

Original Research Article

Assessment of Collaboration as a Criterion for Sustainability of Community Based Public Health Projects in Western Kenya

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Abstract

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In the developing world, projects in the communities play a very important role in sustainable socio-economic development. It is therefore important for such communally based project to be planned and designed in such a way that they benefit communities sustainably, over a long period. In Kenya, incidences of projects' failure to serve the intended communities are rife. Many projects stall soon after commissioning. There are various explanations for projects' unsustainability, amongst which entail non-inclusion of key parameters of project development in project management. This study was carried out in counties in Western Kenya. It analyzed collaboration as a key factor in the sustainability of community based public health projects. Funding was considered as a moderating criterion. The study adopted descriptive survey design. A sample of 360 respondents was purposely sampled from of a population of 5570 committee members of projects in public health facilities. Data was sourced through questionnaires, interview schedules, and document analysis and observation checklists. The computations for correlation on the influence of stakeholder participation on sustainability was at $r = 0.895$, with a coefficient of determination at 0.801. This translates to 80.1%, of change in project sustainability attributable of collaboration. ANOVA obtained was at R value 0.888, implies 80.1 % of change in sustainability was attributable to collaboration. Further, the rate of change, computed at $Y = 0.888X + c$ (constant), implied positive change, at rate of 0.888 between the two variables. Therefore, collaboration as a key criterion in sustainability of public health projects. Consequently, the study recommends that for public health projects to sustainably serve the communities, players must encompass the aforesaid criteria in project design, planning and management. These findings should therefore inform and empower all players on the great value realized by incorporating collaboration in project management.

Keywords: Collaboration, Cost and Benefits, Sustainability, Sharing Responsibility

INTRODUCTION

Globally more than 1 billion people are still living in extreme poverty and income inequality within and among many countries (UNO, 2013). At the same time

unsustainable consumption and production patterns have resulted in huge socio-economic costs thus endangering life on the planet (UNO, 2013). People continue to

plunder resources without consideration of the consequences. However, if Nations adopt the tenets of *sustainable development* as espoused in the Brundtland commission report, '*Our common future*' which advocates for utilization of resources, cognizant of the fact that future generations will require the similar resources, then the likelihood of curbing this challenge becomes a reality. To achieve sustainable development on global scale, the United Nations Organization (UNO) has come up with several protocols and charters that includes the Millennium Development Goals (UNO, 2000) and the Sustainable Development Goals (UNO, 2015). In the context of this study, project sustainability is very crucial in the economic, social and even political development. It is in this vain that, development strategies should entail the activities that are collaborative (UNO, 2013), which ensures sustainability.

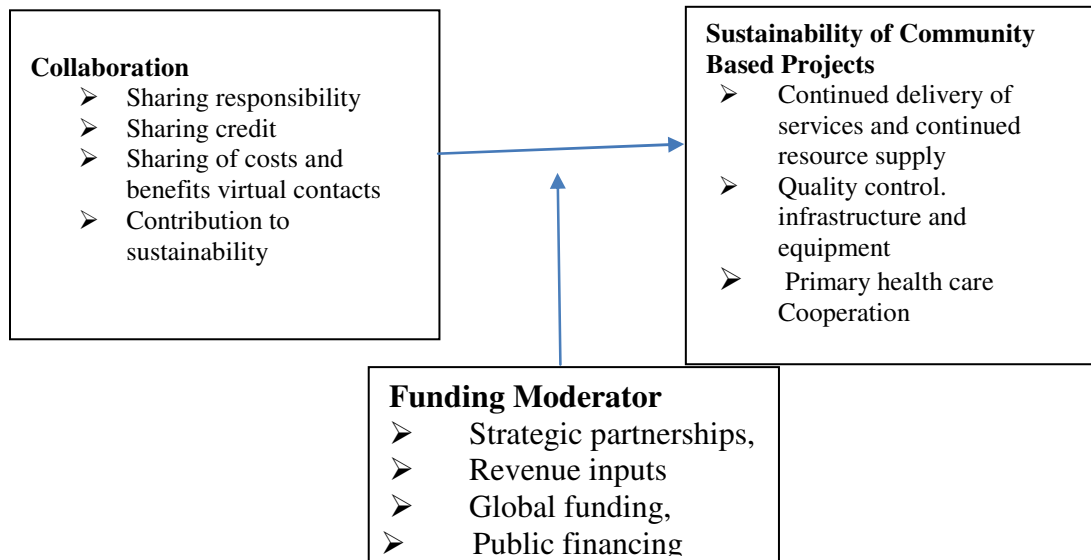
In the developing world, projects in the communities play a very important role in sustainable socio-economic development, which should ultimately address the inequalities in the socio-economic dimension. It is therefore important for such communally based project to be planned and designed in such a way that they benefit communities sustainably, over a long period. Unfortunately in many developing nations, Kenya included, incidences of projects' failure to serve the intended communities are rife. Many projects stall soon after commissioning. There are various explanations for projects' unsustainability, amongst which entail non-inclusion of key parameters of project development in project management. The main components that are very key in project sustainability comprise; collaboration, stakeholder participation, sustainable planning and monitoring and evaluation. All the aforementioned are moderated by funding resources. The present study focused on how collaboration impacts on project sustainability.

