

Assessment of Social Demographic Characteristics Influencing the Uptake Community Led Total Sanitation Strategy in Embu County, Kenya

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3.Improving public health management for action(IMPACT) Kenya

Abstract

The open defecation(OD) status of Mbeere North Sub-county as at 2019 stood at 138 villages against the required 254 villages triggered. Though conceived to end open defecation practice, Community Led Total Sanitation(CLTS) has not achieved this goal in Mbeere north sub county since some people still use forests and available hideouts. It is not clear why CLTS, which is a key component of primary healthcare, has not yielded the intended results, hence the current study investigated the influencers of community led total sanitation strategy among households in Mbeere north sub county, Embu County, Kenya. Specifically, the study aimed to assess social demographic characteristic influencing uptake of CLTS strategy in Mbeere north Sub-county, Embu county. The study employed Socio-Ecological Model as a theoretical guideline. Descriptive cross-sectional study design adopted targeting households and health workers tasked with implementing CLTS strategy. 388 respondents were sampled through fisher et al and applied stratified sampling technique for villages and systematic random sampling technique for household. Questionnaires and interview guide were used to collect data, then analyzed with the aid of SPSS. Both descriptive and inferential statistics were employed based on applicability. The study found that income (p 0.044), education, (p 0.043), age (p 0.006) and religion (p 0.004) had a significant influence on CLTS strategy in Mbeere North Sub County. Construction of latrines was found to be crucial for addressing open defecation The study recommends that County Health department in conjunction with health stakeholders accelerate the CLTS strategy in order to achieve 100% ODF status.

Keywords: Community, Defecation, Social demographic, Sanitation

DOI: 10.7176/PPAR/11-8-02

Publication date:October 31st 2021

Introduction

1.1 Background to the study

Sanitation is core to the human development and well-being alongside gender equality, nutrition, education and eradication of poverty (UNICEF and WHO, 2015). According to the World Health Organization (2015), investing one USD in sanitation leads to a return of USD 5.5 in lower health costs and productivity and premature deaths. In this light, the United Nation's Sustainable Development Goals (SDGs) focused on sanitation for all by 2030 to respond to the 2.5 billion people living without access to safe sanitation in rural and urban areas (WHO, 2015). Currently, it is estimated that 2.6 billion people, more than 40% of the world population, do not use a toilet, but defecate in the open or in unsanitary places. Sub-Saharan with 37% latrine coverage, Africa remains the area of greatest concern (UNICEF, 2015). It is a region of the world where, over the period 1990–2004, the number of people without sanitation increased by over 30%. An OECD study in 2005 worked out the average costs for various water supply systems and latrine types and found that investing in Community Led Total Sanitation (CLTS) is a much cheaper option as it leads to returns in terms of cost savings and increased productivity (Bongartz and Movik, 2009). Consequently, administrations with support from intercontinental agencies, donors and NGOs deploy a variety of programs towards new global goals in sanitation to help mitigate the challenges that come with open defecation and other poor sanitation practices.

Insufficient sanitation and hygiene have a main consequence on public health system (especially the primary healthcare component) around the world. Open defecation cause Diarrhoea that kills approximately two million people yearly, an estimated one million of them being children. Approximately, ninety percent of diarrhoea is caused by inadequate sanitation (UNICEF, 2015). Generating public health system responsiveness on sanitation is key to prevention of Water related diseases. These diseases have huge burden in Sub-Sahara Africa health system (Walter, 2013).

One of the most chosen strategies toward achieving these goals is the Community-led total sanitation (CLTS) developed in 2004 by Kamal Kar (Kumar and Shukla, 2010). The program is designed to operate by changing the social norms and raising collective awareness on the private as well as the costs and benefits of sanitation. CLTS is participatory in nature and facilitates communities to take a decisive role in ensuring that each member internalizes the implication of poor sanitation (e.g. open defecation) (Abramovsky, Augburg and Otieza, 2018).

The CLTS methodology unites the community to commit to using sanitary latrines and hygienic behaviour and the community understands that the process is a shift towards a zero-subsidy approach rather than providing them with money to construct latrines (Kumar and Shukla, 2010). Once ‘triggered’, adults and children become passionately involved. Overall, the move seeks to increase the success of improved sanitation.

The progress of improving CLTS coverages in Kenya is slow and declining despite the directives and commitments by the Ministry of Health to provide efficiency and high quality care systems that are accessible, equitable and affordable to all Kenyans through integrated preventive, curative and rehabilitative care services. However, despite this vision, the MOH still experiences challenges in sanitation standards due to poor latrine coverage. This is more so in Embu County where the ODF status stands at 1131 with of 859 homesteads remaining untriggered. In Mbeere North, only 45 ODF wards have been triggered with a 45 % latrine coverage out of the 100% expected coverage. The findings point towards a challenge in the implementation of the national policies towards CLTS despite the planning of the projects and initial projects taking off. Therefore, this poses the question on the challenges that limit the success of the CLTS projects in the region.

