

Factors associated with open defecation among the people of fitobaula compound of Chililabombwe district, Zambia

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Abstract: *The aim of this research is to assess factors associated with open defecation among the people of Fitobaula Compound of Chilabombwe District of Zambia. The objective of the study is to determine the practices of open defecation among the people of Fitobaula Compound of Chilabombwe. The study was prompted due to the evidence that, practice of open defecation in Zambia is still alarmingly high, with current data suggesting at least 21% of the Zambian population who do not still have or use latrine facilities (GSS, 2017). Even when high latrine coverage levels are achieved, open defecation is often still practiced (Barnard et al., 2013). The study followed a descriptive research design with a qualitative approach. The total sample sizes of 255 households were selected for the study. The 255 households were interviewed randomly. The head of the family or the family representative was targeted per household. Non-probability sampling design was used to select the sample of 255. Data collection process was done using research structured questionnaires and interview guide to collect field data on people's opinions, attitudes and feelings on open defecation. Frequency distributions and percentages were used to analyse the data from the questionnaire using the SPSS version 22 computer software. The study revealed that there are high records of open defecation in the study area. The latrine was present in almost all the households but still continued with open defecation practices. The factors that encourage open defecation include latrine sharing by too many members, smelly latrine, fear of falling inside due to the loose nature of the soil type, and cultural belief of some individuals. Lack of Knowledge on the impact of open defecation was seen among the participants and most of the participants showed negative attitudes and poor practice of latrine usage.*

Key words: Sanitation, Open defecation, latrine, latrine coverage, improved latrine.

1. INTRODUCTION :

Hygienic sanitation amenities to human population are considered a necessity worldwide to promote healthy sanitation. According to the World Health Organization (WHO) 2017, sanitation generally refers to the provision of facilities and services for proper disposal of human waste (urine and faeces). The World Health Organization further commends good sanitation as attainable by the availability of adequate facilities and services for the safe excreta and urine disposal; garbage collection and availability of safe disposal of wastewater are inclusive (WHO/UNICEF, 2016). The World Health Organization estimates about 2.4 billion people worldwide as still lacking access to improved sanitation globally and about 946 million as practicing open defecation (UNICEF & WHO, 2016).

Open defecation considered as practice of defecation without any kind of sanitation system has generally accepted to lead to health problems. Open defecation perpetuates a vicious cycle of disease and poverty. The countries where open defecation is most widespread have the highest number of deaths of children under 5 years of age as well as the highest levels of malnutrition and poverty, and big disparities of wealth (WHO/UNICEF JMP, 2014).

With all its known consequences, open defecation has been regarded as a significant global health problem (Sahoo et al., 2015; Spears, Ghosh, & Cumming, 2013). The United Nations reaffirmed the importance of sanitation by including it in the Sustainable Development Goals (SDGs), which calls for ending open defecation and universal access to adequate and equitable sanitation (UN General Assembly, 2015). Approximately 215 million people participate in Open Defecation in Sub-Saharan Africa (Njuguna BMC Public Health (2016).

The practice of open defecation has progressively been reducing from the year 2000 to 2015 where the total population practicing open defecation dropped from 1,229 to 892 million, meaning there has been reduction by 22 million persons annually. The Sustainable Development Goal (SDG) report reflects an overall decrease in the population engaged in open defecation from all regions apart from Sub-Saharan Africa where open defecation engagement had been noted with increasing from 204 million to 220 million showing open defecation rise from 1 to 1.3 million. The SDG aim of ending open defecation by 2030 needs extensive speed in the present of progress specifically in Sub-Saharan Africa (UNICEF/WHO 2016).

According to WHO/UNICEF (2017), access to basic sanitation in Zambia currently stands at 31% (rural at 19% and urban at 49%). Of this percentage, 15% continue to practice open defecation (rural at 25% and urban at 1%). Access to hand washing facilities with soap and permanent water continues to be a low 14% (rural at 5% and urban at 26%).

