

The Role of Income Generating Activities in Sustainable Retention of Community Health Volunteers in Primary Health-Care Service Provision in Bungoma County, Kenya

Mureka B. Nyongesa¹, Rosebella O. Onyango¹, Rose Kakai²

¹Department of Public Health, Maseno University, Kisumu, Kenya, ²Department of Medical Microbiology, Maseno University, Kisumu, Kenya

ABSTRACT

The role of community health volunteers (CHVs) in provision of primary health-care (PHC) has been widely acclaimed as poignant. CHVs help not only in addressing shortage in trained health workers but also in improving access to health services. Several studies have been done on how to motivate and retain CHVs. However, a detailed study focused on income generating activities (IGAs) had not been done. In Kenya, devolution was embraced in 2010 and there is a drive toward community owned development processes. Thus, in each county, there are efforts for community engagement in provision of health-care services. However, due to budgetary constraints, the CHVs program is not adequately financed. To sustain the program, IGAs are encouraged and supported. The objective of the study was to evaluate the contribution of IGAs run by CHVs toward their sustainable retention in 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; focus group discussion guide for current and former CHVs who were identified from existing records. Descriptive data were summarized through calculating and tendencies determined through the mean and the standard deviation. To explore relationship between variables, Chi-square test was done. This study established that stipends payment is a major factor affecting retention of CHVs in Bungoma County. The stipends paid were very low (inadequate), are paid irregularly, were not commensurate with the work load, and thus were not satisfactory to the CHVs. This enhanced the need for IGAs as a strategy for retention of CHVs in the PHC. The CHVs appreciated the need for an IGA in the Community Units (CUs). The popular IGAs in the CUs included table banking, poultry farming, dairy farming, horticulture farming, retail business, brick making, and goats rearing. Most IGA projects were not effective in contributing to retention of CHVs in PHC due to not only lack of enough capital for scaling up but also lack of proper management due to lack of training in business management and to group dynamics management.

Key words: Community health volunteer, income generating activities, primary health care, sustainable retention

INTRODUCTION

Since 1978, when the Alma Ata Conference on Primary Health Care (PHC) was held, there has been international interest in the role of community health volunteers (CHVs) in the provision of basic health services. In response, CHV programs were established in many developing countries. In the 1970s and 1980s, CHVs were considered the foundation for providing primary health care and there was great enthusiasm for their role.^[1] The focus on

PHC addressed two underlying goals; to address shortages of health professionals with a low cost alternative; and, more fundamentally, to create political change agents in communities.^[1] Globally, health worker shortages continue to plague developing countries. CHV programs are increasingly being promoted to extend PHC to underserved populations.^[2]

Initially, after the 1978 Alma Ata Conference, the CHVs were used by national health ministries as key agents in the delivery of PHC.^[3] However, by the early 1990s, enthusiasm

Correspondence: Mureka B. Nyongesa, Department of Public Health, Maseno University, Kisumu, Kenya. E-mail: bmureka83@gmail.com

for CHV programs had diminished in part due to the challenge of poor retention and motivation of the CHVs.^[3] Interest in Community Health Workers (CHWs) has resurged in recent years; however, there remains a lack of available adequate information related to CHV retention and motivation.

As documented by the World Health Organization, there is need for proven strategies in sustainable retention of CHVs.^[4] There are documented programmatic experiences relating to CHV motivation; however, there has been little documentation relating income generating activities (IGAs) as a sustainable CHV retention strategy.^[5]

Statement of the Problem

Retention of lay health workers in PHC service provision is a big challenge in many countries and settings.^[6] The global challenge of motivating and in turn retaining CHVs is of paramount importance as poor motivation and high dropout rates can negatively impact program effectiveness, cost, and sustainability.^[7] Attrition of CHVs is higher, especially in large scale programs, when CHVs are not paid.^[8]

The health worker crisis, especially in sub-Saharan Africa, has triggered a renewed interest in CHVs since they have the potential to take over a number of tasks from the professional health workers, particularly in scaling up anti-retroviral therapy for those infected with HIV and AIDS and the promotion neonatal and child health.^[9] The African health worker crisis is particularly acute in rural and hard-to-reach areas, in which 80% of the population lives. The use of CHVs has been identified as one strategy to address the growing shortage of health workers, particularly in low-income countries.^[10] While the use of CHVs has been embraced, the retention of CHVs remains a challenge. This is because retention rates, as shown in a number of studies, vary from between 23% and 97%.^[8] Whereas there have been a few researches in Africa on the sustainable retention of CHVs, there is a general lack of published research work providing details on the strategies for sustainable retention of CHVs in PHC service provision in Bungoma, Kenya. This study focuses on IGAs and provides an account of how IGAs contribute to retention of CHVs in Bungoma County.