1.2 Statement of the problem

The eradication of open defecation status of Mbeere North Sub-county as at 2019 stood at 138 villages against the required 254 villages. In this case, it is evident that a gap of 116 villages representing 45.6% has not been triggered. 5587 cases of diarrhoeal disease were reported in the sub county some of which could be attributed to open defecation (DHIS 2018). This is a direct indicator that the failure to fully achieve CLTS strategy in this area may have predisposed the community to life threatening health conditions such as diarrhoea and an indication of underlying factors influencing CLTS and which have not been documented so far. Though conceived to end open defecation practice, CLTS, being a major primary healthcare component of health systems management, has not achieved this goal in Mbeere since some people still use bushes and other hideouts. It is not clear why CLTS has not yielded the intended results in the county, hence the current study investigated the community led total sanitation strategy and established the attributive factors in Mbeere north sub county.

1.3 Justification

According to the world health organization, more than 2.3 billion people lack access to safe sanitation facilities around the world (WHO 2015). Consequently, major causes of deaths from diarrheal diseases occur due to open defecation and unsafe disposal of human wastes.

Through the Community Led Total Sanitation, an innovative approach many counties across the world have taken up the challenge to incorporate CLTS as a component of primary healthcare and a major pillar of measuring the successes and failures of healthcare systems. The success of CLTS have been improved by investing in follow-up visits, the support of local leaders, and the careful application of incentives. Similar efforts have been implemented across Embu County including Mbeere north Sub-County. The key success point of the CLTS is on being sensitive to cultural and religious norms and practices is essential in terms of adopting a CLTS approach. The approach relies so heavily on triggering spontaneous behaviour change; for instance, Sammy Musyoki (2007) observes that the myths of the Maasai of Kenya hold that men do not defecate at all, which renders any attempts at discussing open defecation moot.

1.4 Research questions

- i. What are the social demographic characteristics influencing CLTS strategy in Mbeere north Sub-county?

1.5 Broad objective

To examine the uptake of community led total sanitation strategy among households in Mbeere North Embu County, Kenya.

1.5.1 Specific objectives

- i. To assess the social demographic characteristics influencing the CLTS strategy in Mbeere north Sub-county.

1.6 Limitations and delimitations

1.6.1 Limitations

The researcher anticipated to experience challenges in accessing some of the villages due to remote location with poor infrastructure and communication network. Moreover, getting in touch with some respondents was difficult since some depend on contractual Labour in order to earn their living. It is important to be cognizant that open defecation carries with it some high degree of stigma; as such some respondents may have withheld crucial information. To mitigate the possible negative effect of these limitations, the researcher employed the following remedies: first, more time was allocated during the time of data collection in order to allow for revisits of respondents who may not be available at initial time of data collection; second, pre-visit was conducted in order

to plan the appropriate time with the respondents and lastly, the researcher assured the respondents of the confidentiality in order not to withhold information or rather give misleading information.

1.6.2 Limitation of the Study

Overall, the study was limited to the CLTS implementation in Mbeere North Sub County. The population was the key informants, the households and health workers. Although there are many factors that may influence the implementation of CLTS, the study's scope was on the extent of implementation, socio-cultural, health and stakeholder involvement issues.

1.7 Conceptual Framework

The conceptual framework shows how uptake of CLTS strategy can be influenced by hypothesized factors (individual characteristics, health system characteristics and socio-cultural characteristics. these factors were identified from the reviewed literature and were used to establish whether they could be responsible for the current low uptake of CLTS in Mbeere.