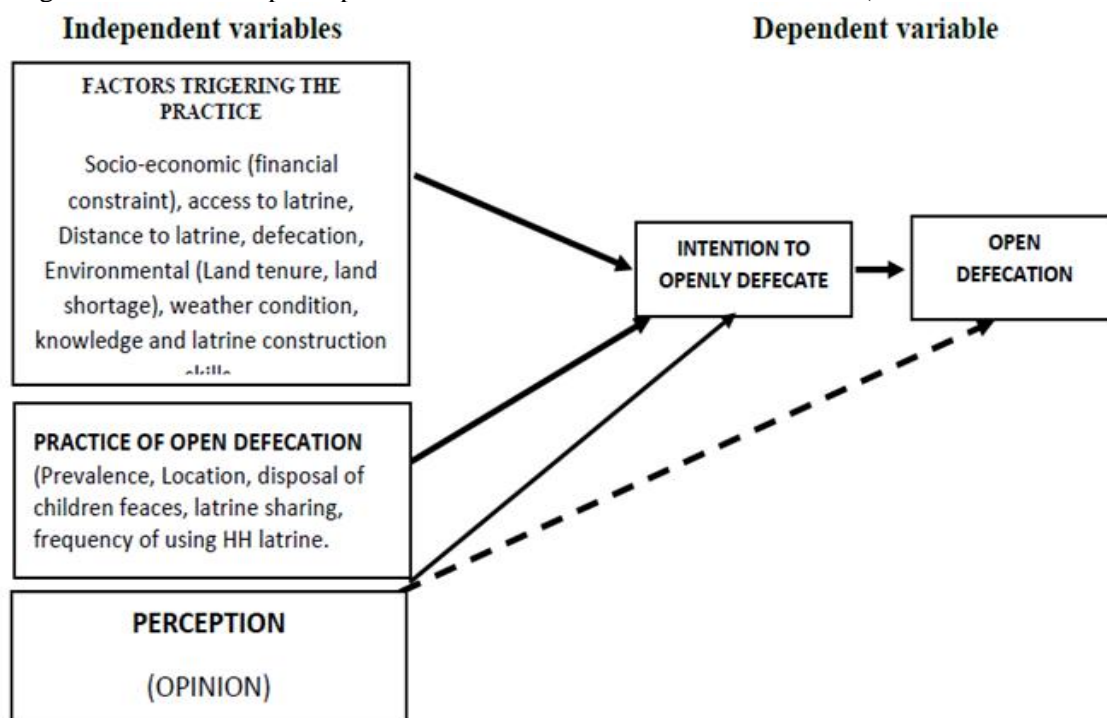


Figure 1: Conceptual framework. Factors Influencing Open Defecation.

The conceptual framework for this study was derived basing on the Theory of Planned Behavior (TPB) which allows the examination of open defecation by individual and explores the factors that inhibit this behavior. The theory of Reasoned Action (attitude, subjective norms) that led to development of the theory of planned behaviors is composed of attitude toward certain behavior, subjective norms, and perceived behavioural control, together shape an individual's behavioural intentions and behaviors

2. RESEARCH METHODOLOGY :

2.1 Research design

A descriptive study design was used for this study. The study employed both qualitative and quantitative research approach. Creswell (2006) argues that, “the combination of quantitative and qualitative approaches provides a better understanding of research problems than either approach alone.”

The study relied on descriptive research design with aspects of interpretative approach. Descriptive research refers to research studies that have their main objective the accurate portrayal of the characteristics of persons, situations or groups (Hiatt, 1986). This approach is used to describe variables rather than to test a predicted relationship between variables. The descriptive approach in data collection gave the ability to collect accurate data on and provide a clear picture of the phenomenon under study (Hillman, 2005). The essence of a qualitative descriptive research design was first to state the status quo, then formulating important principles of knowledge and later provides solutions to the problem. Essentially, this design was appropriate because it gave an accurate and authentic description of the common practices of open defecation, the factors that trigger pre-disposition of open defecation and the perception of the community on open defecation using questionnaire and in-depth interviews.

2.2 Study Population

The population targeted for this study included household heads and the family members in every house hold (women, men and children) in Fitobaula Compound. The household heads, mothers, adults and children from the age of 10 years and above were also included in the study.

2.3 Sampling Design

This research used a non-probability sampling design. According to Chaturvedi (2015), non-probability sampling is any sampling method where some elements of the population have no chance of selection, or where the probability of selection cannot be accurately determined. It involved the selection of elements based on assumptions regarding the population of interest, which forms the criteria for selection. The main selection criteria in this study was based on respondents' age, those who are below 10 years were targeted.

2.4 Sample size

The population of Fitobaula compound was estimated at 4721 and the total number of households was estimated at 1,036 (UNICEF 2019). The largeness of this community's population size was taken into consideration and the total sample sizes of 255 households were therefore selected for the study. These 255 households were interviewed randomly using an interview guide. The head of the family or the family representative were targeted per household.