LITERATURE REVIEW

IGA and Retention of CHVs in PHC

A study^[11] in Bangladesh found out that there were various motivational factors for becoming a CHV. Such motivational factors include desire to do some work for children, earn a profitable income, have access to medicine, make people aware about contraception and immunization and finally, learn about health and hygiene of her own children and neighbors.^[11] In addition, the CHVs were motivated because if she or anyone in the village became ill there would be an

advantage in them knowing all the health information; their involvement in the treatment process earns the CHV a name and fame.^[11] In Bangladesh, to make the CHV economically self-dependent, BRAC supplied credit to the CHVs so that they could undertake small income-generating activities such as poultry rearing.^[11]

A study,^[12] in Bangladesh, found out that volunteers were permitted access to small-scale IGAs in return for participating in the program. In addition, the volunteers maintained an elevated social status and were respected within their communities. As such, the retention rate for the volunteers was high. Helping them set up community-based IGAs, the profits of which were devoted to supporting the CHV, to cover up their time which could have been used otherwise, were a good incentive.

If the area had more households which relied on agriculture as their major livelihood strategy, then used horticulture and production of any products that boosted the immunity of the body: Created positive changes in the lives of the CHV as well as boosted their interest in the project. The gaps in this study are lack of findings on the balance between time spent on the program and on IGA and on associations/relationships between IGAs run by CHV and sustainable retention in PHC service provision.

A report Mays *et al.*^[13] based on a study in Kabarole District, Uganda; found out that community health volunteers involved in the onchocerciasis control program combined the distribution of drugs to control onchocerciasis with the retail of condoms, which became an income-generating activity. This was an innovative way of compensating volunteers for their time. In several countries, volunteers receive no payment, but do receive incentives with monetary value, for example, a bicycle that can be used for other purposes.^[13] Payment is needed to sustain the required level of commitment in the long run whenever CHVs are contributing an amount of time comparable to that given by professionally trained health workers. No CHWs' program, whether relying on volunteers or paid workers, is without costs, and every such program will need a budget to be effective and sustainable. The gaps in this study are lack of findings on the balance between time spent on the program and IGA run by the CHV and on associations/relationships between IGAs as and sustainable retention of CHVs in PHC service provision.

In Gatenga, Gikondo and Kigarama, Rwanda, Hope and Homes for Children conducted a 4 days training of 64 CHVs and cell officers in charge of social and economic development on small IGAs.^[14] As agents of social change, community volunteers need training on subjects that could enhance their interventions at community level and ensure that children were cared for and families were strengthened to keep their children and meet their needs.^[14] After this, training women and young men were grouped into cooperatives and

facilitated to get loans in Umurenge SACCO thus increasing their resilience and preventing their children from going to orphanages.^[14] In the long run hope and homes for children closed MporePefa orphanage and helped all children find their families.^[14]

In Kenya, Health Right International is a global health and human rights organization working to build lasting access to health for excluded communities.^[15] Health Right International began working closely with communities in the North Rift Valley of Kenya in 2005.^[15] In 2012, it supported the work of three Community Units (CUs) in West Pokot County which was linked to three Maternal Waiting Homes in Ortum, Kabichbich, and Kapenguria. Health Right International had supported the three CUs to set up IGAs to help support them in their work and support up keeping of the Maternal Waiting Homes.

By 2014, three poultry rearing projects have been set up and the progress is encouraging.^[15] The gap in this study is lack of findings on the balance between times spent on the program and IGA run by CHVs and on relationships/associations between IGAs run by CHVs and sustainable retention of CHVs in PHC service provision.

In Nyabina village, a project of IGA based on rearing and caring for goats for a group of volunteer CHVs was launched by Aid.^[15] This particular group of CHVs had been volunteering time and money to ensure running of community health services, since 2011.^[15] Their IGA revolved around selling goats' milk which was in high demand in the region. Income generated was distributed among the CHWs, used to purchase more goats and deposited into a group savings account so that the group could provide loans for families dealing with extreme poverty or other difficult circumstances.^[15] The first cycle worked with CHW program. It provided Segal's 17 CHVs with medical kits for home visits, a way to keep those kits supplied without having to rely on outside funding, and a source of personal income.

METHODOLOGY

Study Site

Bungoma County was the study site. It is situated in western region of Kenya and comprises 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 has 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).^[16] The annual growth rate is 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 CUs.^[16] There are 132 active CUs spread in all the nine sub counties of the study area with a total of 2010 CHVs. Each CU has an average of 15 CHVs and each CHV is in-charge of 20 households, which are 100 people. The ratio of male CHVs to female CHVs is approximately 1:2 and all of them (CHVs) know how to read and write [Table 1].^[16]

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 Community Health Extension Workers (CHEW). This included a CHV

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: Kenya National Bureau of Statistics^[16]

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 run by the CUs the CHVs belong to were motivational and demotivation factors for CHVs which included: Stipend payments, IGAs, 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 CUs.

Bungoma County had 2010 CHVs according (Bungoma County Reports, 2016). The sample size was determined by the formula cited in Mugenda and Mugenda.^[17]

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

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 have 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 is 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% will be 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:^[17]

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

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 have 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:

n_f = The desired sample size when the population is <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 from a pretested semi-structured questionnaire; key informant interviews (KIIs) and focus group discussions (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 and nine CHEWs drawn from the nine sub counties in the study area. These two cadres of human resource for health 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 such as the mean and standard deviation. 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. Thematic analysis involved classifying and presenting the qualitative data collected under given themes as dictated by the research questions. Direct quotations from the respondents, that were interviewed, were presented.