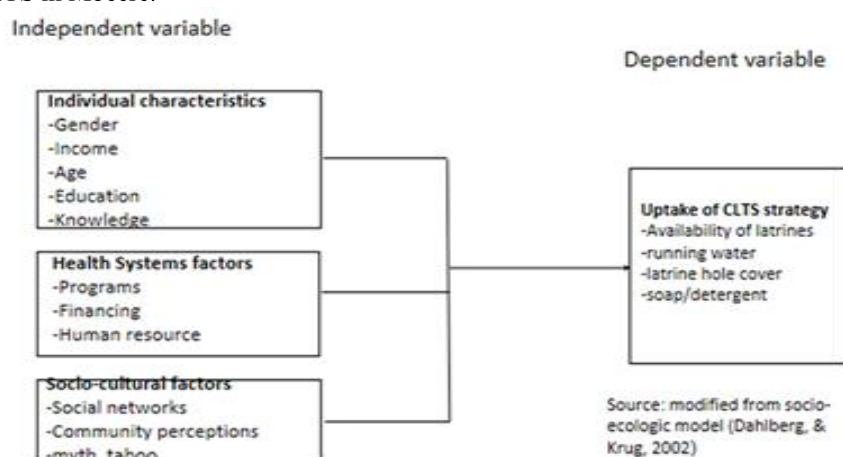


Figure 1.0 Conceptual framework

1.8 Significance of the Study

CLTS seek to improve sanitation by adopting a dignified approach to defaecation of human wastes. Therefore, by examining the factors affecting its uptake strategy in the sub county, the findings from the current study have provide an overview of the factors challenging the successful implementation of CLTS and how health systems modification can be a strategy to ensure its success. It may help in addressing and coming up with ways of resolving these challenges, more so in regards to the health factors and the socio-cultural challenges affecting the implementation of CLTS. Further, the Ministry of Health, NGOs, public health officials and community health workers can use the findings to come up with appropriate solutions to the current challenges facing the implementation of CLTS.

As the implementation of CLTS is still ongoing, the findings of this study are critical in determining the level of uptake and significantly contributes to identifying the areas that are limiting the successful uptake of CLTS.

1.9 Social demographic characteristics influencing CLTS strategy

In a Zambian study conducted by Lawrence, Yeboah-Antwi, Biemba, Ram, Osbert, Sabin and Hamer (2016), the researchers sought to examine the sanitation behaviour, knowledge and perceptions of individuals on CLTS. The qualitative study utilized interviews and focused group discussions in six districts after one to one and half years had elapsed since the implementation of CLTS. Their findings showed that triggering activities led to strong emotions like shame, disgust and peer pressure leading to increase build and utilization of latrines and adoption of handwashing practices. However, cultural beliefs which associate latrine use with taboos for in-laws and people of the opposite genders using the same latrines hindered the success of CLTS. The study was, however, conducted in Zambia which has different cultural and social connotations from Kenya, hence this study will be done to determine if the findings are generalizable to the Kenyan context.

Mugiria (2018) also conducted a study which purposed to identify the factors influencing sustainability of ODF in Nyando Sub-County in Kisumu. Using a descriptive research study, the researcher adopted a multi-stage random sampling approach to get the 290 family units and 10 KIIs. Questionnaires and discussions were used to gather information which showed that since the implementation of ODF in the region, knowledge on the importance of CLTS has improved its success. Mugiria (2018) People are now aware of the importance of sanitation and cleanliness which has seen increased construction of latrines and adoption of hand-washing practices. Knowledge has also been facilitated by mean of flyers and brochures distributed to the locals to change their

attitudes towards the use of latrines. These findings are supported by Ogendo, Kihara, Kosgei and Tweya (2016) who found that the slow success of CLTS in several counties across the country was due to the limited knowledge and negative attitudes individuals have towards the use of latrines. However, findings from the study is limited to Nyando Sub-county whereas the current study will be focused in Mbeere north sub-county.

2.0 Summary of research gaps

While the current study appreciates the tremendous contribution of other scholars in the field of health systems management as it relates to CLTS, there are many gaps identified, which necessitated the need for the current study. For instance, studies such as Venkataraman et al. (2018) were based on secondary data, which basically does not capture the current affairs. Other studies such as Abramovsky, Augburg and Otieza, (2018) were based in foreign countries, which makes its applicability in Kenya impractical.

Another major gap existing in reviewed literature is limited linkage of success of CLTS and health systems. Most of the reviewed studies majorly focus on sanitation factors without considering the fact that the successful management of any health-related strategy should start from the community before it goes to health centers. For instance, major disease outbreaks emanate from the households and community gatherings, yet little has been done to establish how weaknesses in health systems management influence the uptake of community strategies such as CLTS.

It is also important to note that most scholars who have addressed the issue of latrines have focused more in urban areas especially the slums, with little focus in rural areas such as Mbeere where uptake of CLTS is very low as compared to neighbouring sub-counties.

Based on these gaps, the current study was aimed at establishing the uptake of CLTS and associated determiners, considering how health system factors have influenced the uptake.

3.0 Methodology

This chapter entails, the methodology, study location, target population, sampling procedure and sample size, research instruments, validity and reliability of the instruments, data collection procedures, data analysis, and ethical considerations will be deliberated.

3.1 Research Design

According to Orodho (2008) a research design is the arrangement of conditions that facilitate the collection and analysis of data in a manner that meets the purpose of the research. A cross sectional descriptive study design was adopted. Descriptive survey designs using questionnaires and interview schedules helped to gather information from groups of people regarding their attitudes, beliefs and opinions on CLTS implementation (Creswell, 2003).

3.2 Variables

3.2.1 Dependent Variable

The dependent variable was uptake of Community-Led Total Sanitation strategy (CLTS), which was measured by the use of the CLTS updated protocol. This included the presence of latrines within the households and the presence of sanitation facilities such as running water, soap and detergents and super structures.