On average sustainability and project management issues motivate studies that seek to focus on development of sustainable projects (Martens, 2016). For instance donor agencies like the World Bank undertake international development projects but rely on partners for implementation and longevity hence the need to incorporate the principles of collaboration (Ika, 2012). Furthermore, critical project success factors comprise; monitoring, coordination, design, training and project environment, which call for involvement of all players, hence stakeholder involvement (Ika, 2012). It is important to note that successful projects focus on efficient time management, cost effectiveness, appropriate objectives and relevance to intended impact and stakeholders (Ika, 2012). In Kenya, Vision 2030, the country's blueprint for economic development that envisions Kenya as middle income economy by 2030, is anchored on sustainable development principles. It is in this vain that project management must incorporate sustainability principles,

amongst which entail the involvement of stakeholders.

Statement of the Problem

In Kenya, there is concern about sustainability of projects in the health sector, especially, public health facilities (Anita, 2017). More than 40% of the projects stall, few years after the termination of initial funding, especially from donor sources (Savaya, 2008). Such Projects have less impact on the communities they are meant to serve, thus projects failing to realize the intended goals (Person, 2016). When projects are not sustainable the consequences are far reaching. Studies show that there are normally unsolved issues about the goals and stakeholders interests that play a significant in such failures (GOK, 2014). In the developing world, there is an increasing trend for funding of medical services by foreign donors. In Kenya, foreign support stands at 25% (GHR, 2017). On the other hand, local medical care is met vide insurance or individuals paying their medical bills. Unfortunately, most people in the communities cannot afford (GHR, 2017). Towards this, the National Health Insurance (NHIF) plays a critical role in facilitating the finances. Therefore, it is imperative that communities access affordable health care, lack of which, results negative demographic trends that includes: high death rate and poverty; inaccessibility to education; and poor nutrition. This eventually impairs the envisioned economic development with adverse impact on the health statuses of the population. Overall this affects the community in socio - economic standing (Ghazala and Rao, 2003). Sustainability of health facilities will go a long way in reducing burden of aid from foreign medical sources; improve standards of living and income generation amongst the communities. (Githinji,2013). According to available literature, the fundamental components of sustainability are; collaboration and funding (Marek and Macin, 2007). In the unfolding contemporary situation, there is effort by players to adopt appropriate strategies in order to address the increasing health challenges, especially in regard to; poor public health care, continuity of public health services, unaffordable overseas medical services and negative demographic indicators. Amongst key criteria in project management that ultimately result in project sustainability comprise; collaboration, stakeholder participation, sustainable planning and monitoring and evaluation. All the aforementioned are moderated by funding resources (Adam and Omer, 2015). The present study focused on how collaboration impacts on project sustainability. Collaboration ensures each individual participant contributes to the ongoing project with the attendant socio-economic development and higher standards of living (Anita, 2017). In the long run, the realization of sustainability of public health projects reduces



Moderating Variables

Figure 1. Conceptual Framework

dependence of foreign support in regard to medical care.

Objectives of the Study

- i) Assess collaboration as a criterion for sustainability of community based public health projects in Western Kenya.
- ii) Appraise funding as moderating criterion of sustainability for community based public health project in Western Kenya

The following are the hypotheses that guided the study;

Ho₁: Collaboration does not have significant influence on sustainability of community based public health Projects.

Ho₂: Funding does not have a moderating effect on sustainability of community based public health projects in Western Kenya.

Conceptual Framework

Conceptual frame provides the structure of content for the whole study based on literature. According to Kombo and Tromp (2009), a conceptual framework of a study depicts the relationship between independent variables and dependent variables often expressed diagrammatically. It acts as a link between the literature, methodology and the results (Voughan, 2008). Figure 1 is conceptual framework showing the link between the independent variable, collaboration, dependent variable, sustainability and the moderating variable, funding. In this study, indicators of collaboration comprise: who is

responsible for which task; sharing of credit; sharing of costs and benefits; and incorporation of virtual functions. All are mapped into dependent variable, sustainability. Figure 1

Literature Review

Collaboration is a formal inter organizational relationship involving shared authority and responsibility for planning implementation and evaluation of a joint effort (Hord, 1986). It is a mutually beneficial and well defined relationship (Murray and Morsey, 2001). Institutions need to align several factors to insure effective collaboration. At pre-condition stage, parties come together to begin the partnership.

In collaborating, factors such as partnerships, relationships and resource mobilization form a central focus (Mattession, Murray, 2011; Murray, 2001). Overall, collaboration should entail several parties working together to create or produce a desired target (Hornby, 2015). For instance, collaborators share: responsibility for providing resources; credit for project success; and vision with clearly defined roles and responsibilities (Marek and Mancini, 2007). Due to the aforesaid, collaborators must be party to project; planning, design, implementation, evaluation and execution, all aimed at sustainability.