RESULTS

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.

Demographic Data of the Participants

The study sought to establish how long the CHVs had been in service and the results are presented in Table 2.

The number of years that the CHVs was in the service shows to indicate the retention levels of CHVs in Bungoma County. The results in Table 2 show that 77 (34.8%) of former CHVs said had worked for over 5 years, 25 (11.3%) for 4–5 years, 23 (10.4%) for 3–4 years, 44 (19.9%) for 2–3 years, and 52 (23.5%) for 1–2 years whereas 59 (26.7%) of the current CHVs said had worked for over 5, 18 (8.1%) for 4–5 years, 39 (17.6%) for 3–4 years, 85 (38.5%) for 1–2 years, and 20 (9.0% for 1–2 years. Almost half, 102 (46.2%) of the former CHVs had worked for more than 4 years whereas an almost similar number of current CHVs 105 (47.5%) had worked for <3 years. Apart from years in service, another important consideration is the amount of money that the CHVs were able to earn on a monthly basis.

This demographic figure can help show whether there are any differences in income between former and current CHVs. The distribution of income among the respondents is presented in Table 3.

Table 2: Distribution of CHVs by the number of years they had been in service

Number of years worked	CHV status (%)		Total
	Former CHVs	Current CHVs	
1–2 years	52 (23.5)	20 (9.0)	72
2–3 years	44 (19.9)	85 (38.5)	129
3–4 years	23 (10.4)	39 (17.6)	62
4–5 years	25 (11.3)	18 (8.1)	43
More than 5 years	77 (34.8)	59 (26.7)	136
Total	221	221	442

CHVs: Community health volunteers

Table 3: Levels of Income among CHVs

Household income (Kshs)	Former CHVs (%)	Current CHVs (%)	Total
(Note that: 1 USD=Kshs. 100)			
1000–5000	210 (95.0)	218 (98.6)	428
50,001–10,000	9 (4.1)	3 (1.4)	12
More than 10,000	2 (0.9)	0 (0.0)	2
Total	221	221	442

CHVs: Community health volunteers

The income distribution in Table 3 shows that there is no big difference between the income levels among former and current CHVs. In both former and current CHVs, a majority of them had a monthly income of between Kshs. 1000 and 5000. A small number of CHVs, 9 (4.1%) among the former and 3 (1.4%) among the current, had a monthly income of more than Ksh.5000. Among those who earned more than 10,000 Kshs, only two (0.9%) of the former said they earned over 10,000 whereas 0 (0.0%) of the current CHVs earn over 10,000 Kshs monthly. This findings show that the CHVs in Bungoma are individuals who survive on less than two dollars and thus are more likely not to meet their basic household needs.

Adequacy of Stipends

The study sought to establish whether the CHVs received stipends and from what source. The distribution on sources of stipends is provided in Table 4.

The findings presented in Table 4 show that 74 (33.4%) of the former CHVs said the MOH provided stipends, 39 (17.6%) received stipends from partners/NGOs/CBOs in health, and 10 (4.5%) relied on clients in the community to receive some form of payment, while 98 (44.3%) indicated that they did not receive any stipend.

Among the CHVs were current, 108 (48.9%) said the MOH provided stipends, 70 (31.7%) received stipends from partners/NGOs/CBOs, and 14 (6.3%) relied on clients in the community while 29 (13.1%) indicated they did not receive any stipend from any organization. In both former and current CHVs, the MOH was the major organization 182 (82.3%) providing stipends. However, the current CHVs had a substantial number 70 (39.7%) receiving stipends from partners/NGOs/CBOs as opposed to the former CHVs where only 39 (17.6) received from partners.

A substantial number of former CHVs 98 (44.3%) had no organization paying them stipends whereas only 29 (13.1%) of the current CHVs had no organization paying them stipends. In general, the majority (80%) of current CHVs were receiving stipends in comparison to former CHVs where only 50% were paid stipends either by MoH or partners. This indicates that

lack of stipend payment might have been one of the major concerns leading to non-retention of the former CHVs.

To explore issues to do with the nature and adequacy of the stipend, the respondents were asked to rate a number of questions relating to stipends on a Likert scale. They were to rate the statements on a scale of 1–5, where (1) = Strongly disagree, (2) = Disagree, (3) = Not Sure, (4) = Agree, and (5) = Strongly agree. The frequency distributions for the responses against each of the statements are provided in Table 5.

The mean ratings in Table 5 show the central tendency in the responses given by the respondents. The statement “I am paid stipends” had a mean rating (mean 2.78) with 34% disagreeing to it while 42% were agreed and 25% were neutral.