3.2.2 Independent Variables

These included the social-demographic characteristic, health systems factors influencing CLTS strategy and the social cultural factors associated with CLTS strategy. This were measured by examining how gender, education, religion, the period of one stay and education levels influence CLTS strategy. The socio-cultural factors were measured by examining the association between cultural beliefs, taboos, perceptions associated with CLTS strategy, while the health systems factors were measured by examining the role of facilitators in implementation of CLTS, cost and access to the health facilities.

3.3 Location of the Study

The study was conducted in Mbeere North Sub County. The sub-county is located in Embu County. The choice of the study area was motivated by the several incidences reported of diarrheal diseases due to open defecation in more than half of its villages. The residents of the sub-county practice mixed and marginal farming activities. In the 2019 census, Mbeere North had a total population of 108, 881 and 30,913 households.

3.4 Study Population

According to Best and Khan (2004), a study population refers to the collection of objects or individuals with common traits that interests the researcher. In this study, the researcher targeted 30,913 household heads of people residing in Mbeere North Sub County and 20 public health officers within the public healthcare facilities. Therefore, a total of 30, 946 respondents were targeted. These have been targeted due to the role they play in the success of CLTS. The target population is distributed as shown in table 1.

Table 1. Distribution of target population

Sub County	Wards	Household	Health facilities	Public health officers
Mbeere North	1. Evurore	12,315	6	7
	2. Muminji	3,387	2	4
	3. Nthawa	15,211	9	9
Total		30,913	17	20

Source: Kenya national bureau of statistic(KNBS) 2019

3.4.1 Inclusion Criteria

Household heads from the selected households who had lived in Mbeere North Sub-County for at least six months before the study and who consented to the interviews were included in the study.

3.4.2 Exclusion Criteria

Mentally challenged and very sick or unconscious household heads.

3.5. Sampling Procedures and Sample size

3.5.1 Sampling procedure

Households were first stratified into three wards within Mbeere North Sub-county, after which a probability proportionate to size technique was used to identify the number sampled in the study in each ward. Finally, specific households were sampled using systematic random techniques with a skip pattern. Also, purposive sampling was used for public health officers and supporting NGO within the sub county were involved in the study.

3.5.2 Sample size

To select the study's sample, the researcher will use the Fisher's (1999) formula:

$$n = \frac{z^2 pqz^2 pq}{d^2 d^2}$$

n=

Where

z= standard normal deviate corresponding to 95% confidence level (=1.96)

n = the required minimum sample size

p= Estimated proportion of households in Mbeere North Sub-County (Currently 45 as per KDHS 2014).

d = degree of accuracy; set as 0.05

q = 1-p= 1-0.45= 0.55

n= (1.96²*0.45*0.55)/0.05² = 388.08

In this case, the researcher sampled 388 participants. Considering 10% non-respondents.

The household heads were sampled proportionately as displayed in table 2

Table 2. Proportionate of sample size

Sub County	Wards	Target Household heads	Proportion	Sample Household heads
Mbeere North	1. Evurore	12,315	0.4	155
	2. Muminji	3,387	0.1	38
	3. Nthawa	15,211	0.5	195
Total		30,913	1	388

Source: Kenya national bureau of statistic(KNBS) 2019

3.6 Data collection tools/ Instruments

To collect the data, the researcher used both qualitative and quantitative methods. For the quantitative methods, the researcher used household questionnaires (Appendix II). In this case, the use of questionnaires helped solicit the attitudes, opinions and beliefs of the sampled household representatives on CLTS implementation and the factors affecting it. On the other hand, qualitative collection of data was achieved through the use of key informant interviews involving PHOs, focus group discussion (FGD) involving CHWs (Appendix III).

3.7.0 Pre-testing of tools

A community with similar characteristic in Mbeere south sub county as those selected for study but not selected for study was used for pre-testing the tools. A total of 38(10%) households from village of Mbeu were visited and data collected. This assisted in the re-modelling of the instrument. However, the collected data was not included in the final data analysis.

3.7.1 Validity

To determine the extent to which the research instruments would measure its purported items, Validity was ensured during pre-testing of research instruments. face and content validity, the researcher first subjected the instrument to opinions of the experts and also used the findings of the pilot study to make modifications before the main study was conducted.

3.7.2 Reliability of Research instruments

Reliability, which measures the extent to which the instrument consistently yields similar results after being subjected to the same respondents several times was ensured through recruiting and training experienced research assistants, support supervision and by adopting a split-half technique. In this case, the researcher randomly divided the research instruments into two, after which a correlation matrix was established with the aid of SPSS program. A correlation coefficient of 0.7 and above was deemed reliable according to Creswell (2013). In this study, a coefficient of 0.77 was established, an indication that the instruments used in this study were reliable.