2.5 Data collection technique

The data collection process was done using research structured questionnaires and interview guide to collect field data on people's opinions, attitudes and feelings on open defecation. The process involved interviewing the households' one after the other so as to get their feelings and perceptions on the research questions for the study.

2.6 Data Collection Tools

For qualitative data, key Informant Interviews was used and for quantitative data questionnaires was used to collect data. The household heads and some other adults in the households were interviewed to obtain the primary data.

2.7 Analysis and processing of collected data

The statistics analysis tool SPSS version 22 computer software was used to formulate frequency distributions tables and percentages. The responses were grouped according to their various categories. Similar responses were put under one heading and therefore considered as belonging to same category. The questionnaires returned from the field were first edited to ensure that they are properly completed. The data was numbered and coded with the guidance of a coding manual prepared for that purpose. Qualitative data from interviews a guide was coded and according to the response and analysed was the statistics analysis package NVivo.

2.8 Ethical Considerations

Permission to conduct the research was obtained from Rusangu University and the department of Environmental Health and Ethical Clearance Review Committee and the National Health Research Authority (NHRA), Zambia.

3. RESULTS :

The following were the findings of the study. The study involved 255 participants. Data collected from the field was translated into tables and figures.

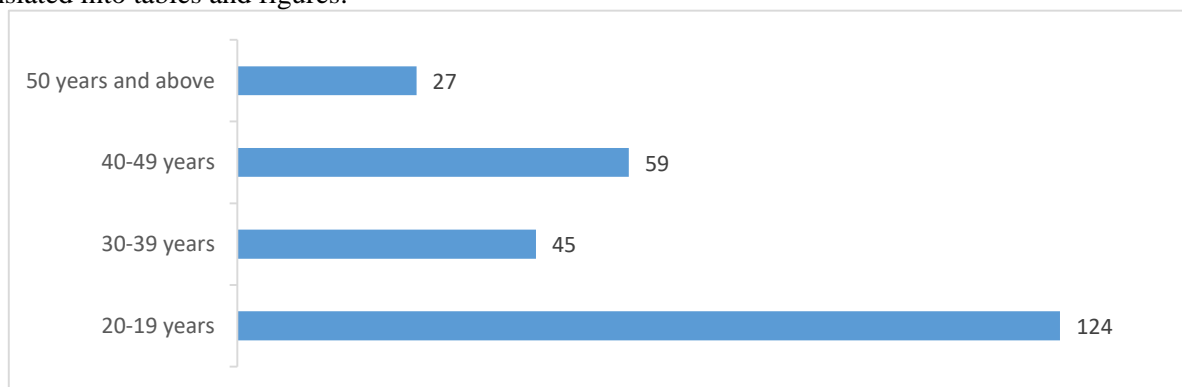


Figure 3.1 Above presented the age range of the 255 participants in the study.

The majority 124 (48.6%) were in the age range between 20-29 and the minority 27 (10.6%) were 50 years and above.

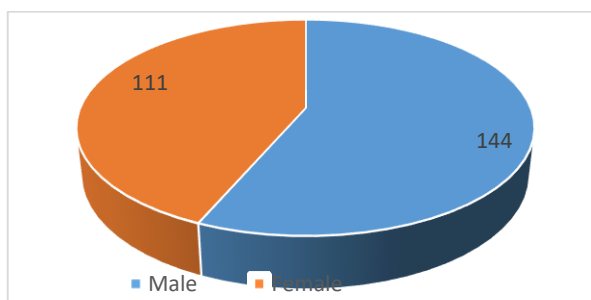


Figure 3.2 above presented the sex of the participants in the study

The study involved 144 (56.5%) males and 111 (43.5%) were females.

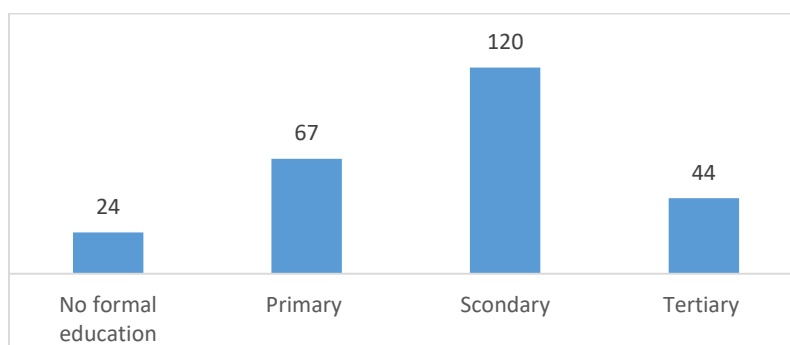


Figure 3.3 above presents the education levels of the research participants

The study involved 120 (47%) of the participants had at least attained Secondary level of education.