This shows that quite a number of respondents did not receive stipends and a number of those who received some money were not sure (did not believe or were not satisfied) that they received a stipend. The respondents also tended to be non-committal on the statements: “I am satisfied with stipend payments” (Mean, 2.45); “I am willing to continue working as a CHV” (Mean, 2.57); and “Stipend is complemented by other incentives” (mean, 2.81). On whether, they are satisfied with stipend payments, 67.7% did not agree while 20.5% agreed and 17.9% were neutral. This implies that the majority (80%) of the respondents were not satisfied with the stipend paid. Asked whether the stipends are complemented by other incentives 43.2% disagreed while 35% were agreed and 21.3% were non-committal. A very low percentage (21.3%) agreed that stipends are accompanied by other incentives that they could recognize. The majority of the respondents (63.1%) are not willing to continue working as CHVs, 33.7% are willing while 3.2% were non-committal. This finding indicates that former CHVs and some of the current CHVs have no motivation to continue working as CHVs.

More CHVs (42.9%) agreed, as compared to 22.8% who disagreed that they had received stipends for the past 1 year (mean, 3.23). However, considering the non-committal (34.3%), it means that the majority of the respondents (57%) did not or were not sure about receiving stipends in the past 1 year. The respondents tended to disagree with the statements: Stipend payments are regular (Mean, 2.40–64.7% disagreed, and 32.4% agreed while 2.9% were neutral); stipend payments are enough to meet my domestic needs (Mean 1.98: 77.2% disagreed, and 2.7% agreed while 20.1% were neutral); and stipends are commensurate to work done by CHVs (Mean 2.16; 76.2% disagreed, and 11.8% agreed while 12% were neutral).

In general, the respondents tended to disagree to most of the statements on stipends payment. However, there was variance (as indicated by the standard deviations) because some respondents agreed to the statements. To measure whether the variance was occasioned by difference in

Table 4: Distribution of CHVs on whether they receive and source of stipends

Organization paying/paid stipends	CHV status (%)		Total
	Former CHVs	Current CHVs	
MOH	74 (33.4)	108 (48.9)	182
Partner/NGO/CBO in the county	39 (17.6)	70 (31.7)	109
Clients in the community	10 (4.5)	14 (6.3)	24
None (Does not receive a stipend)	98 (44.3)	29 (13.1)	127
Total	221	221	442

CHVs: Community health volunteers

Table 5: Mean of Likert Scale rating of statements on adequacy of stipends

Statements on nature and adequacy of stipends	1	2	3	4	5	Mean	SD
I am paid stipends (%)	28.7	5.4	24.7	41.2	0	2.78	1.04
Stipend payments are regular (%)	29.9	34.8	2.9	29.9	2.5	2.40	1.98
Stipend payments are enough to meet my domestic needs (%)	23.1	56.1	20.1	37.1	0.6	1.98	0.90
I am satisfied with stipend payments (%)	19.5	42.10	17.9	11.2	9.3	2.03	0.74
I am willing to continue working as a CHV (%)	26.2	36.9	3.2	21.5	12.2	2.57	1.29
Stipend is complemented by other incentives (%)	19.2	24	21.3	27.6	7.9	2.81	0.87
I have received stipends for the past 1 year (%)	5.7	17.1	34.3	34.3	8.6	3.23	1.03
Stipends are commensurate to work done by CHVs (%)	15.6	61.1	12	8.2	3.6	2.24	0.89
I receive stipends through the bank (%)	0	11.4	31.4	45.7	11.4	3.57	0.85
Valid N (list wise)				442			

SD: Standard deviation, CHV: Community health volunteers

responses between the two categories of respondents (current and former CHVs), cross tabulation was done between the type of respondent (whether former or current CHVs) and the responses to the statements on adequacy of stipends. Out of the cross tabulation run, the Chi-square statistic was considered. The P-value shows whether the relationship is significant or not. The summary results of the tests are presented in Table 6.

Table 6 shows whether there is any statistically significant relationship between the levels of agreement to statements on adequacy of stipends and the category of CHVs. Taking the desired confidence level of 95%, the desired $P = 0.05$ or less. Thus, any P -value equal or lower than 0.05 implies a strong relationship existed between type or category of CHVs and their rating of the statements. There was a strong relationship between levels of agreement on statements “*stipends are paid regularly*,” “*I am satisfied with stipends payments*,” “*Stipend is complemented by other incentives*,” and “*I have received stipends for the last one year*.” This implies that these issues affected the different groups differently.

To ascertain this, cross tabulations were done and it was established that more of the former CHVs (72.7%) disagreed with stipend payment being regular, compared to 56% of the current CHVs who disagreed to stipend payment being regular. The p-value for the Chi-square test on relationship between category of CHVs and their levels of agreement on statement, I am paid stipends (0.241); stipend payments are enough to meet my domestic needs (0.084); stipends are commensurate to work done by CHVs (0.286) and I receive stipends via the bank (0.342) are >0.05 . This implies there was no relationship between how the respondents rated and whether they were current or former CHVs. In the FGDs and KIIs conducted, it was reported that for those few CHVs that received stipends, the payments were irregular. “Sometimes it takes as long as 3 months before we receive stipends” said a CHV during an FGD. This was confirmed by KIIs with the CHVs supervisors. From the FGDs and KIIs conducted, it was reported that some CHVs received other incentives

Table 6: P-values for relationship between response to statements on adequacy of stipends and category of CHVs

Statements on nature and adequacy of stipends	Sig. (P value)
I am paid stipends	0.241
Stipend payments are regular	0.010
Stipend payments are enough to meet my domestic needs	0.084
I am satisfied with stipend payments	0.001
I am willing to continue working as a CHV	0.032
Stipend is complemented by instruction, food, and/or accommodation	0.054
I have received stipends for the past 1 year	0.002
Stipends are commensurate to work done by CHVs	0.286
I receive stipends through the bank	0.342

CHVs: Community health volunteers

to complement stipends paid. The other complementary incentives given include identification bags, badges, t-shirts, and trainings by MOH and partners.

