WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF PUBLIC HEALTH

FACTORS ASSOCIATED WITH LATRINE UTILIZATION AMONG COMMUNITY IN WOLKITE TOWN IN GUBRE SUBCITY

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ACRONYMS

CI-Confidence Interval

CLTS-Community Led Total Sanitation

EDHS-Ethiopia Demographic and Health Survey

JMP-Joint Monitoring Program

MDG-Millennium Development Goal

MEDHS-Mini Ethiopian Demographic Health Survey

NODF- None Open Defecation

OD-Open Defecation

ODF-Open Defecation Free

OR-Odds Ratio

SNNPR-Southern Nation Nationality and People Representative

UNICEF-United Nation Children Fund

WASH-Water Sanitation and Hygiene

WHO-World Health Organization

WKU-Wolkite University

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ABSTRACT

BACKGROUND: Lack of sanitation facilities is a serious health risk and obliges people to practice open defecation, thereby increasing the risk of disease transmission. While household access is important, community sanitation coverage is even more important to improve health around the world. This is best achieved through regular use of a well-maintained sanitation facility. The proper use of latrines can reduce the risk of diarrhea to almost the same extent as improved water supplies.

OBJECTIVE**:** The study was designed to assess factors associated with latrine utilization among community in Wolkite *town in gubre sub city.*

METHOD: A community based cross- sectional study was conducted in all households that have latrine facilities in Wolkite town in gubre sub city. Lottery method will be used initially from the household sand by systematic random sampling was select the households with latrine facilities from selected Kebele. Data was collected using structured questioner via face-to-face interviews and on-the-spot observations of the latrines. The collected data was checked for completeness. The data was coded and entered to be analyzed using the software SPSS version 20.

RESULT: the prevalence of latrine utilization was 75.45% (95% CI [0.459–1.441%]), whereas 24.55% (95% CI [0.588–1.475%]) of participants did not utilize latrines .It associated with educational status of the respondent [COR 2.558, 95% CI:1.094, 5.982], who had attended secondary & above [COR 2.372, 95% CI:1.143, 4.921], monthly income more than 1000 Ethiopian Birr (ETB), [COR 0.766, 95% CI: 0.598,0.982], family size [COR 0.478, 95% CI: 1.017, 2.198], latrine inside the compound [COR 1.755, 95% CI: 1.172, 2.630] pit latrine disposal as compared with their counterparts were more used latrine.

CONCLUSION The utilization of latrine was low and still needs, to improve awareness of the community there is a need of health education programs regarding improved use of latrine, cleanliness of latrine, constructing latrine inside the compound and maintenance of latrine for the proper utilization including children should be considered.

RECOMMENDATION: Depending on the results of this study, the following recommendations forwarded: Health extension Worker, Kebele Administrative**,** to the Community-based and kebele cadres at community level and To households use latrine properly and clean the latrine daily and which latrine need maintenance it should be maintain.

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Over 50 infections can be transferred from a diseased person to a healthy one by various direct or indirect routes involving excreta (2). Poor excreta disposal practices are responsible for a significant proportion of the world's infectious disease burden. Sanitation facilities interrupt the transmission of fecal-oral disease at its most important source by preventing human faecal contamination of water and soil. (3, 4).The construction of latrines is a relatively simple technology that may be used to control the spread of infectious diseases. While household access is important, community sanitation coverage is even more important to improve health around the world. Studies have shown that latrine coverage has to reach 90% of a population to have an impact on community health (6). ??? However, 2.4 billion people, 40% of the total world population, lack improved sanitation worldwide and 80% of these people live in rural areas (7).

About 1.8 million people die every year due to diarrheal diseases, and children under the age of 5 years account for 90% of diarrheal deaths. Moreover, 88% of diarrheal diseases are attributed to unsafe water supply, inadequate sanitation, and poor hygiene [8].In Ethiopia, even though progress was made in reducing child mortality from 123 deaths of under five years of children per 1,000 live births in 2005 [10] to 88 deaths per 1,000 live births in 2011, children in the country still suffer from diarrheal diseases, respiratory problems, and malnutrition.