The key elements of collaboration should therefore entail; exchange of information, sharing of experience, mutual consultation, co-operative development, adaptation and evaluations, and sharing of costs and equipment. Ultimately, collaborative approaches: puts

participants on the same footing; results in trust and partnership; enhances common and shared purposes with the realization of the intended goal. It finally leads to open and comprehensive communication and sufficient financial and human resources. Through collaboration partners, projects can come up with mutually acceptable policies, collaborative governance, and co-management of enterprises hence development of sustainable local enterprises networks (Gray and Sites, 2013).

Further, collaboration is linked to sense of community equity, belonging and empowerment status (Innes, 1996). In addition, collaboration generally influences relationships along supply chains. It is also through collaboration, that the three dimensions of sustainable development, thus, economic, environment and social, are incorporated in project management (Cosimo et al., 2013).

MATERIALS AND METHODS

The study used descriptive survey design which enabled the researcher to collect quantitative data which was analyzed both descriptively and inferentially. This allowed for a more central coverage of the research process and allowed for generalizing research findings about the population through the sample findings (Saunders et al., 2007).

Target Population

Target population comprised of a total of 5570 members comprising of: committees in public health facilities; and staff and stakeholders of public health facilities as key informants in their various capacities. The key informants comprised of local administrators, project financiers, Ministry of health officials and respective county administrators. Ministry officials and staff at health facilities were targeted because they are the main committee members they coordinate and direct management of the facilities on the behalf of the Government.

Sampling Techniques

Purposive sampling was used. This enabled the researcher to arrive at various categories of respondents as observed by Mugenda and Mugenda (2003). A total of sample (S =sample size) 360 was used in the study. Most of the respondents were professional medical staff

Data Collection Instruments

Instruments of data collection comprised, questionnaires,

interview schedules, observation checklists and document analysis. The respondents were accorded opportunity to answer questions and give their views in line with the objective of the study. A triangulation of collected information was done through focused interviews. Structured, semi structured questionnaire.

Data Analysis and Presentation

Hypothesis testing was done using SPSS at 5% level of significance. Data was presented using tables, graphs and charts.

Correlation coefficient was used to measure extent to which independent variable is related to dependent variable. According to Kothari, (2008), correlation analysis is used to establish simple, partial and multiple correlations. The researcher analyzed and worked out the significance of estimated relationships using SPSS. Further, regression analysis was used to determine whether an independent variables predicts a given dependent variable. The relationship can either be positive or negative. (Kothari, 2008). In addition, the coefficient of determination (R^2) which is a measure of degree of linear association or correlation between two variables, independent variable and dependent variable was determined. .

RESULTS AND DISCUSSION

The objective of the study was to assess collaboration as a criterion that influences the sustainability of community based health projects in Western Kenya, was funding being considered as a moderator. Specific analysis entailed: correlations, regressions, ANOVA and tests of significance. Findings are as detailed hereunder.

Response Rate

A total of 360 questionnaires were given to the respondents who were committee members at specific at the various public health facilities. There was a return rate was 100%. According to Mugenda and Mugenda (2012) a return rate above 70% response is acceptable. Distribution of respondents per County, sample size and the various health facilities was done.

Demographic Information

The education level of the respondents was considered as a key demographic parameter in project sustainability. Details of the respondents in this perspective are as indicated in Table 1. From Table, it is evident that the respondents had adequate education, most had above

Table 1. Education Level of the Respondents

Qualifications		%
Others	14	3.9
Diploma	7	1.9
Bachelor degree	175	48.6
Post-graduate	170	47.2
Total	360	100

Table 2. Role of Collaboration in Project Sustainability

		%	Valid %	Cumulative %	Likert Scale values
Valid	Very low	4.2	4.2	4.2	0.2
	Not sure	2.2	2.3	6.5	0.12
	High	40.7	40.7	47.4	2
	Very high	51.0	51.3	59.0	2.55
	Total	99.4	99.4	100.0	
	Missing in system	6	100.0	4.2	0.13
	Total		100		5

diploma certification that enabled them to respond to the issues put to them and also, perform their duties and influence sustainability of the health facilities. Specifically, the education levels are as detailed in Table 1, hereunder: Post graduate, 170; bachelors, 175; and Diploma, 7.

Table 2 show the responses on how they respondents viewed their role of collaboration in the sustainability of the public health facilities. All had a mean of more than on the 4 Likert scale, which normally gives a maximum of 5. This implies that the respondents considered collaboration as having a very pivotal role. An average of 51% indicated that collaboration highly influences sustainability of public health facility. Respondents expressed the importance of collaborators and the important role they play in project sustainability. For instance, they expressed that collaboration avails: funding resources; training for human resource; and equipment supply. These findings are congruent with findings by Marek and Mancini (2007), that collaboration plays a very pivotal role in project sustainability.