Further the FGDs and KIIs conducted revealed that the stipend payments were not commensurate with the PHC work done by CHVs. One of the CHVs had this to say “*I do a lot of PHC work in the field everyday but the money I am paid is very little*.” Another respondent said; “*I do heavy work yet I am paid nothing; I only but volunteer*.” Both the former and current CHVs were not satisfied with the stipend payments. However, as the FGDs revealed, the satisfaction with the money is influenced by other factors such as size of the family. One of the respondents said “*I am not satisfied with the amount of money I receive for PHC work done. I feel it should be reviewed upwards*.” And yet another respondent said; “*I am happy with the little money I receive. It supplements and helps me to feed my small family*.”

Considering the sentiments shared during the FGDs, both former and current CHVs expressed willingness to continue working in PHC but only if certain issues were addressed. Some of the pertinent issues that need to be address are irregularity of

stipend payment, lack of stipend payment, insufficient stipends paid and heavy work that is not commensurate with stipends paid. One of the former CHVs had this to say “*I am not willing to continue working as a CHV; I would rather go and sell vegetables on the market.*” The selling of vegetables on the market is more rewarding because it provides daily income to the individual. A number of respondents expressed willingness to continue working as CHVs not because of the money but because of the services they render to the locals. For instance, one CHV shared that “*I am willing to continue working as a CHV because it is a calling to help my people.*”

Contribution of IGAs to Sustainability and Retention of CHVs in PHC

The study considered whether the CHVs had any IGAs in the CUs. The findings are presented in Figure 1.

IGAs in the CUs would help enhance self-reliance among the CHVs. Figure 1 shows that 88 (39.8%) of the former CHVs said they had operational IGAs in their CUs and 133 (60.2%) of them had none while 127 (57.5%) of the current CHVs said they had operational IGAs in their CUs and 94 (42.5%) had none. Slightly more than half of the current CHVs, 127 (57.5%) had operational IGAs in their CUs while a substantial number of former CHVs, 88 (39.8%) had operational IGAs in their CUs. The majority of the former CHVs 133 (60.2%) had no operational IGAs in their CUs.

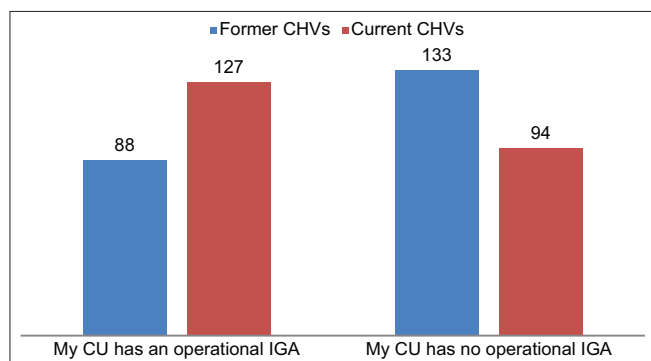


Figure 1: Distribution of community health volunteers by availability of operational income generating activities in Community Units

A substantial number of current CHVs 94 (42.5%) said they had no operational IGAs in their CUs. The findings show an increase in CHVs having IGAs in their CUs. As explained by a key informant, all CUs in the county received funding to establish an IGA. Through the help of World Bank, each CU was awarded Kshs 65,000 so that they can start a project of their choice. However, group projects tend to be difficult to run unless proper structures and operational logistics are put in place. Many CUs did not have an operational IGA because the projects that they started with the money they were awarded failed.

The study sought to establish more about the IGAs in the CUs. The respondents were provided with a number of statements of IGAs and asked to indicate, on a Likert scale, the extent to which they agreed to the statements. They were to rate the statements on a scale of 1–5, where (1) = Strongly disagree, (2) = Disagree, (3) = Not Sure, (4) = Agree, and (5) = Strongly agree. The frequency distributions for the responses against each of the statements are provided in Table 7.

Considering the findings in Table 7, the majority of the respondents tended toward agreeing to most statements. The statement “*IGAs have been in operation for more than 3 years*” had a mean rating of 3.23. The majority of the respondents (48.6%) agreed to the statement 11.4% were non-committal while 22.8% disagreed. In general, the majority of the respondents knew about IGAs and that they had been in operation for more than 3 years. The statement “*There are various types of IGAs*” had a mean rating of 3.4. Most of the respondents (51.4%) agreed with the statement, 25.7% were non-committal on the statement while 22.9% disagreed to the statement.