According to Ethiopian demographic and health survey, the two week prevalence of diarrheal diseases was 13% among of children under five years of age [11].To improve sanitation and hygiene throughout Ethiopia, the National Sanitation Strategy establishes the goal of 100% latrine coverage . In Ethiopia, according to Ethiopian Demographic and Health Survey 2016, The recent data Mini EDHS indicate that, in Ethiopia more than half 55% of households (56.7% in rural and 4.4% in urban areas) access to unimproved sanitation and Only 4.2% of households(10.1% in urban and 2.3% in rural areas) accessed improved toilet facilities that not shared with other households. Overall, 35.5% of households (11.3% urban and 39.6% rural) live without toilet facility. Health improvement comes from the proper use of sanitation facilities, not

simply their physical presence. This is best achieved through regular use of clean and well-maintained latrines. The proper use of latrines can reduce the risk of diarrhea to almost the same extent as improved water supplies, but the greatest benefit occurs when improvements in sanitation and water supply are combined and education is given on hygienic practices (13)

1.2. STATEMENT OF THE PROBLEM

World Health Organization (WHO) estimates that diarrhea is responsible for child deaths; it accounts 35% of deaths. UNICEF estimates that diarrhea alone kills one child every 30 seconds. The vast majority of child mortality occurs among the world's poorest populations in low- and middle-income countries. Human feces are the main source of diarrheal pathogens. Most diarrheal diseases including viral gastroenteritis, cholera, Shigellosis, typhoid, polio and some forms of hepatitis being spread by faecal-oral means are often called faecal-oral diseases. Just one gram of human feces can contain 10 million viruses and one million bacteria.. Evidence suggests that improved handwashing can have a major impact on public health in any country and significantly reduce the leading causes of childhood mortality – diarrheal disease. Because handwashing with soap can prevent the transmission of a variety of pathogens, it may be more effective than any single vaccine or hygiene behavior. So that hand washing is one of the most effective means of preventing diarrheal diseases, along with safe stool disposal and safe and adequate household water supply(1).

World Health Organization (WHO) estimated that for every 100 children 0-5 years of age, there are an average of 220 diarrhea episodes and 1.4 deaths from diarrhea every year (24, 26).

An estimated 88%of this burden is attributable to unsafe drinking water supply, inadequate sanitation, and poor hygiene. (3, 19).Studies in the developing world estimate that diarrhea accounts for 21% of all deaths of < 5children and causes 2.5 million deaths per year. In Ethiopia, three-fourths of the health problems of under-five children are communicable diseases, which come from the environment, specially water and sanitation [11]. Diarrhea is the leading cause of under-5 mortality causing 23% of deaths and around 44% stunted [4]. When we come to our specific research site, similar documented research was not done, and in different area the research was done but it focused on under 5 children. Because of this reason, we are interested to conduct the research in people who lives in Gubre sub city. In our research, we will assess the major determinants of diarrheal disease like latrine condition and its facilities, habits of hand

washing after toilet, educational status, and economical status. Finally, at the end of our research we will identify the gaps and provide information to the concerned body to find solution and improve the health status of the community.

1.3RATIONALE

Low access and utilization to sanitation is base line cause of hygiene-related diseases like diarrheal disease, which seriously cause morbidity and mortality rates among children. Low latrine utilization is existing gaps of rural community. In ODF kebeles, assumed that high level of latrine utilization and in NODF community expects that low latrine Utilization observation of Open defecation. So that this study intended to find out the reality by comparing, the existing data at house hold level, from ODF and NODF kebeles in different climate condition. This study also investigate different factors facilitate or hinder latrine utilization in both ODF and NODF kebeles. This work also helps to appreciate the basics of ODF status in the utilization of latrine and tangible impact of ODF on satisfactory latrine utilization, which in turn plays a major role in the proper planning, monitoring of sanitation & hygiene activities

1.4. SIGNIFICANCE OF THE STUDY

This study was assess factors associated with latrine utilization like; condition of the latrine, hand washing practice of the people after defecation, accessibility of water supply and socio-economic status of the community. We also asses educational background of the society, family size, reason that make them to build latrine. The purpose of this study is to minimize open field defecation and to provide information for the concerned body, and to create awareness on latrine utilization and was give clue about the impact of latrine utilization on cominicable disease to community. At the end of this research, we would also assess factors that affect latrine utilization, which was base line to latter researcher, and in addition the study was given clue to the concern bodies that are working in the area of sanitation and to take appropriate measure, it serves as base line information.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 DETERMINANTS OF LATRINE UTILIZATION:

Globally, 2.4 billion people (32%) or almost one third of the world's population, to improved sanitation. Sub-Saharan African showed slower progress in sanitation coverage, reaching31percentage in 2015 from 24% in 1990. Inequalities in coverage also exist between rural, Urban Areas. That is 40% of the urban population accessing improved sanitation, and only 23% of people in rural areas have access to improved sanitation. JMP estimates were based on fitting a regression line to a series of data points from household surveys and censuses.

Simple linear regression is use to estimate the proportion of the population accessing improved, unimproved, shared sanitation and undertaking open defecation. So that, limitation of JMP report can be, in rare case may underestimate the fast growing counties progress (face in China) and over estimate for some countries no progress after survey of census(.The recent data Mini EDHS indicate that, in Ethiopia more than half 55% of households (56.7% in rural and 4.4% in urban areas) access to unimproved sanitation and Only 4.2% of households(10.1% in urban and 2.3% in rural areas) accessed improved toilet facilities that not shared with other households.