During the key informant interviews, respondents observed that collaboration is a strategic criteria that immensely influences sustainability of public health facilities. In the context of the two tiers of governance, collaboration between National and County governments was greatly under scored. The link between them, results into effective management and performance.

The findings affirmed that they have collaborators who give financial support to the facility, (98.7%) mainly National and County Governments. The respondents agreed that they were involved in capacity building and had effective support of collaborators.

Descriptive Analysis of Dependent Variables

Sustainability of community based health facilities is the dependent variable where Universal Health Care (UHC) is the dominant factor. The following sub-variables were used to determine the dependent variables, thus, the role of Collaboration: the extent of continued service delivery by a health facility; rating primary health care in their health facility; infrastructure and equipment, services delivery and cooperation and sustainability indicating the influence of cooperation on sustainability as considered hereunder:

Rating of Primary Health Care

The respondents indicated that primary health care is critical as indicator of sustainability of health service delivery. It is direct service to the people in the community which is at the grass root. Primary health care is where a majority of patients get their health care in the community. That is why more than 90% supported the need to avail this service. For instance, in Kenya, during the Covid-19 pandemic, the national health system adopted home based care for patients who did not require hospitalization. This worked well in ensuring the hospitals managed the crisis with less congestion. However, the respondents during the Key Informants Interviews, observed that health facilities should be equipped and properly staffed in order to continue to serve the public at that level. This would equally reduce referrals of patients to higher level health facilities such as the county hospitals or national health facilities.

Table 3. Rating of Continuity of Health Facility and Service Delivery

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low		1.0	1.0	1.0
	Low		2.9	3.0	3.9
	Not sure		1.0	1.0	4.9
	High		38.5	39.3	44.3
	Very high		54.5	55.7	100.0
	Total	353	97.8	100.0	
Missing	System	7	2.2		
Total		360	100.0		

Infrastructure and Equipment

Infrastructure and equipment are critical for sustainability of a public health facility. A total of 97% of the respondents indicated that there was need to have high quality of infrastructure and equipment these would impact on the sustainability of the said facility. This would curtail reliability on referral services for treatment of our patients in hospitals. Referrals of patients to other hospitals due to lack of simple diagnostic tools in the institution should be avoided.

Health Facility and Continued Service Delivery

The researcher further observed that there were a few equipment available that were in good condition and required maintenance services. According to Oketch (2016), the Government should focus UHC by investing in infrastructure and enhancing access to health facilities. For example specialized medical equipment and personnel to operate the equipment.

It requires policy to ensure prioritized and sustainable development. The cornerstone of sustainability is availability of proper service delivery and functional facilities and continued service to the community. Towards this, good performance and quality staff is critical. Respondents expressed that they visit health facilities that are appropriately equipped and provide good services. A total of 93% of the respondents noted the importance of continued service delivery and the strategic role county health service plays as detailed in Table 3.

Extent of Continued Service in the Health Facility.

In Table 3 respondents indicated that the continued service provision by the public health facility was crucial, rated at 38.5% high and 54.5%, very high. The respondents indicated that well-managed facility can be sustainable, hence continue to avail service to the community. That can only be achieved through cooperation between the National and County

Governments. Most of the respondents appreciate that the government has ensured continued service in their medical facilities.

Respondents further, observed that for continued provision of health care services, respondents recommended home care services. They believe a patients, not critically ill can be managed at home. It requires a link between the hospital and home care personnel. This reduces culture shock and improves on sustainable health care. Home care is an opportunity for continuity of Health services to the community.

However, home based care requires deliberate policy that is well legislated by government showing role of the community and medical staff. Table 3: shows the responses. It is now a government policy to nurse uncritical medical cases at home. It is saving lives of patients of low level COVID 19, thousands of patients have recovered through home based facilities.

Influence of Cooperation on Sustainability

Respondents were asked to express their view regarding influence of cooperation. Cooperation between National Government and County Government influences sustainability. In the current devolved governance, medical staff is engaged by the County Government. Nonetheless, there is a pivotal role played by the national government. For instance, donor funding from WHO or Global fund is channeled through the national government. Consequently, there is need for cooperation between the two tiers of Governance. The aforesaid can positively impact on the sustainability of the health facility. Therefore, cooperation is amongst the critical function of dependent variables. Table 3 shows how they responded about continued service. 54.5% rated continuity of services very. The community suffers greatly if the health facility cannot serve them consistently.