3.8 Data Collection techniques

Before commencing the data collection process, the researcher first obtained a letter of introduction from the university which will then facilitate a research permit. The county offices will then be visited, more so the public health offices will be paid a visit to request permission to collect the data. A courtesy call was made to the households to inform them of the study and its purpose. The questionnaires were self-administered to the pre-agreed upon date while the KIIs, observations and photo voice were done at the convenience of the sampled populace. Since some of the respondents targeted in the study were not able to understand the English Language, the researcher recruited at least two research assistants, who were natives of the study area and had a good command of English language. The research assistants helped in translating the questionnaires to the respondents whenever need arose. The research assistants were trained and explained about the study prior to their involvement.

3.9 Data analysis

The quantitative data gathered were entered in SPSS version 20.0 for cleaning and analysis. Descriptive statistics and inferential statistic (measures of association and correlation will be applied) Chi-square analysis will be used to calculate measures of association between variables associated with CLTS strategy and factors that influenced CLTS uptake. Where P-value ≤ 0.05 was regarded as statistically significant.

Qualitative data were configured into thematic areas and content presented alongside with the quantitative data triangulation.

3.10 Logistical and Ethical Considerations

I obtained a formal approval from Kenyatta University and ethical clearance by the committee. Permit from National Commission of Science, Technology and Innovation (NACOSTI) and informed consent from the study. Participants were obtained before beginning of the study with strict adherence to privacy and confidentiality of the information gained. The researcher provided a written consent form, assuring the respondents of the voluntary participation and non-disclosure of their personal data. The researcher assured respondents about the use of the data as solely for academic purposes.

Results

4.1 Introduction

In this chapter, a presentation of the study findings was done as well as a discussion of the findings integrated with the literature. The findings was presented in tables and figures in percentages and frequencies. This will aim to answer the study's purpose which was to examine the uptake of CLTS strategy among households in Mbeere North, Embu County, Kenya. The chapter will be organized based on the study's objective which sought to; To assess the social demographic characteristics influencing the CLTS strategy in Mbeere north Sub-county.

4.2 Response Rate

The research targeted 388 household heads and 20 KIIs. Out of the 388 questionnaires issued to the household heads, 374 were successfully filled and returned. This makes a response rate of 96.39%.

4.3 General and Demographic Information

The researcher asked the respondent to provide some general and demographic information that were deemed as important in influencing their responses. These included the respondent's age, gender, location, religion, education level, income level, and period of residence in their current. The respondents were asked to indicate their gender and table 4.1 shows their responses. The table shows the household responses on their gender where most of the respondents 191(51.07%) were female and 183(48.93%) were male. The findings indicate that both genders were generally represented in the current study.

The respondents were also asked to indicate their age. Table 4.1 shows that the majority of respondents 192(51.3%) were aged between 26-40 years and most of them were above 41 years of age at 87(23.3%) and 43(11.5%) aged between 41-55 years and above 56% respectively. only a minority 52(13.9%) were below 25 years of age. These findings imply that the majority of respondents were above 25 years old. The table also shows that the majority of the respondents 195(52.14%) were from Nthawa Ward while 140(37.43%) were from Evurore and 39(10.34%) were from Muminji Ward in Mbeere North sub county. These finding imply that most of the participants were from Evurore and Nthawa Wards, which are also more populated as compared to Muminji hence the findings are representative of the three wards.

The respondents were asked to indicate the period they have resided in their current location. This was deemed important in getting their responses in regards to sanitation practices in the area. Table 4.1 shows that the majority of respondents 317(84.76%) indicated that they have resided in their current location for more than 5 years while 23(6.15%) claimed they have lived in the area for between 2-5 years while the rest had not resided in their current location for more than 2 years. These findings imply that the responses provided are credible in reflecting the sanitary practices in the selected wards as the respondents have resided in the area for a long period; hence are familiar with the social and cultural as well as health approaches toward sanitary practices.

The respondents were asked to indicate their highest level of education and table 4.1 shows their respective responses. The table 4.1 shows that the majority of respondents 174(46.5%) and 125(33.4%) respectively had secondary and primary level education respectively. Those with college education were 68(18.2%) and those who attended university were 7(1.9%). The findings imply that the majority of respondents had secondary and primary level education.

The researcher asked the respondents to indicate their religion and figure 4.4 shows their respective responses. Table 4.1 shows that the majority of respondents 363(96.7%) were Christians while 6(1.6%) were Muslims and the remaining 6(1.6%) were affiliated to other religions. The findings suggest that the majority of residents of Mbeere North Sub-county are Christian's.