Overall, 35.5% of households (11.3% urban and 39.6% rural) live without toilet facility. Some difference were observed in different findings in the estimation of sanitation coverage largely lie in the lack of agreement of a standardized definition were observed in both data. Government of Ethiopia had set to achieve national target of 100 per cent sanitation coverage in both rural and urban areas and made different effort to achieve it by 2015. Even though good progress made, in Ethiopia only 28% of population of the country accessed improved sanitation facilities and 43% were accessed to unimproved sanitation (shared (14%) and other unimproved sanitation (29%)) and proportion of population under take open defecation is 29% and not on rack to meet the MDG target. The majority of Open Defecation (OD) practices, as stated in national surveys it take place in fields, forests, bushes, bodies of water or other open spaces, take place in rural areas of low- income countries .

Health Extension Program and Community Led Total Sanitation (CLTS) and later health development army were the main tool used by ministry to reach every corner of the country. Rural Health Extension Program consists of 16 preventive health packages, of which seven, which focused on environmental health activities. So that the ministry used this strategy as the basic tool to implement WASH program performance and improve the livelihood of population, living the rural areas .Oromia is one of regional state of Ethiopia among low coverage in latrine access and utilization.

As fact sheet of UNICEF and WHO 2014, estimate the status and campier the region by EDHS2000, 2005, 2011 finding, among four big regions (SNNP, Amhara, Tigray and Oromia) those have relatively the same geographical setting, Oromia's sanitation coverage were the least (9) . i.e. Improved and shared latrine coverage SNNP, Amhara, Tigray and Oromia was 56%, 46%, 41% and40% respectively and The coverage unimproved sanitation of the region was also 32%, 17%, 13%and 17% respectively and open defecation status was 12%, 37%, 46% and 43% respectively .From this data, we can conclude as Oromia region lagged behind other region in sanitation access and utilization.

2.2 LATRINE UTILIZATION

the actual behavior that is reflected in a regular practice of using existing latrines for safe excreta disposal. The presence of fresh excreta inside the pit, the presence of footpath to the latrine, and the absence of feces around the household were used to measure latrine utilization. An estimate one billion people did not access any facilities at all for excreta disposal and practice open defecation (OD). The highest proportions of population practicing open defecation were found in South Asia and Sub Saharan Africa. Seven out of ten people without improved sanitation facilities and nine out of ten people still practicing open defecation, live in rural area .Among one billion estimated to be open defecate; two thirds live in Southern Asia and sub-Saharan Africa. However, Southern Asian counties proportion, nearly three times as many as in sub-Saharan Africa.

Number of people practicing OD in southern Asia has declined moderately from 1990(decreased by 21%), but in Sub Saharan Africa number of people practicing open defecate increased from than in 1990 (increased by 26%). Ethiopia is among 16 (sixteen) countries reduced open defecation by more than 25 percentage points during the MDG period the largest decrease (64%) in the

proportion of the population practicing open defecation (from 92 % in 1990 to 29 % in 2015). Open defecation was practiced by44.3 million Ethiopians in 1990 and 28.3 million in 2015 – an average reduction of over 4 Percentage points per year over 25 years. (1)

2. 3 HAND WASHING PRACTICES

The Global Public-Private Partnership for Handwashing has brought together various organizations and sectors to promote handwashing with soap on a large scale Handwashing is one of the most effective means of preventing diarrheal diseases, along with safe stool disposal and safe and adequate household water supply. Evidence suggests that improved handwashing can have a major impact on public health in any country andsignificantly reduce the two leading causes of childhood mortality – diarrheal disease. Because handwashing with soap can prevent the transmission of a variety of pathogens, it may be more effective than any single vaccine or hygiene behavior. Promoted broadly enough, handwashing with soap can be viewed as an essential do-it-yourself vaccine. Almost every household in the world, regardless of economic status, has soap. Handwashing with soap at key times, however, is not widely practiced. If the millennium development targets for reduction in child mortality are to be met, handwashing habits must be improved along with access to safe water and sanitation (1).

Good hand washing requires the use of soap (or a local substitute like ash, soil, leaves etc.), plenty of water, and careful cleaning of all parts of the hands (5, 7). Simple hand washing with soap and water reduces diarrhea transmission by 35 %(3, 5,).Are view of other available evidence suggests that hand washing with soap could reduce diarrhea incidence by47percentage and save at least one million lives per year (4, 14, 21).