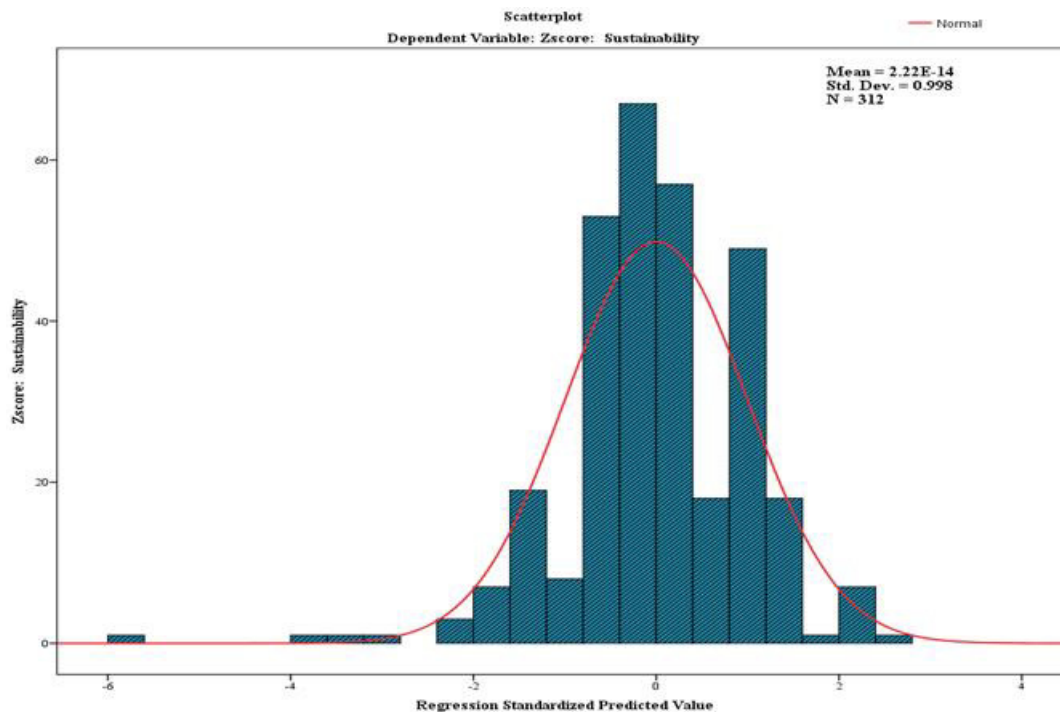
Normality Test for Collinearity

The Normality Test for Collinearity was done to determine whether the independent observations were in agreement

Table 4. Tests of Normality: Collaboration

Extend to which health facility benefit from collaboration	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	SD	Df	Sig.	Statistic (z-values)	Df	Sig.
Very Low	.260	2	.			
Low	.228	8	.200*	.835	8	.067
Not Sure	.391	9	.000	.683	9	.001
High	.343	78	.000	.698	78	.000
Very high	.395	197	.000	.638	197	.000

*. This is a lower bound of the true significance.
a. Lilliefors Significance tests

**Figure 2.** Standardized Z Values for Collaboration

with the null hypothesis. Further, the normality tests shows that the predictor variables against the predicted fit in the normal distribution. Table 4 presents the results from two tests of normality taken as being normal distribution, at 1% level as indicated in Figure 2, within variables of standard deviation and mean. From the Table 4, the p-value for tests is 0.05, implying the Null hypothesis (*collaboration has no influence on sustainability of the health facility*) is rejected. This is in line with works done by Kolmogorov-Smirnov Test and the Shapiro-Wilk Test (Arnold and Emerson, 2011). The results show that collaboration has significant positive influence on sustainability of public health facilities.

Table 4 summarizes the findings. It shows standard deviations for project sustainability in comparison to extend to which health facilities benefit from collaboration are depicted. Here, there is evidence that collaboration is more spread in comparison to project sustainability the

spread. The results show both variables having higher central tendency of greater than 4 in a scale of 5 which implies strong relations between collaboration and project sustainability.

Figure 2 shows the distribution of the role of collaborators to the sustainability of the health facilities. From the table it is observed that the standard deviation is 0.998. The distribution led to the same conclusions as the descriptive summaries in Table 3: The results depict a slight symmetrically distribution of the collaborators contribution to the health facility while the mean shows a slight deviations from the normal curve. However those who responded high and very is 95.6 %.According to respondents there area lot of ideas exchanged during collaborative sessions, hence great learning. According to Marek and Mancini, (2007ss) collaborators share activities, credit and benefits.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.895 ^a	.801	.801	1.01793

Table 6. Linear Regression Collaboration Anova

Model		Sum of Squares	D f	Mean Square	F	Sig.
1	Regression	1232.335	1	1232.335	1189.314	.000 ^b
	Residual	305.671	295	1.036		
	Total	1538.007	296			

a. Dependent Variable: sustainability
b. Predictors: (Constant), collaboration

Inferential Analysis

Inferential analysis is one of the methods that are used to make generalizations, estimate and make predictions from data. The statistics are used to describe systems of procedures that can be used to draw conclusions from data analysis (Freeman *ita.*, 2010). In this study the inferential analyses used to determine the relationship between independent variable, collaboration, moderator, funding and dependent variable sustainability using correlation, regression and ANOVA. Funding was considered as the moderating variable in the research.

Correlation Analysis

Correlation analysis refers to statistical relationship involving dependence, used to analysis of variables, for detecting more general dependencies (Ngaira, 2016) In the study Pearson moment correlations was used as well p-values showing degree and significance of the relationship between variables, in this case, between the predictor and predicted variables.