3.1 Open defecation in the community

	Frequency	Percent
Yes	176	69.0
No	79	31.0
Total	255	100.0

Table 3.1 Practicing open defecation in the community

The study showed that the majority 176 (69%) stated yes and 79 (31%) stated no.

Table 3.2 Estimate times one goes for open defecation per week

	Frequency	Percent
4 times and above	191	74.9
1-3 times	64	25.1
Total	255	100.0

The study on estimate times one goes for open defecation per week showed that the majority 191 (74.9%) stated 4 times and above per week.

Table 3.3 Have a toilet home

	Frequency	Percent
Yes	208	81.6
No	47	18.4
Total	255	100.0

The study on having a toilet showed that the majority 208 (81.6%) stated yes and 47 (18.4%) stated no.

3.2 Practices

Table 3.4 Practices variable findings (N=255)

		Frequency	Percent
Knowledgeable that open defecation is a wrong practice in the community	Yes	151	59.2
	No	104	40.8
	Total	255	100.0
Prioritize to use for defecation	Open defecation	177	69.4
	Toilet	78	30.6
	Total	255	100.0
Open defecation contributes to prevalence of diseases affecting the community	Yes	168	65.9
	No	87	34.1
	Total	255	100.0
Risk of getting diarrhea if your neighbor does not use a latrine/toilet and is practicing open defecation	Yes	216	84.7
	No	39	15.3
	Total	255	100.0
Share toilets in the community	Yes	177	69.4
	No	78	30.6
	Total	255	100.0

On practices showed that 151 (59.2%) stated they are knowledgeable that open defecation is a wrong practice in the community. The majority 177 (69.4%) stated they prioritize to use for defecation. The majority 168 (65.9%) stated that open defecation contributes to prevalence of diseases affecting the community. 216 (84.7%) stated that open defecation puts them on risk of getting diarrhea if your neighbor does not use a latrine/toilet and is practicing open defecation and 177 (69.4%) stated that they enjoy sharing toilets in the community.

Table 3.5 Knowledgeable that open defecation is a wrong practice Crosstab

		Knowledgeable that open defecation is a wrong practice in the community		Total
		Yes	No	
Open defecation	Yes	130	61	191
	No	21	43	64
Total		151	104	255

Table 3.6 Knowledgeable that open defecation is a wrong practice Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.664 ^a	1	<.001
Continuity Correction ^b	23.226	1	<.001
Likelihood Ratio	24.506	1	<.001
Linear-by-Linear Association	24.568	1	<.001
N of Valid Cases	255		

The knowledgeable that open defecation is a wrong practice showed a p-value of 0.001 which is less than the level of significance for the study. This indicated that a wrong practice contributes to open defecation among members in the community.

Tale 3.6a Prioritize to use for defecation Crosstab

		Prioritize to use for defecation		Total
		Yes	No	
Open defecation	Yes	142	49	191
	No	35	29	64
Total		177	78	255

Tale 3.6 b Prioritize to use for defecation Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.725 ^a	1	.003
Continuity Correction	7.824	1	.005
Likelihood Ratio	8.366	1	.004
Fisher's Exact Test			
Linear-by-Linear Association	8.691	1	.003
N of Valid Cases	255		

The study on practices of prioritizing to use open defecation is a wrong practice showed a p- value of 0.003 which is was less than the level of significance for the study. This indicated that a wrong practice contributes to open defecation among members in the community.

3.3 Factors trigger pre-disposition

Table 3.7 Factors trigger pre-disposition variable

		Frequency	Percent
One who promotes on construction and use of latrine/toilet in the community	Government	145	56.9
	Community Health Workers	66	25.9
	NGOs	24	9.4
	None	20	7.8
	Total	255	100.0
Weather condition contributes to open defecation in the community	Yes	189	74.1
	No	66	25.9
	Total	255	100.0
Afford to construct a standard toilet home	Yes	153	60.0
	No	102	40.0
	Total	255	100.0
Reasons why household does not have latrine or toilet	The family does not own the land	82	32.2
	Terrain is not appropriate	77	30.2
	Lack of knowledge/skills on how to construct/use it	31	12.2
	Lack of construction materials	65	25.5
	Total	255	100.0
Nature of land allows you to construct a toilet	Yes	130	51.0
	No	104	40.8
	I don't know	21	8.2
	Total	255	100.0