2.4. POPULATION SIZE

Although urban sanitation figures generally far outstrip rural access, it is widely known that the poor, unplanned, densely populated areas are badly underserved. This density therefore poses a greater risk contamination than thinly populated rural areas. Limited sanitation options and high demand are compounded *by poverty and limited space, creating a major challenge (27).*

2.5. WATER SUPPLY

Families that have ready access to adequate and clean water for drinking and preparing food have fewer diarrheas than families whose access to water is difficult or heavily contaminated. Studies have shown that improvements in sanitation facilities have greater impacts on diarrhea

prevalence than improvements in water supply (20). Well-designed water supply and sanitation interventions typically reduce diarrhea incidence by about 25%. Children from homes with water supplies over 500 meters from the house had incidence rates of diarrhea 34% higher than those of children from houses with their own water supply (22). The study in Accra, Ghana, showed that the presence of drinking water at a household level had a negative association with the incidence of childhood diarrhea. Therefore, lack of or inadequate access to potable water is associated with high incidence of diarrhea (23)

2.6. SOCIO-ECONOMIC FACTORS

Socio-economic factors do not directly affect the risk of diarrhea, but rather, influence family behaviors that alters the child's exposure to pathogens or susceptibility to infection (18, 19). The impact of latrines on diarrhea was greater where the mothers had a higher level of education or worked outside the home (18).The distributions of diarrhea cases were most in areas where the living standard is poor, unhygienic, with no latrine and inadequate water supply (24, 25). A studying Accra, Ghana, showed the incidence of childhood diarrhea is negatively correlated with the household economic status, and the mother's education (23).

2.7. EDUCATIONAL STATUS

Because they provide a relatively easy and sustainable route to long-term behavior change, schools are a good focus of handwashing programs. Schools are a key environment, not just for learning about handwashing, but also for introducing the habit in practice, so it lasts. Children are often enthusiastic proponents of behavior change. In most countries, schools are the second places of socialization after households. Children can spend up to eight hours a day for more than eight months year in schools and a substantial amount of time with their peers(1).

CHAPTERTHREE

3. OBJECTIVES OF THE STUDY

3.1. GENERAL OBJECTIVE:

To assess factors associated with latrine utilization among community in Wolkite town in gubre sub city.

3.2. SPECIFIC OBJECTIVES:

To determine the attitude towards of latrine utilization

To describe factors associated to latrine utilization.

To find out knowledge about latrine utilization.

CHAPTER FOUR

4. MATERIALS AND METHODS

4.1. STUDY AREA

The study was conducted in of in Wolkite town capital city of Gurage zone in gubre sub city it has an estimated total population of 7816. The study is conduct in public health centers of wolkite. Wolkite is a town and separate wored in southwestern Ethiopia and found at 158km distance from Addis Ababa. The administrative center of the garage zone of the southern nation nationalities and people's region (SNNPR), this town has a latitude and longitude of 8’17 AND, 37'47'E and an elevation between 1910 and 1935 meters above sea level. It is surrounded by kabena wored and it was part of former goro wored.

4.2. STUDY PERIOD

The study was conducted from July 9 to November 9-, 2021 G.C.

4.2 STUDY DESIGN

A community based cross-sectional study was conducted of in Wolkite town capital city of Gurage zone in gubre sub city.

4.3 SOURCE POPULATION

All households that have latrine facilities in gubre sub city.

4.4STUDY POPULATION

Selected households with latrine facilities among selected households of the-gubre sub city

4.5 INCLUSION AND EXCLUSION CRITERIA

4.5.1 INCLUSIN CRITERIA

All households who have latrine in gubre sub city.

4.5.2 EXCLUSION CRITERIA

Households that uses public latrines
Households who have no latrine

4.6 SAMPLE SIZE DETERMINATION AND SAMPLING

4.6.1 SAMPLE SIZE DETERMINATION

The sample size was determined by single population proportion formula by considering proportion of satisfaction 71.5% in sideman regional state in 2020.

n= (za/2)2p (1-p)

(d2)
= (1.96)2 0.715(1-0.715)
(0.05)2
=313

n=required sample
N=total house holds
Z=Standardized normal distribution curve value for 95%confidence interval with the value of 1.96
p=Probability of latrine utilization (0.715)
q=Probability of not using latrine (0.285)
d=marginal error=0.05

The calculated sample size will be 313

Since number of total population is less than 10,000, we used correction formula.

nf= (n/1+ (n/N)

nf= minimum required sample size

n= minimum sample if the population was more than 10,000

N= total population size

With this formula n = (313/1+ (313/7,816)

Becomes 300

10% non-respondent is also considered

10% of 300 and the final sample size is =330

Interval (K) – The interval by which 330 households are selected from 1165households is calculated as:

K= Total household / Sample size = 1165/330 = 3.5 ~ 4

Therefore, data was collected every Four households.