Specifically, correlation was used to analyze the degree of relationship between collaboration and sustainability of health facilities. Further, the F test in Table 5 was used to determine the significance of the correlation between the variables, collaboration, funding and sustainability of the health facilities. Findings in the Table 6 show a positive and significant influence of collaboration on sustainability of health facilities for example a value of $r+0.895$ is very high and with null hypothesis value of $0.000 < .05$ communicate that collaboration has significant effect on sustainability. Respondents observed that it is during collaboration that: infrastructure is put in place; staff are taken through some training and induction; and furthermore equipment is supplied amongst others.).

Results in Table 5 show extent to which health facility

benefit from collaboration. Table 6 shows 80.1% of the relationship between collaboration and sustainability is explained by National and County Governments. The results are in line with the findings of Chen, (2014), that collaboration results to significant enhancement of sustainability of projects.

The mean, and standard deviations, were equally used to determine the extent to which health facilities benefit from collaboration, in regard to their sustainability. Here, it is evident that collaboration is more spread in comparison to project sustainability.

In addition, F test was used to determine the significance of the relationships between the variables in the study. Findings showed a positive and significant influence of collaboration on sustainability of health facilities. For example $r+0.895$ that is 80.1 % very high and null hypothesis of $0.000 < .05$ shows that collaboration has significant effect on sustainability. Collaboration and sustainability of project is very crucial. From the findings, there evidence that there is growing interest in project sustainability by collaborators. Collaborators are required in planning, implementation and execution of health projects. The respondents who were mostly staff members expressed deep commitment to health institutions. The sustainability of the institutions offers them directly livelihood. The model: shows the strength of the relationship between the model and the extent of stakeholder participation influence project. For Table 7 shows the coefficient of determination is 0.895, which means that 81% of the variations in project sustainability can be predicted from the relationship between the extent of collaboration influence project and project sustainability.

The results in Table 7: shows that the F-test rejects the null hypothesis and this indicate a high significance. The model explains a significant amount of the variation in the project sustainability. The study supports a study by Bobrow (2014) that concluded that project must incorporate the needs of collaborators.

Table 7. Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.5878	4.8687	4.4636	.43254	
Residual	-1.37582	.71499	.00000	.30410	
Std. Predicted Value	-4.337	.937	.000	1.000	
Std. Residual	-4.488	2.332	.000	.992	360

a. Dependent Variable: Project Sustainability

Table 8. Coefficients Collaboration

		Unstandardized Coefficients			T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.965	.590		5.021	.000
	Collaboration on project	.880	.027	.887	32.883	.000

F results shows outcomes of null hypothesis. The results show rejection of null hypothesis. Stakeholders have influence on sustainability of public health facilities. Table 6 shows the influence of collaboration and summarizes the residuals and predicted values produced by the model. Collaborators share responsibility, credit, benefits, able to operate virtually and hence influence sustainability.

Regression Analysis

Regression is a measure of linear relationship between variables. Regression model significantly improves the ability to predict the extent to which health facilities would benefit from collaboration Table 7 shows the extent to which health facilities benefit from collaboration as observed by the respondents. The results depict that collaboration can significantly predicts project sustainability, $F(1, 310) = 1189.314$, $p < .0005$ which indicates that the regression model is a good fit of the data. In addition, Analysis Of Variance (ANOVA) which helps to show the significance of the influence was at value of 0.00, showing collaboration has a significant influence on sustainability of health projects. Similarly Table 6 shows, F of 1189.314 affirms great fitness of data,

Analysis show collaboration of R^2 of 0.801 explains 80.1 % of change in sustainability of public health project. ANOVA of $F = 1189.314$ r value of 000 @ $p < 0.005$ shows that there no Collinearity. B of 0.888 shows the rate at which at which sustainability changes with respect to collaboration. Collaboration between National and County Government is a case in point, ensures sustainability. Thus collaboration has a positive significant influence on sustainability of public health facilities. During this time, collaborators share information, experiences and the evaluation of reports is concluded (Fraser, 2015). This study findings are congruent with the outcome of

research by Fraser (Ibid) values. The equation is for multiple regression showing relationships between predictors and the predicted. The results the collaboration criterion has influence on sustainability of public health facilities in the tune of more than 84 %used to derived the equation derived can be used for working out of sustainability from predictor.

Hypothesis Testing

To determine further relationships in the collaboration and sustainability, a scatter diagram, Figures 2 and 3 were plotted from Tables 8 and 9 the results depict a positive correlation between collaboration and sustainability. The linear equation $y = .880x + c$ is estimated from scatter graph has close relationship to one from residual. The scatter plot implies effective collaboration influences sustainability of public health facilities. The Figure shows positive relationship between the Predictor, collaboration and the Predicted, sustainability. These findings agree with findings by Mattession and Murray (2011) that concluded that health facilities should incorporate collaboration to ensure sustainability.