On one who promotes on construction and use of latrine/toilet in the community showed that the majority 145 (56.9%) stated that it the government. On weather condition contributes to open defecation in the community showed that the majority 189 (74.1%) stated yes. On affording to construct a standard toilet home showed that 153 (60%) stated yes. On reasons why household does not have latrine or toilet revealed that 82 (32.2%) stated that the household does not have enough land to use, 77 (30.2%) stated that the terrain is not appropriate, 31 (12.2%) stated that it is because of lack of knowledge/skills on how to construct/use and 65 (25.5%) stated lack of construction materials.

Table 3.8a Afford to construct a standard toilet home Crosstab

		Afford to construct a standard toilet home		Total
		Yes	No	
Open defecation	Yes	126	65	191
	No	27	37	64
Total		153	102	255

Table 3.8b Afford to construct a standard toilet home Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.296 ^a	1	<.001
Continuity Correction ^b	10.327	1	.001
Likelihood Ratio	11.127	1	<.001
Linear-by-Linear Association	11.252	1	<.001
N of Valid Cases	255		

The table on factors trigger pre-disposition by considering affording to construct a standard toilet home contributes to open defecation in the community showed a p- value the of 0.001.

3.4 Cultural perception

Table 3.9 Cultural perception on open defecation

		Frequency	Percent
Have a culture you strongly follow	Yes	191	74.9
	No	64	25.1
	Total	255	100.0
Culture not only allows separate latrine for sex in household	Yes	145	56.9
	No	78	30.6
	I don't know	32	12.5
	Total	255	100.0
Taboo to use the latrine with in-laws	Yes	144	56.5
	No	111	43.5
	Total	255	100.0
Open defecating in bush is normal	Yes	157	61.6
	No	98	38.4
	Total	255	100.0
Culture strongly states that toilets are meant for women and open defecation is for men	Yes	114	44.7
	No	141	55.3
	Total	255	100.0

The table on perception towards culture, the 191 (74.9%) stated that they have a culture which they strongly follow. The majority 145 (56.9%) stated that culture not only allows separate latrine for sex in household. 144 (56.5%) stated that it is a taboo to use the latrine with in-laws. 157 (61.6%) stated that open defecating in bush is normal. 114 (44.7%) stated that culture strongly states that toilets are meant for women and open defecation is for men.

Table 3.10a Culture not only allows separate latrine for sex in household Crosstab

		Culture not only allows separate latrine for sex in household			Total
		Yes	No	I don't know	
Open defecation	Yes	133	46	12	191
	No	12	32	20	64
Total		145	78	32	255

Table 3.10b Culture not only allows separate latrine for sex in household Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	56.166 ^a	2	<.001
Likelihood Ratio	56.612	2	<.001
Linear-by-Linear Association	55.192	1	<.001
N of Valid Cases	255		

The table on cultural perception by considering culture not only allows separate latrine for sex contributes to open defecation in the community showed a p- value the of 0.001. This showed that cultural perception contributes to open defecation in the community.

4. DISCUSSION:

4.1 Social demography

The study involved more male than female. The majority involved in the study reached primary and secondary levels which showed that the level of illiteracy among the participants was less. However, the study showed that the socioeconomic status, and presence of latrine were based on socioeconomic status that was significantly associated with the level of knowledge on adverse impact of open defecation which they learn. Individuals with higher socioeconomic status possessed more social amenities than those in a lower class and as they were exposed to orientation programs in radio, television, and during interaction with other colleagues in the same economic class. Therefore, someone who possessed a latrine at the house had good knowledge of open defecation because were fully aware of the health consequences of open defecation, and that is why he owns a latrine.

4.2 Open defecation

Based on table 3.1, there is high prevalence of open defecation in the study as people goes for open defecation more than 4 times in a week. This is critical as the everyone implements this wrong act can contribute to high levels of environmental pollution and having adverse effect on the health of the people in the catchment area. The study showed that the area is intensely battling with water-borne diseases that could be linked to poor sanitation open defecation inclusive. Faeces defecated contains bacteria and parasites that have the potentials for contaminating drinking water and the predispose does not only the affects the community practicing the act but other communities who face water-borne diseases and other associated infectious diseases. This tarries with a study conducted by World Health Organisation (2020) which stated that open defecation is the riskiest sanitation practice of all regardless of high levels of practices as 2.5 billion people don't have the access to clean toilet and practices open defecation. Therefore, to fight against open defecation to availability of clean toilets, in the year 2013, the United Nation General Assembly designated 19th November as World Toilet Day, urging changes in both behaviour and policy on issues ranging from enhancing water management to ending open-air defecation (Afshan S. Khan, 2013). Studies have shown that open defecation is a serious problem SSA due to limited policy options for addressing it and effective approach of controlling is through subsidize construction of improved pit latrines, but having a latrine does not ensure that a household will use it (United States Agency for International Development (USAID), 2019).

