicycle.

A majority of the CHVs in Bungoma County did not have drug kits available for their use in PHC work. Drug kits were appreciated by the CHVs as an important requirement for their work. However, the community in Bungoma County does not appreciate the importance of the drug kit because they rely on dispensaries and health-care facilities for their treatment needs. The drug kit motivates the CHVs because it

facilitates them to execute health functions in community and thus builds their esteem in the community.

Recommendations from the Study

The Department of Health and its partners in the County Government of Bungoma should endeavor to provide additional bicycles to CHVs to increase their mobility in the communities while on PHC service provision. However, a robust bicycle repair and maintenance program should be initiated and supported by the County Department of Health and its partners. Where bicycles cannot be given out, alternative arrangements should be put in place to make CHVs mobile in the communities while on PHC service provision. The government can roll out a subsidy program where CHVs acquire motorcycles on credit, use them to generate income while also serving community and pay for them over a period of time.

The County Government of Bungoma together with its stakeholders in PHC should endeavor to expand the supply of drug kits to all CHVs in the county. However, strategies for sustainable supply of drug kits to CHVs should be put in place to avoid irregular supply of the commodity.

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