The respondent's income level is presented in the table 4.1 showing that the majority of respondents who partook in this study 227(60.7%) had an average income of between 1,100-5,000 Kenyan Shillings while 70(18.7%) earned less than 1,000. Only 38(10.16%) of the respondents earned between 5,100-10,000 while 33(8.82%) earned between 10,100-15,000 and only 6(1.6%) earned more than 20,000 a month. This shows that most of the respondents earned less than 5,000 every month.

Their responses are indicated in table below:

Table 4.1 Demographic Characteristics

Demographic Characteristics	Aspect	F(N=374)	%
Gender	Male	183	48.93
	Female	191	51.07
Age	18-25 years	52	13.9
	26-40 years	192	51.3
	41-55 years	87	23.3
	above 56	43	11.5
Location	Nthawa	195	52.14
	Evurore	140	37.43
	Muminji	39	10.43
Period in current location	0.5 years	14	3.74
	1 year	12	3.21
	1-2 years	8	2.14
	2-5 years	23	6.15
	Above 5 years	317	84.76
Education Level	primary	125	33.4
	Secondary	174	46.5
	college	68	18.2
	university	7	1.9
Income Level	<1000	70	18.72
	1100-5000	227	60.70
	5100-10000	38	10.16
	10,100-20000	33	8.82
	>20,000	6	1.6
Religion	Christian	362	96.79
	Muslim	1	1.6
	Others	6	1.6

4.4 Uptake of CLTS strategy

The dependent variable in the study was uptake of CLTS strategy and the results from the observations are as provided in table 4.2. in the context of this study, CLTS was defined the use of latrines, handwashing stations, running water availability and soap detergent.

Table 4.2 shows that the majority of households 236(63.1%) did not have any latrines while only 138(36.9%) of the households had latrines out of the 374 households observed.

The other observation of the CLTS indicators was on the availability of soap detergent where a total of 118 households were observed and it was found that most 62(52.5%) of the households did not have soap detergent while 56(47.5%) had detergent.

In regards to handwashing stations, a total of 136 were observed and it was found that only a minor 66(48.5%) had handwashing stations with 70(51.5%) not having any handwashing stations.

In regards to running water, a total of 66 observations were made and 76 observations were made and the majority 43(65.2%) had running water while 23(34.8%) did not have any running water.

In order to conduct the chi-square analysis, the households were categorized as high uptake, average and poor uptake. Households that had latrines and at least two other CLTS indicator were categorized as high. Those that had at least a latrine were categorized as average while the rest were categorized as poor.

Table 4.2: CLTS indicators

CLTS indicator		F	% per indicator
Latrine	Available	138	36.9%
	Not available	236	63.1%
	Subtotal	374	100.0%
Handwashing station	Available	66	48.5%
	Not available	70	51.5%
	Subtotal	136	100.0%
Running water	Available	43	65.2%
	Not available	23	34.8%
	Subtotal	66	100.0%
Soap detergent	Available	56	47.5%
	Not available	62	52.5%
	Subtotal	118	100.0%

The table 4.3 shows, the majority of households, 260(69.5%) were found to have poor uptake of CLTS while 58(15.5%) of the households were found to have a high CLTS uptake rate meaning that it had latrines and at least two other CLTS indicators. The remaining 56(15%) of the households were found to averagely use CLTS.

Table 4.3: uptake of CLTS strategy

CLTS Uptake rate	Frequency	Percent
High	58	15.5
Average	56	15.0
Poor	260	69.5
Total	374	100.0

Social demographic trend

As the table 4.4 shows that the majority of those with high uptake of CLTS were female 30(8%) whereas the majority of those with poor uptake 138(36.9%) were also female. The findings imply that there is no association between gender and uptake of CLTS evidenced by the chi-square results ($X^2=0.045$, $df=2$, $p= 0.978$).

In regards to the ward, it was found that there was a statistically significant association between being from one ward and the probability of high uptake of CLTS as shown in the chi square results where ($X^2=11.292$, $df=4$, $p= 0.021$). the majority of respondents from Nthawa and Evurore had high uptake of CLTS at 26(7%) uptakes while those with poor CLTS uptake were from Nthawa 147(39.3%). The findings imply that residing in some locations is likely to increase the residents' probability of up taking CLTS services.

In regards to age, the majority of those between 26-40 had high uptake 28(7.5%) while the majority of those with poor uptake 138(36.9%) were those aged between 26-40 years of age. The majority of those above 56 years 29(7.8%) had poor uptake of CLTS services. Therefore, it can be deduced that age has an association with the use of CLTS where the chi square results revealed a statistically significant association between age and likelihood of CLTS uptake ($X^2=10.577$, $df=6$, $p= 0.044$).