4.6.2 SAMPLING PROCEDURE

Gubre sub city has 1kebeles, for administrative purpose they was divided into 8sublevels [1, 2, 3, 4, 5, 6.7.8].We would also select randomly from the above levels by lottery method. Later on, households was selected using systematic random sampling from the randomly selected.4.7 Variables of the study

4.7.1 DEPENDENT VARIABLES

- Prevalence of latrine utilization

4.7.2 INDEPENDENT VARIABLES

Socio-economic Variables: - family size, number of children, educational status,

Occupational status
Environmental variables – Availability of latrine, sources of water, hand washing Facilities.
Behavioral variables - latrine utilization, hand washing practices,

4.8 OPERATIONAL DEFINITION

Satisfactory latrine utilization: is a latrine that provided services at the time of data collection even if the latrine required maintenance. A latrine is utilized when households had functional latrines, no observable faces in the compound, observable feces through the squat hole, and the footpath to the latrine is uncovered with grasses.

Unsatisfactory latrine utilization: is a not functional during data collection and observable feces in the latrine compound.

Safe disposal of child faeces. Children's faeces disposed of in a toilet, not in the open.
Poor latrine. A latrine without superstructure and lacking walls.
Fair latrine. A latrine having superstructure, without a door (any cover) but with a leaking roof at time of data collection.
Good latrine. A latrine having superstructure, with a door (any cover) and possibility of maintaining privacy during defecation.
Dirty latrine. Visible faeces and/or urine on the floor around the latrine and latrine not swept at the time of data collection.
Clean latrine. Pit not full, no faecal matter seen around the pit latrine, area properly swept and absence of bad smell at time of data collection.

4.9 DATA COLLECTION TOOLS AND TECHNIQUES

Structured interview questionnaires containing both open and close-ended questions was used to collect data. The questionnaire contains questions related to socioeconomic factor, hand-washing

practice, latrine condition. Pre testing of the questioner was under taken in selected Kebele one week before the actual data collection takes place. After discussion with advisors four, fourth year public health students was involved in data collection. The necessary tools such as notebook, pen, pencil, eraser, stapler, and papers was used during data collection. The data collection was take 1 week.

4.10. DATA QUALITY CONTROL

Trained data collectors was involved in order to assure the quality of data, the structured questioner was checked on a daily basis by cross checking mechanism of the data collectors and all the data collectors would have the same understanding of each question. Each questioner was coded while the data is collected. In order to cross check the collected data the principal investigator was randomly rechecked five percent of the completed questioners daily. Incomplete and inconsistent data was modified and filled as necessary. A pretest was done before data collection.

4.11. DATA PROSSESING AND ANALYSIS

The collected data was check for completeness; exploratory data analysis was carried out to check the levels of missing values. The data was coded and entered in to a computer and it was analyzed using the software SPSS version 20 and then finally summarized and presented in frequencies, percent, texts, tables, and graphs.

4.12 ETHICAL CONSIDERATION

The ethical approval and clearance was obtained from WKU institute of medicine and health science, department of public health. An official letter of cooperation was written to the involved institutions. Oral informed consent was secured from the involved respondents for their participation after the nature of the study is fully explained to them and was attached in the questioner. The right to refuse was respected and information collected from the participants was not be disclosed to another third person. In addition, the data was collected respectfully.

4.13. DISSEMINATION OF THE RESULT

The hard copy of the finding was sent to wolkite University College of medicine and health science department of public health and to other stakeholders who can bring change based on results and was presented to Wolkite University for partial fulfillment of the degree of Bachelor of Science. The result of this study was submitted to our instructors, the respective woreda health office, and any concerned body.

CHAPTER FIVE
5. RESULTS
5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS

In this study, of the total 330 participants, More than two-third 200 (60.6%) of participants were female and the rest were male 130 (39.4%).The number of people who were illiterate accounted for 120(34.4%) ,113 (34.2%) primary education, 51(15.6%) secondary education and46(13.9%) diploma and above of study participants. The occupation of 86 (26.1%) of the study participants was housewife, 16 (4.8%) were farmers,36 (10.9%) daily labor, 59 (17%) government employer and 133 (40.3%) are merchants. 138 (41.8%) of households were in the lowest wealth index category, whereas 146 (44.2%) were in the middle income category and 46 (13.9%) were in the highest income category(Table1).

Table 1; Frequency distribution Socio-demographic characteristics of the study participants in Gubre sub city November 2021.