4.3 Practices

The study showed that there are wrong practices towards open defecation which seemed to hinder the adoption of latrine usage and the practice of open defecation is high. This means that the possession of latrines by the majority of the participant of this study did not guarantee use of latrines regardless of construction of the latrine due to pressure from the government. The majority of the participants were in low-income earners with poor sanitary behaviors that in turn lead to odor, feces on the floor and thus encouraged practices of open defecation. The study showed that construction of latrine alone does not stop open defecation owing to the poor sanitary behaviors of the people. The study showed similar findings showed by WHO (2015) which indicated that in Sub-Saharan Africa, there are low levels of WASH facilities and practices of toilet ownership which contributes to open defecation in communities. WHO (2015) showed that only 4% of households use improved toilet facilities that are not shared with other households which was estimated at 14% in urban and 2% rural areas whereas more than 57% in rural and 43% urban areas use non-improved toilet facility that means an open pit latrine or pit latrine without slabs and many people use open defecation regardless of having a toilet home.

4.4 Factors trigger pre-disposition

The study showed that there are different factors leading to Open Defecation. On the aspect of Triggering end to open defecation in the community it is considered as disgust, shame, fear of pain, a sense of guild and a sense of responsibility related to environmental pollution due to the Open Defecation in any place. Open defecation was linked to lack of change in sanitation perspective and behavior as many people were willing to change their behavior from open defecation to defecate in hygienic and proper latrines, and trigger the construction of latrines with community initiatives without subsidies from outsiders regardless of raising awareness that Open Defecation habit is a shared problem because it can have implications for all people so that the solution must also be implemented together in the community. The study showed that many people fail to construct a toilet due to nature of land and mostly open defecation is determined by season variations. Linggar *et al.* (2019) stated that to achieve the status of open defecation free requires identification of factors that trigger the open defecation which can help maintain positive community behavior that has changed and abandon the Open Defecation behaviour.

4.5 Cultural perfection

Cultural factors have an impact on implementation of open defecation as showed that many people toilets but they think that there is a Western invention and OD is normal according to African cultural beliefs. The study area is struggling with cultural beliefs people returned to open defecation because they think mixing feces with in-laws was a taboo. The same findings were indicated in Zambian parents fail to use same toilet facilities with in-laws (Lawrence *et al.*, 2014). Cultural norms, taboos, beliefs, and human behavior all fall under this category. Open defecation was surrounded by cultural taboos and beliefs that were especially linked to ethno-linguistic groups who lived within the same region, according to a study conducted on open defecation in rural communities on cultural values that reinforced its practice (Water Aid, 208).

5. RECOMMENDATIONS :

- A study should also be conducted to assess the level of utilization of latrines, taking a look at the highlighted attributes of the community that could be linked with poor latrine usage despite the fact that it is available.
- There is need to promote community-led total sanitation programs targeting the feelings (attitude) and the practice of the people to change their mind-set.
- To establish and enforce Stop Open Defecation triggering method as a community empowerment activity to foster awareness, knowledge, understanding, willingness, and ability to maintain and improve health through triggering disgust, shame, fear of pain, a sense of guilt and a sense of responsibility related to environmental pollution due to open defecation habit.
- To make sure that the communities jointly realize the dangers of open defecation and feel disgusted by doing Open Defecation habit, even though they only do Open Defecation for one day, and especially if they do it every day.
- The sanitation officer or facilitator at CHC must continue the process of community facilitation; conduct more intensive interpersonal communication and further supervision after the implementation of triggering for Open Defecation Free.

6. CONCLUSION :

The study concluded that there are high records of open defecation in the study area. The latrine was present in almost all the households but still continued with open defecation practices. The factors that encourage open defecation include latrine sharing by too many members, smelly latrine, fear of falling inside due to the loose nature of the soil type, and cultural belief of some individuals. Lack of Knowledge on the impact of open defecation was seen among the participants and most of the participants showed negative attitudes and poor practice of latrine usage.

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