The majority of those who had resided in the area for above five years had a high uptake f CLTS 45(12%) whereas the majority of those who had resided in the area for less than two years 14(3.7%) had poor uptake of CLTS. The chi-square analysis revealed that ($X^2=11.737$, $df=8$, $p= 0.043$). The next aspect examined was

education where the majority 28(7.5%) of those with secondary education had high uptake of CLTS whereas the majority of those with primary education 91(24.3%) had poor uptake of CLTS. The Chi square analysis revealed that ($X^2=14.844$, $df=6$, $p= 0.014$) which suggests that education had a statistically significant influence on the likelihood of individuals utilizing CLTS services. Mugiria (2018) claimed that people are now aware of the importance of sanitation and cleanliness which has seen increased construction of latrines and adoption of hand-washing practices. Knowledge has also been facilitated by mean of flyers and brochures distributed to the locals to change their attitudes towards the use of latrines.

In regards to religion, it was found that $X^2=4.851$, $df=4$, $p= 0.303$) implying that religion had no significant influence on the households' likelihood of uptake of CLTS. In regards to income, it was found that there is a statistically significant association between CLTS uptake sand level of income ($X^2=15.613$, $df=8$, $p= 0.048$). The chi-square results are supported by the cross-tab findings where the majority of households with over ten thousand monthly incomes 8(2.1%) had a high uptake of CLTS whereas the majority of households with less than 5,000 monthly incomes 157(42%) were found to have poor uptake of CLTS.

Table 4.4: Social demographic Cross tabulated against the CLTS uptake

		Uptake rate						X2	df	P-Value
		High		Average		poor				
		F	%	F	%	F	%			
Gender	male	28	7.5%	26	7.0%	122	32.6%	.045	2	0.978
	female	30	8.0%	30	8.0%	138	36.9%			
Ward	Nthawa	26	7.0%	22	5.9%	147	39.3%	11.292	4	0.021
	Evurore	26	7.0%	27	7.2%	87	23.3%			
	Muminji	6	1.6%	7	1.9%	26	7.0%			
Age	18-25 years	8	2.1%	10	2.7%	34	9.1%	10.577	6	0.044
	26-40 years	28	7.5%	26	7.0%	138	36.9%			
	41-55 years	15	4.0%	13	3.5%	59	15.8%			
	above 56	7	1.9%	7	1.9%	29	7.8%			
Period in area	0-.6 months	3	0.8%	2	0.5%	9	2.4%	11.737	8	0.043
	7month-1 year	3	0.8%	2	0.5%	7	1.9%			
	1-2 years	1	0.3%	4	1.1%	3	0.8%			
	2-5years	6	1.6%	3	0.8%	14	3.7%			
Education	above 5 years	45	12.0%	45	12.0%	227	60.7%	14.844	6	0.014
	primary	17	4.5%	17	4.5%	91	24.3%			
	secondary	28	7.5%	31	8.3%	115	30.7%			
	college	13	3.5%	7	1.9%	48	12.8%			
	university	0	0.0%	1	0.3%	6	1.6%			
Religion	other	0	0.0%	0	0.0%	0	0.0%	4.851	4	0.303
	Hindi	0	0.0%	0	0.0%	0	0.0%			
	Christian	56	15.0%	53	14.2%	253	67.6%			
	Muslim	0	0.0%	1	0.3%	5	1.3%			
Income	others	2	0.5%	2	0.5%	2	0.5%	15.613	8	0.048
	<1,000	13	3.5%	9	2.4%	48	12.8%			
	1100-5,000	33	8.8%	37	9.9%	157	42.0%			
	5,100-10,000	1	0.3%	4	1.1%	33	8.8%			
	10,100-15,000	8	2.1%	6	1.6%	19	5.1%			
	>20,000	3	0.8%	0	0.0%	3	0.8%			

5.1.2 Socio-demographic factors and CLTS uptake

The chi-square analysis revealed that there is no association between gender and uptake of CLTS evidenced by the chi-square results ($X^2=0.045$, $df=2$, $p= 0.978$). similarly, religion had no significant association with uptake of CLTS, ($X^2=4.851$, $df=4$, $p= 0.303$). These findings imply that gender and religion had no effect on the uptake of CLTS.