Variable	Category	Number	Percent
Sex of the respondents	Male	130	39.4
	Female	200	60.6
Age	18-24 year	60	18.2
	24-49 year	218	66
	>50 year	52	15.8
Marital status	Single	24	7.3
	Married	306	92.7
Religion of the respondents	Orthodox	84	25.5
	Muslim	139	42.1
	Protestant	77	23.3
	Catholic	30	9.1
Educational status	Illiterate	120	36.4
	Primary education	82	24.8
	Secondary education	113	34.2
	Diploma and above	46	13.9
Ethnicity	Gurage	275	83.3

	Amhara	29	8.8
	Oromo	2	0.6
	0ther	24	7.3
Family income level	<1000 1000-5000	151 79	45.8 23.9
	>5000	100	30.3
Job of the respondents	House wife	86	26.1
	Daily labor	36	10.9
	Farmer	16	4.8
	Government employer	59	17.9
	Merchant	133	40.3
Family size	1	18	5.5
	2	82	24.8
	3	113	34.2
	4	42	12.7
	5 and above	75	22.7
Under5 children in the house	Yes	245	74.2
	No	85	25.8

5.2 LATRINE CHARACTERISTICS

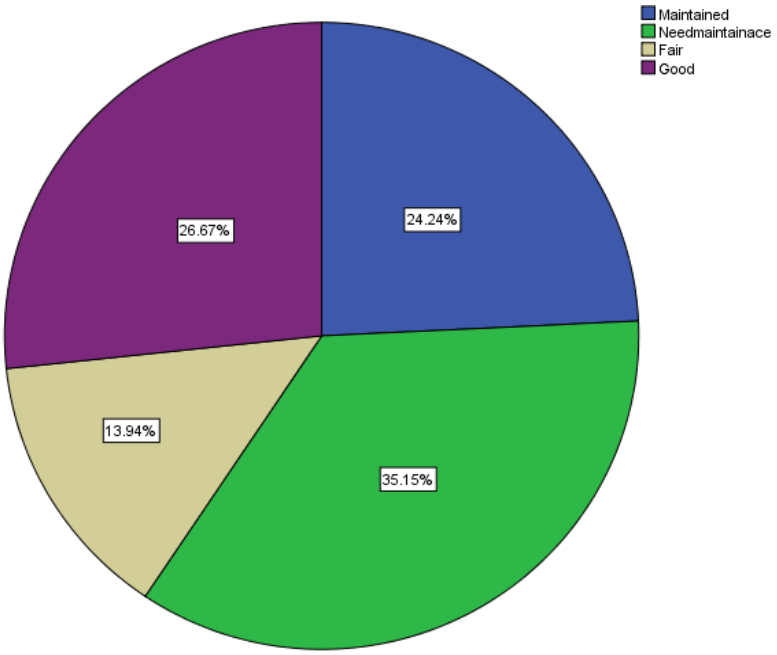
Among households included in the study, 282 (85.4%) were found to use a pit latrine and 48 (14.6%) used VIP latrines. The time since the latrine had been constructed was one to three years or more for 146 (44.2%), four to six year 167 (50.6%) and > 7 year 17 (5.2%) of households. About 75 (22.7%) of latrines were

located inside the house compound and 255 (77.3%) outside the house compound. About 312 (94.5%) functional and 18 (5.5%) not functional. The status of the latrine 88 (24.2%) maintained, 116 (35.2%) need maintenance, 46 (13.9%) fair and 88 (26.7%) good latrine. A majority 188 957%) of the latrines slab sealed with mud/cement and 142(43%) not sealed with mud\cement (Table 3).

Table 2; Frequency distribution of Latrine characteristics October 2021.

Variable	Category	Number	Percent
Type of latrine	Pit latrine	282	85.4
	VIP latrine	48	14.6
	Water carriage	-	-
	Other	-	-
Functional latrine	Yes	312	94.5
	No	18	5.5
Constructed year of latrine	1-3 year	146	44.2
	4-6 year	167	50.6
	7-10 year	17	5.2
Fresh feces around the latrine hole	Yes	95	28.8
	No	235	71.2
Disposal of children's of under5	Pit latrine disposal	240	72.7
	Disposal in the compound	24	7.3
	Outside the compound	62	21
	Need maintenance	116	35.2
	Fair	46	13.9
Location of latrine	Outside the compound	255	77.3
	Inside the compound	75	22.7
Part of latrine need maintenance	Super structure	56	17
	Slab	126	38.2
	Roof	68	20.6
	Latrine pit	80	24.2
Latrine seated with cement	Yes	188	57
	No	142	43
Distance b\n latrine and pipe water	1-2m	106	32.1
	3-5m	206	62.4
	>4m	18	5.5
Distance b\n house and latrine	1-2m	66	20
	3-5m	155	47
	>6m	109	33

Out of 330 latrines, 24.24% was maintained, 35.15% needs maintenance, 13.94% were fair and 26.67% were Good.



Figer 1; Frequency distribution of Status of latrine in Gubre sub city October 2021.