The study had the hypothesis; H_{01} : Collaboration does not have influence on sustainability of community based public health projects. Tables 7 shows residual values obtained from analysis they were used for drawing scatter graphs. They show strong positive regression of collaboration on sustainability of public health projects .Table 8 shows Beta value of $B = .895$ ($Beta < 1$) and test of significance of 0.000, show rejection of null hypothesis implying the predictor, in this case collaboration, has influence on the predicted, here being sustainability of the health facilities. The R value of 0.895 and square of 0.801 implies collaboration has a role to play to the extent of 80.1% of in predict and. Table 8 on regression of collaboration, it gives value of $R^2 = 0.801$ that is 80.1 %

of Sustainability is due to collaboration the rest can be explained by other variables. Similarly Table shows 0.000 significance that implies high rejection of Null hypothesis.

Funding

Leedy and Ormrod (2013), examined practical research planning and design and concluded that moderating variables influence the nature, strength and relationship between independent and dependent variable. It may reduce or increase the cause and effect relationship between the variables, thus moderating the effects. Funding is one of the variables that moderate criteria such as stakeholder participation, collaboration, and planning, that contribute to sustainability of community based projects. According to Leedy and Ormrod (2013), ensures provision of financial. According to Marek, (2007), funding involves availing finances for a particular purpose, whilst strategic funding is availing funds on long term basis hence an aspect of continuity is crucial. It can be through Government agencies or from investors who are interested in the investment (Leed and Ormrod, 2013).

Effective financing plan should be informed by analyzing projected resources and needs that includes fiscal and non-fiscal resources (Gager, 2014). Clearly defined funding sources and financing strategies are critical.

To boost funding, it is necessary to build public and private partnerships which positively creates additional flexibility in existing funding sources. Sustainable financing need must be ensured across sectors including agriculture, forestry, energy, health and education as well as across economic segments that include small and medium size enterprises (Economic survey report, 2015). Riggs (2012), examined strategies of sustaining grand funded projects and observed that sustainability funding requires identification of short term and long term sustainability strategies; and assessment of the project; and identify resources that need to be sustained involving committee members and strategic partners; identification of most successful programmers used for grant startup; and look upon the community or other sources for long term sustainability (Riggs, 2012). This ensures resource enhancement by developing new dedicated revenue inputs that have plans and resources in place for present and future programing ongoing mechanisms to secure funding. Overall, sustainability funding ensures the viability of an ongoing project. It therefore requires effective planning and proper financial management together with understanding of what is funding and income opportunities available (Bucks, 2015).

Funding as Moderating Factor in Project Sustainability

The respondents' observations on various questions put to them regarding funding are as detailed in the Table 9. It is evident that most of the health facilities draw their funding resources from the central government as indicated by at 73.1% of the respondents; followed by county governments as indicated by 68.2%. Global fund stands out as the main source of foreign funding. From the respondents, this is a funding from the United States of America, used mainly in family planning and management HIV and AIDS

Further, when asked to what extent they thought funding was an important moderator for project sustainability, 78.6% respondent positively, see table 5 responded in the affirmative.

From the foregoing, it is evident that project financing is a very crucial entity in the sustainability of public health facilities. This a component that should always be considered and must be properly managed. Indeed records in the observation checklists attest to the fact that some health facilities had stalled due to improper management of funds.

Some of the collaborators are as indicated in Table 5, as financiers. The results are congruent with research findings by Scandecius and Cohen (2016) on sustainable programs that emphasized on the need for firms to collaborate in order to achieve mutual benefits. Sharing data is critical to achieve the goals (Acces, 2017).

Regression of Moderating Variable, Funding

Tables 10 showed a positive and significant influence of funding as moderating variable of health facilities. For example funding r is 0.911 is very high and null hypothesis of 0.000 shows that funding has significant effect on sustainability. It study on regression of funding as a moderating variable. Funding can change the project positivity or negatively. Regression was done and found to have a significant effect. Beta value of .911 ($\text{Beta} < 1$) shows accepting alternative hypothesis. It is strong relationship between funding and sustainability of public health facilities. R of .911 means 91.1 % Of sustainability can be explained by funding.

The value of R^2 0.911 are square of 0.830 shows that funding has high influence on project sustainability of 83.0 % can be explained

The model Table 10 indicates the strength of the relationship between the model and the funding sustainability of your facility. For B 0.874, which means that 87.4 % of the variations in project sustainability can be predicted from the relationship between the global funding influence sustainability in a facility and