Similarly, it was found that the ward of residence had a statistically significant association between being from one ward and the probability of high uptake of CTS as shown in the chi square results where ($X^2=11.292$, $df=4$, $p= 0.021$). Being from Nthawa and Evurore increased the likelihood of uptake of CLTS. Similarly, the period of residence in a particular ward was found to have a significant influence on the uptake of CLTS where ($X^2=11.737$, $df=8$, $p= 0.043$). The findings imply that the period of residence in the area has a significant influence on households 'uptake of CLTS. These findings are supported by Ogendo, Kihara, Kosgei and Tweya (2016) who found that the slow success of CLTS in several counties across the country was due to the limited knowledge and

negative attitudes individuals have towards the use of latrines

Age was also found to have a statistically significant association with uptake of CLTS ($X^2=10.577$, $df=6$, $p=0.044$). Therefore, it can be deduced that age has an association with the use of CLTS where the chi-square results revealed a statistically significant association between age and likelihood of CLTS uptake. The Chi-square analysis revealed that education also had a significant association at ($X^2=14.844$, $df=6$, $p=0.014$) which suggests that education had a statistically significant influence on the likelihood of individuals utilizing CLTS services. Similarly, income had a significant association with CLTS uptake at ($X^2=15.613$, $df=8$, $p=0.048$). Mugiria (2018) claimed that people are now aware of the importance of sanitation and cleanliness which has seen increased construction of latrines and adoption of hand-washing practices. Knowledge has also been facilitated by mean of flyers and brochures distributed to the locals to change their attitudes towards the use of latrines.

Discussion

According to Mugenda and Mugenda (2003) reiterated that a response rate of 75% is sufficient to generalize to a wider population; hence the response rate in this study was sufficiently representative of the target population

5.0 Uptake of CLTS Strategy

It was found that the majority of respondents 243(64.97%) argued that the people in their households used latrines while 109(29.14%) indicated that they used the neighborhood latrines while a minority 22(5.88%) indicated that their household goes to the bush to defecate. The findings imply that the majority of respondents in the area use latrines. But a number of them use neighborhood latrines and other defecate in the bush. This implies that in Mbeere North, there are some households that lacked their own latrines forcing them to rely on their neighbor's latrines or use the bush through open defecation practices. These findings are contrary to Venkataraman, Crocker, Karon and Batram (2018) who found that implantation of the CLTS in rural areas is poor and cited issues affecting its effectiveness to include limited availability of policy makers, experts and program administrators to help enlighten their actions.

It was also found that the majority of respondents 319(85.29%) indicated that women are charged with the activities for maintaining latrines in the area with only 55(14.71%)

Moreover, it was found that not residents do not consider the CLTS programs as being successful. From these findings, it is evident that the success of CLTS program has not been uniform across the different wards of Mbeere North Sub-County, with some areas recording a higher success rate while others were lagging behind. indicating that men are in charge of all the activities for managing the latrines. Generally, these results indicate that women are charged with managing the latrines in Mbeere North. These claims were supported by the KIIS who argued that among the people of Mbeere men are often charged with constructing the toilet, though women are not totally exempted from the practice.

Overall, these findings demonstrate that efforts to end open defecation are centered on health education and construction of latrines to improve their coverage. However, it is evident that the health education practices have not covered all the areas as a section of the respondents were not aware of any efforts being done to address this practice.

5.1 Individual characteristics and CLTS Strategy

The findings revealed that the majority of respondents believed that latrines are unnecessary investment while the majority of the respondents and the majority also asserted that there is problem of open defecation in the area. However, 109(29.1%) of the respondent disagreed with the claim asserting that there is a problem of open defecation in their area. These findings suggest that open defecation is practiced in the area to some extent. These findings support the claims by Augburg and Otieza, (2018) who found that CLTS interventions in the country had achieved its objectives of triggering sanitation success in the communities targeted.

Overall, the majority of respondents 188(50.5%) and 143(38.2%) disagreed and strongly disagreed that there is no need for latrines in a community with bushes and forests. This shows that the residents know the need for latrines even if the area is covered with bushes and forests. However, 43(11.5% of the respondents asserted that when there is forest and bush cover, there is no need to have latrines indicating their support for open defecation

Summary of the Findings

The study sought to assess the social demographic characteristics influencing the uptake of CLTS strategy in Mbeere north Sub-county. The study established that the majority of respondents claimed that Mbeere North did not have a challenge of open defecations ($m=1.93$) while the majority also indicated that latrines is a necessary investment ($m=3.13$) suggesting that investing in latrines is critical in addressing the issue of open defecation. The respondents also claimed that even when there are bushes and forests, latrines are important in order to stop open defecation. Overall, it was found that income (p value $0.048 > 0.05$) education (p value $0.014 < 0.05$) age (p value $0.0044 < 0.05$) and period in area (p value $0.043 < 0.05$) and ward (0.021) had a significant influence on CLTS

strategy in Mbeere North Sub County.

6.0 Conclusion

The study purposed to assess social demographic characteristics influencing community led total sanitation strategy in Mbeere north Sub-county. The study concludes that income, education, age, income and ward of residence and period of residing in the area significantly influenced CLTS strategy in Mbeere North Sub County.

7.0 Recommendation

In line to this objective local community should be empowered to even out the disparities in education levels and income levels to improve their ability to construct household latrines. County Health department in conjunction with health stakeholders accelerate the CLTS strategy in order to achieve high ODF status.

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