5.3 BEHAVIORAL CHARACTERISTICS

Of the total study participants, 92 (27.9%) of households reported cleaning the latrine weekly, whereas one-fourth (24.2%) of the households cleaned the latrine daily, 155 (37.3%) clean the latrine when dirty. The hygienic condition of a majority 195 (59.1%) of the latrines was dirty and 135 (40.9%) clean. 138 (41.8%) of the study participants had received information about constructing latrines. The majority 62.5% (248) of households constructed latrines because of the advice of health extension workers and about 57 (17.2) constructed latrines on their own initiative,135(41%) disease prevention.(Table 3).

Table 3; Frequency distribution of Behavioral characteristics the participants November 2021.

Variable	Category	Number	Percent
Use of latrine by family member	Always	249	75.5
	Rarely	81	24.5
Hygienic condition	Clean	195	59.1
	Dirty	135	40.9
Reason of using latrine	Advised by health extension	138	41.8

	Self-initiation	57	17.2
	Disease prevention	135	41
Presence of hand washing near to latrine	Yes	264	80
	No	66	20
Responsible to construct latrine	Man	72	21.8
	Women	16	4.8
	Both	242	73.4
Hand wash after toilet	1 times	144	43.6
	2times	186	56.4
Use of soap for hand washing	Yes	185	56
	No	145	44
Hand wash of the children after defecate	Only water	133	40.3
	With soap	190	57.6

Of all latrines included in this survey, most latrines had daily cleaning schedule.

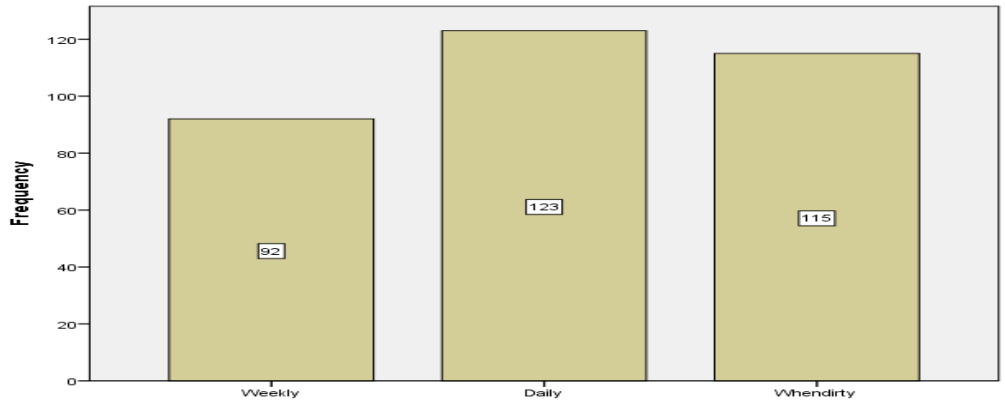


Figure 2: frequency distribution of cleaning latrine in Gubre sub city November 2021.

5.4 FACTORS ASSOCIATED WITH LATRINE UTILIZATION

From socioeconomic characteristic, environmental (latrine condition), and behavioral characteristics variables were tested for their association with the presence of latrine utilization among Gubre sub city by binary logistic regression analysis. First, the association of each variable with the occurrence latrine utilization among Gubre sub city was assessed by the binary logistic regression and then their variables, which were less than 0.025, were entered to the multivariate regression. Again, those variables were analyzed in to multivariable logistic

regression and variables having a significance of less than or equal to 0.05 were taken as significant variables.

5.4: BIVARIATE ANALYSIS WITH LATRINE UTILIZATION IN GUBRE SUB CITY NOVEMBER 2021.

Table 4. Socio-demographic characteristics and bivariate analysis with latrine utilization in Gubre sub city November 2021.

Variables	Category	Sig.	COR	95% C.I.for EXP(B)	
				Lower	Upper
Educational status	Illiterate	.030	2.558	1.094	5.982
	Primary education	.963	1.022	.414	2.519
	Secondary education	.605	1.306	.474	3.598
	Diploma and above	.667	1.446	.270	7.761
Family income level	<1000	.020	2.372	1.143	4.921
	1000-5000	.012	2.675	1.239	5.774
	>5000	.585	1.569	.311	7.921
Job of the respondents	House wife	.811			
	Daily labor	.819	.859	.233	3.165
	Farmer	.913	.927	.238	3.613
	Government employer	.292	2.096	.529	8.300
	Merchant	.323	1.628	.619	4.280
Family size	1	1.770	.400	.106	2.511
	2	.0.002	.0.278	.0.123	0.629
	3	.464	.790	.420	1.485
	4	.423	.710	.307	1.642
	5 and above	.571	.620	.119	3.241
Under5 children in the house	Yes	.689	1.190	.508	2.787
	No	.005	.101		

Table 5. Latrine characteristics and bivariate analysis with latrine utilization in Gubre sub city November 2021.