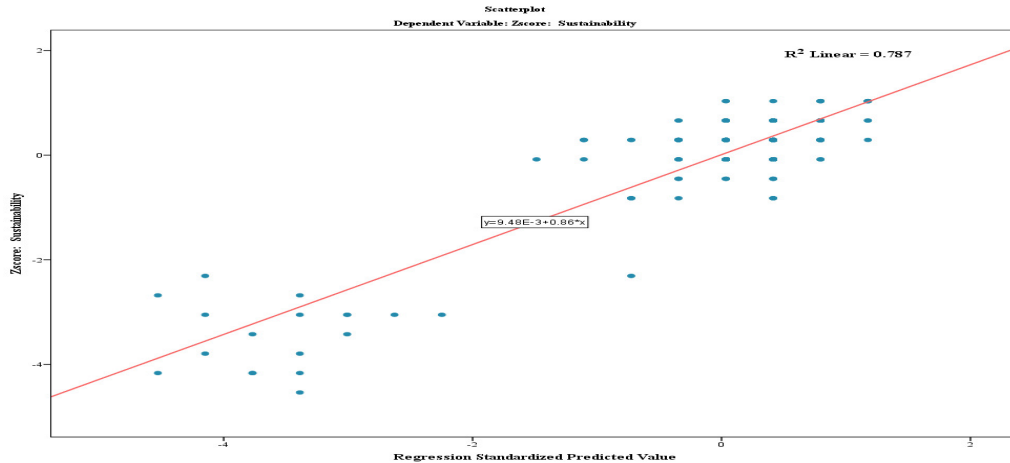


Figure 3. Scatter Plan for Collaboration Predictor and Sustainability Predict

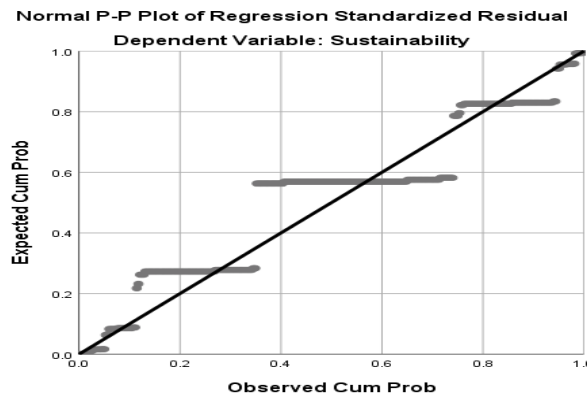


Figure 4. Regression of Collaboration on Sustainability of Public Health Facilities.

Table 9. Sources of Funding forHealth Facilities

Table 9: Funding Variable	Moderating Variable –Funding	Standardized Coefficients	T	Sig.
		B	Std. Error	Beta
1	(Constant)	5.348	.446	11.989 .000
	Funding	.784	.021	.911 38.194 .000

Table 10. Model Summary of Moderating Variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.911 ^a	.830	.829	1.11258

a. Predictors: (Constant), Funding
b. Dependent Variable: Sustainability

relationship between the global funding influence sustainability in a facility and project sustainability. It provides

Results and Tests on influence of funding as a moderating variable, Null hypothesis is rejected. The respondent emphasized the role of Funding of projects

either by the Government or donor.

Regression equation: predicted variable (dependent variable) = slope * independent variable + intercept (Y=aX+b)

$$Y = 0.784X + 5.348$$

CONCLUSIONS AND RECOMMENDATIONS

The findings of study show that collaboration has a significant and positive impact on the sustainability of public health facilities. Collaborators have various roles which ultimately benefit the various health facilities. Amongst the key functions of collaborators entail: capacity building; equipping health facilities; financing; and enhancement of technical requirements. Therefore collaboration, amongst other requirements, should be accorded its due position in project management.

To comprehensively involve collaborators, the study observed that there is need for various health facilities to purposively establish leadership structures that are: easy to understand; transparent; creative; and innovative. Towards this, the communities play a very crucial as part of the collaboration teams. Research on sustainability of rural development by Thapa (2009), in Asia pacific concluded that communities should be part of management in order to achieve collaboration.

Further, since funding form a very important moderator, no project cannot be sustained without prudent management of finances. It is imperative that health facilities put in place appropriate procedures for managing their funds in addition to engaging staff with requisite skills and knowledge to execute financial matters.

Regarding financing as a moderating factor, it was observed that this had a very crucial role in the sustainability of the health faculties. In the contemporary scenarios, there is evidence that the funding of health facilities in Kenya, has been devolved and is now being carried out by the county governance. However, the remittances from the exchequer are not adequate to meet the needs at county level. Consequently, the country experienced strikes in the health sector attributable to failure by the county governments to meet the needs of the health staff and even provide proper infrastructure.

Due to the aforesaid findings, this study recommended that public health facilities should establish leadership structures that are easy to understand. Leadership structure should include hospital staff, Ministry of health and collaborators. Should adopt dynamic and transparent management system. Management have levels of authority but creative and innovative especially establish virtual network with collaborators which is essential for quick decision making. The results of study show that collaboration is significant and positively related to sustainability of public health facilities .collaboration plays a significant role in such a public institution. The Government, the collaborator and the health facility have stakes and benefits in such institution. Focus should be on management and virtual functionality of system. Assist in capacity building of the staff, equipping health institutions should be part of the role of collaborators. Financing functions by collaborators can enhance sustainability .Cooperating with other departments will

contribute to sustainability to meet the needs at county level. Consequently, the country experienced strikes in the health sector attributable to failure by the county governments to meet the needs of the health staff and even provide proper infrastructure.

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