Majority of the respondents (57.1%); mean rating (3.31) disagreed or were not committal on the statement “*Individual IGAs exist.*” This could be explained by the fact that most IGAs in were started through funding to the groups. Although funding was to the group, some CUs instituted projects like table banking that led to establishment of individual IGAs in the form of member owned small businesses or IGAs. This was confirmed considering the levels of agreement on the

Table 7: The extent to which respondents agreed to statements on IGAs

Statements on adequacy of stipends	1	2	3	4	5	Mean	SD
IGAs have been in operation for more than 3 years (%)	11.4	11.4	28.6	40	8.6	3.23	1.16
There are various types of IGAs (%)	0	22.9	25.7	40.0	11.4	3.40	0.98
Individual IGAs exists (%)	5.7	5.7	45.7	37.1	5.7	3.31	0.90
Group IGAs are also present (%)	5.7	9.0	0	40	46	4.11	0.74
In group IGAs, profit sharing is equally done (%)	5.7	20.9	14.3	30.6	28.6	3.56	1.29
Shared profits are enough to sustain CHVs in PHC service delivery (%)	50.3	23.7	12	9	5	1.94	0.87
IGAs are sources of adequate income to CHVs in PHC work (%)	34.3	34.3	17.1	5.7	8.6	2.22	1.03
IGAs are contribute to retaining CHVs in PHC service provision (%)	14.3	28.6	14.3	22.9	20	3.06	1.39

CHVs: Community health volunteers, IGAs: Income generating activities, PHC: Primary health care, SD: Standard deviation

statement “*Group IGAs are also present*” (mean rating of 4.11: 85.7% agreed while 14.3% disagreed). The statement “*In group IGAs, profit sharing is equally done*” the mean rating was 3.56, (59.2% were agreed, and 14.3% were neutral while 26.6% disagreed).

Several statements had a mean rating lower than 2.5 implying more respondents not being in agreement to the statements. The statement “*Shared profits are enough to sustain a CHVs in PHC service delivery*” had a mean rating 1.94; 74% were disagreed, and 12% were neutral while 14% agreed. This is further confirmed by the ratings on the statement “*IGAs are sources of adequate income to CHVs in PHC work,*” which had a mean rating of 2.22: 68.6% disagreed while 14.3% agreed.

The findings on IGAs show that the respondents were aware about IGAs. Both group and individual IGAs existed. However, the IGAs did not generate enough money to adequately help the CHVs meet their needs. For each statement, there was some level of variance in the responses; some respondents agreed while others disagreed. To understand whether the variance in responses resulted from differences in the category of CHVs (former against current), cross tabulation was done and the p-value of the Chi-square test used to determine whether there is a statistically significant relationship or association between CHVs category and the extent of agreement to the statements on IGAs. The findings are presented in Table 8.

Table 9 shows the *P*-value derived from a Chi-square test done testing strength of relationship between the extent of agreement with statements on IGAs and the category of CHVs. The *P*-value in a Chi-square tests helps to indicate whether the relationship is statistically significant or not. The acceptable levels of confidence are 95% thus $P = 0.05$

Table 8: *P*-values for relationship between response to statements on IGA and category of CHVs

Statements on IGAs	<i>P</i> -value (category and IGA)
IGAs have been in operation for more than 3 years	0.241
There are various types of IGAs	0.060
Individual IGAs exists	0.094
Group IGAs are also present	0.081
In group IGAs, profit sharing is equally done	0.132
Shared profits are enough to sustain a CHVs in PHC service delivery	0.074
IGAs are sources of adequate income to CHVs in PHC work	0.244
IGAs are contribute to retaining CHVs in PHC service provision	0.286

CHVs: Community health volunteers, IGAs: Income generating activities, PHC: Primary health care

or less implies that the relationship is very significant while $P > 0.05$ but ≤ 0.1 implies there is a relationship but not very strong. When the relationship is significant it means that the ratings by respondents in the study were CHVs category specific. When the sentiments are CHVs specific, it means respondents sharing the similar characteristic had similar views or gave similar ratings to the statements.

Thus, the issue affected the different groups differently from others. As shown in Table 9, the relationships did not have strong statistically significance because $P > 0.05$ in all cases. However, there are two cases where the relationship is significant at the 90% confidence level. From the FGDs and KIIs conducted, it was reported that IGAs would have been adequate source of income for CHVs but they lacked support from MOH and partners. In often cases, the CUs that had an IGA had to contribute to start up the project. One of the participants explained the issue as follows:

“In our CU we ran a poultry project. Our poultry keeping project has assisted us to put food on Table. I have personally benefited immensely from the group’s poultry project. I have learned about poultry rearing and I have gotten a share of the profits from time to time. However, Our CU lacks capital to invest further in the project so that more money is generated. What is generated is not sufficient to meet all the financial and domestic use needs of the members. Most of our members are small scale farmers and rely depend on the monthly stipend, that is inadequate, as the major income.”

From the FGDs and KIIs conducted, the respondents suggested that IGAs contribute to retaining CHVs in PHC. This is because the IGAs provide a source of income but also provides something around which members socialize as they support each other. One supervisor had this to say about IGAs:

IGAs are important and can help in a major way to effectively retain CHVs but also motivate them to work and deliver as per the CHV program objectives. In my experience, I have realized that IGAs create a bond among CHVs. They come together, they discuss issues, they implement activities, and they are able to encourage each other. The money they get from the IGAs helps keep them going because stipends are often irregular and inadequate. Government would do well to promote the starting of IGAs in the CUs. The main challenge is startup capital but also lack of resources to scale up the small IGA initiatives in the groups.

The study sought to establish the kind of IGAs that the CHVs are involved in and the distribution is presented in Figure 2.

As shown in Figure 2, there are various projects that the IGAs engage in. The majority (24%) of the CUs are involved in table banking. As described in the FGDs, table banking involves the CU pooling resources together and

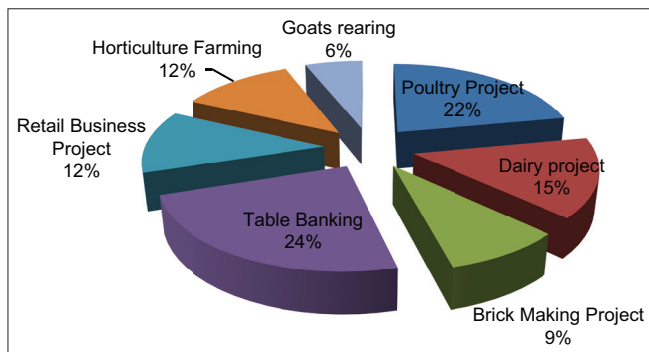


Figure 2: Types of income generating activities Engaged in by community health volunteers

members are issued with loans whenever they meet. The amount the members receive has to be repaid with interest in the subsequent meeting. The members hold each other accountable and make profits in the form of the interest on loans paid by members. Other IGAs include poultry farming (22%), dairy farming (15%), horticulture farming (12%), retail business (12%), brick making (9%), and goats rearing 5%. Most of the projects suffer from lack of enough capital but also lack of proper management due to group dynamics.

INTERPRETATION

Almost all 96.8%, CHVs had an income of between USD 10 and 50/month and this constituted low-income earners who struggled to meet their domestic needs. The findings on income showed that the CHVs in Bungoma are individuals who survive on less than two dollars and thus are more likely not to meet their basic household needs. The annual income by CHVs is low thus creating a huge need among the CHVs for stipends for the CHVs meet their basic needs. Perhaps this could be the reason why a substantial number (40%) exited from PHC service provision in the study area.

The findings of this study on CHV income were inconsistent with other studies done in Minnesota State, USA, where the CHVs earned a salary of between USD 12.25 and 18.6^[18] and in India^[19] where CHVs were provided with an honorarium of between Rs. 50 (USD 0.7) to 100 (USD 1.4) per month plus basic medicines worth Rs. 50 (USD 0.7).

The findings of this study are also inconsistent with the study by Gray (20) in Nigeria's Gongola State village health workers (VHWs) who received a salary of between USD 13 and 27/ month. This variance in payments or stipends between the CHVs in the study area and those in other study areas confirms that CHVs in Bungoma County are underpaid and this could be the reason for their high attrition rate from PHC. Considering the length of service, most CHVs in Bungoma County were in the service for over 4 years. In spite of their low income, 69.7% of CHVs had worked for at least 3–5 years in PHC in the study area. These findings

tended to be in contradiction to findings^[20] in Nigeria. In Nigeria, it was established that VHWs left their posts after 1–2 years.^[20] The finding from Bungoma was an encouraging because it alluded to willingness to serve among the CHVs. The finding meant that CHVs in the study area were patient in PHC work and with the right conditions; they could easily be retained in PHC work.

The majority (80%) of current CHVs were receiving stipends in comparison to former CHVs where only 50% were paid stipends either by MOH or partners. This indicates that lack of stipend payment might have been one of the major concerns leading to non-retention of the former CHVs. MOH is the major institution that paid the stipends of the CHVs. Only 42% of the respondents were affirmative that they receive stipends. This shows that quite a number of respondents did not receive stipends. Asked whether they were satisfied with stipends, majority (80%) of the respondents were not satisfied with the stipend paid. A very low percentage (21.3%) agreed that stipends are accompanied by other incentives that they could recognize.

The majority of the respondents (63.1%) are not willing to continue working as CHVs. About 63% is higher than the official 40% attrition rate associated with Bungoma. This finding indicates that former CHVs and some of the current CHVs have no motivation to continue working as CHVs. The majority (64.7%) of the respondents indicated that stipend paying was not regular. Moreover, a high majority of the respondents 97% showed that the stipend payments are enough to meet their domestic needs. Most of the respondents (88.2%) agreed or were not sure about stipends being commensurate to work done by CHVs.

The findings indicate that former and current CHVs felt differently on whether stipends are paid regularly, whether the stipends payments were satisfactory, and whether the stipends were complemented by other incentives. This suggests that had the conditions been the same for the former and the current, probably some of the former CHVs would still be in the CHV program. This goes to show that stipends are critical and contribute to retention of CHVs.

The MOH through the Department of Health, County Government of Bungoma, had planned and budgeted for CHVs stipends in the 2016/17 and 2017/18 financial years and was the leading organization (82.6%) that gave stipends to both former and current CHVs. However, the budget could not cater for all CHVs as more than half of them (57.5%) did not receive stipends. Partners in health (UN Bodies, NGOs, and CBOs) were ranked second among the organizations (49.3%) that gave stipends to both former and current CHVs.

Former CHVs had a small percentage (17.6%) of partners that gave stipends as compared to a substantial percentage (31.7%) of the current CHVs. This disparity in the percentages above

14.1% could explain the reasons why former CHVs exited from PHC. Similarly, 80% of the current CHVs received stipends from MOH and partners as compared to 51.0% of the former CHVs.

This disparity in percentages (29.6%) could further explain the reasons why the former CHVs exited from PHC. The fact that there were few partners in health to give stipends to former CHVs (17.6%) as compared to a substantial number to current CHVs (31.7%) could be another reason why the former CHVs exited from PHC. About 44.4% of the former CHVs did not receive stipends from any organization as compared to 13.1% of the current CHVs and this scenario could be another explanation for CHVs exit from PHC.

The findings on stipend payments are in tandem with the findings of a study (200 in Gongola State, Nigeria). It was established that low salaries were reported most often as the reason for the CHVs attrition from PHC work.^[20] In Kenya, a study by Gakunju^[21] showed that the sustainability and success of the services provided by CHVs were dependent on the amount of training and financial support they received from the government and partners. IGAs are an important source of income that can supplement the stipends. A study^[12] done in Bangladesh, showed that just like in Bungoma, which is an agricultural County; CHVs relied on agriculture as their major livelihood strategy. Consequently, having IGAs helped because it created positive changes in the lives of the volunteers as well as boosted their interest in the project (PHC work).

Another study,^[11] in Bangladesh, found out that the CHVs were supplied with credit so that they could undertake small IGAs such as poultry rearing. The volunteers maintained an elevated social status and were respected within their communities and as such their retention in PHC work was high.

From the findings, 60.2% of the former CHVs and 42.5% of the current CHVs said they did not have an operational IGA in their CU. The findings show an increase in percentage of CHVs having IGAs in their CUs when one compares former CHVs to current CHVs. Lack of IGAs for 60% of former CHVs is likely to have contributed to attrition from the CHV program due to unmet financial needs. The findings on IGAs show that the respondents were aware of IGAs. Both group and individual IGAs existed. However, the IGAs did not generate enough money to adequately help the CHVs meet their needs. The IGAs that CHVs engage in include table banking (24%), poultry farming (22%), dairy farming (15%), horticulture farming (12%), retail business (12%), brick making (9%), and goats rearing 5%. Most of the projects suffer from not only lack of enough capital but also lack of proper management due to group dynamics.

Lack of start-up capital for IGAs was reported as the major reason for the absence of IGAs in many CUs. The findings

of this study were consistent a study^[22] on empowering CHVs in rural Kenya – a case study of Orongo widows and orphans program in Kisumu East District where the biggest challenges were work demands and high expectations while group income generation was found to be highly popular.

Volunteers felt that IGAs would both improve teamwork amongst them and enhance their performance. They, however, identified inadequate funds as the single biggest hurdle to their desire to start group IGAs. They felt that Group IGAs should be initiated for them either by government agencies or the not-for-profit sector.

CONCLUSIONS

Stipends payment is a major factor affecting retention of CHVs in Bungoma County. The stipends paid are very low (inadequate), are paid irregularly, are not commensurate with the work load, and thus are not satisfactory to the CHVs. However, there were some improvements and levels of satisfaction with stipends were higher among current CHVs than among former CHVs. The CHVs appreciate the need for an IGA in the CUs. There were more operational CUs among current than former CHVs. This shows that having an IGA had a stabilizing factor and enhanced chances of retention of CHVs in the PHC. The popular IGAs in the CUs included table banking, poultry farming, dairy farming, horticulture farming, retail business, brick making, and goats rearing. Most IGA projects were not effective in contributing to retention of CHVs in PHC not only due to lack of enough capital for scaling up but also due to lack of proper management due lack of training in business management and to group dynamics management.

Recommendations

While the County Government of Bungoma has put in place mechanisms for regular stipends to be paid, the amount offered to the CHVs should be reviewed upward. The study established that the amount of stipend paid to CHVs from the current USD 20 (KES.2, 000) per person per month is not sufficient enough to meet the (CHVs) domestic needs and does not commensurate with the PHC workload. One creative approach is for the county government to incorporate in the CHV roles, some services that community members can pay a minimal fee to access. This lowers the burden of the county government paying the CHVs considering the high recurrent expenditures.

The County Government of Bungoma and its partners in health, trade and social services should endeavor to initiate and support the establishment of additional IGAs in CUs in the County to complement CHVs income. CHVs should be trained, capacity build, or sensitized on the management of IGAs for high profits and sustainability.

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Author Queries???

AQ4: Kindly note that the table citation is not in chronological order in text part, so we reorder the citation in text part. At very first stage in copy editing itself, table 1 and 2 are not cited in text part, so we reorder the citation and Physical table 2 not provide in given source, so we reorder the table numbering. Please check and advice.