Variable	Category	Frequency	Sig.	COR	95% C.I.for EXP(B)	
					Lower	Upper
Constructed year of latrine	1-3 year	146	.956			
	4-6 year	167	.769	1.103	.574	2.120
	7-10 year	17	.981	1.023	.160	6.539
Disposal of faces of U5 children	Pit latrine disposal	246	0.05	4.826	1.358	17.146
	Disposal in the compound	26	0.019	1.203	0.179	8.059
	Outside the compound	54	0.550	1.533	0.378	6.217
Location of latrine	Outside the compound the house	255	0.25	0.464	.237	0.908
	Inside the compound the house	75	.193	.623	.306	1.271
Status of latrine	Maintained	80	.315			
	Need maintenance	116	.792	.891	.380	2.093
	Fair	46	.081	.325	.092	1.151
	Good	88	.404	.642	.226	1.821
Part of latrine need maintenance	Super structure		.635			
	Slab		.949	1.027	.460	2.293
	Roof		.398	1.479	.597	3.665
	Latrine pit		.534	.665	.184	2.407
Distance b\n house and latrine	1-2 m	69	0.016			
	3-5m	116	0.005	3.409	1.443	8.053
	>4m	145	0.761	1.134	0.506	2.541

Table 6. Behavioral characteristics and bivariate analysis with latrine utilization in Gubre sub city November 2021.

Variable	Category	Frequency	Sig.	COR	95% C.I.for EXP(B)	
					Lower	Upper
Frequency of latrine cleaning	Weekly	92	.817			
	Daily	123	.635	1.308	.431	3.966
	When dirty	155	.895	.947	.423	2.121
Hygienic condition	Dirty	262	.008	2.897	1.321	6.355
	Clean	68	.177	.472	.159	1.404
Reason of using latrine	Advice by health extension	138	.958			
	Self-initiation	57	.883	1.088	.353	3.354
	Disease prevention	135	.911	.953	.405	2.241
Responsible to construct latrine	Man	72	.542			
	Women	16	.494	2.806	.146	53.794
	Both	242	.433	.721	.319	1.631
Presence of hand washing near to latrine	Yes	250	.174	.319	.061	1.659
	No	80				
Use of soap for hand washing	Yes	185	.216	.595	.262	1.355
	No	145				
Type of latrine	Yes	328	.426	.323	0.02	5.217

5.5 MULTI NOMINAL LOGISTIC REGRESSION ANALYSIS WITH LATRINE UTILIZATION IN GUBRE SUB CITY NOVEMBER 2021.

Table 7 Multi nominal logistic regression analysis with latrine utilization in Gubre sub city.

Variables		Frequency	Sig.	COR	95% Confidence Interval for Exp(B)	
					Lower Bound	Upper Bound
Educational status	Illiterate	120	.020	1.386	1.054	1.823
	Primary education	113	.963	0.979	0.397	2.624
	Secondary education	51	.605	0.766	0.278	2.109
	Diploma and above	46				
Family income level	<1000	151	.007	1.748	1.165	
	1000-5000	98	0.012	0.374	0.173	0.807
	>5000	81				
Family size	1	18	.777	2.500	0662	9.446
	2	82	.036	.766	.598	.982
	3	113	.464	1.266	0.673	2.378
	4	42	0.423	1.409	0.609	3.260
	5 and above	75				
Disposal of faces of U5 children	Pit latrine disposal	246	.006	1.755	1.172	2.630
	Disposal in the compound	26	0.550	1.533	0.378	6.217
	Outside the compound	54				
Location of latrine	Outside the compound the house	255	.010	.478	1.017	2.198
	Inside the compound the house	75				
Distance b\n house and latrine	1-2m	69	.045	1.414	1.007	1.983
	3-5m	116	0.781	1.086	0.598	1.971
	>5m	145				
Hygienic condition	Dirty	262	.008	3.030	1.333	6.890
	Clean	68				

In the multivariate analysis, the educational status of the respondent, average monthly income of the household, household size, under 5 children feces disposal, location of the latrine, distance from the house and hygienic condition of latrine was remained associated with latrine utilization. The educational status of the respondent [COR 1.386, 95% CI: 1.054, 1.823], a significant association with latrine utilization as compared with the respondent does not attend the education. The household monthly income more than [COR 1.748, 95% CI: 1.165, 2.624], Household family size [COR 0.766, 95% CI: 0.598, 0.982], the households who had latrine inside the compound [COR 0.478, 95% CI: 1.017, 2.198] as compared with their counterparts (Table 7).

Prevalence of latrine utilization

the prevalence of latrine utilization was 75.45% (95% CI [0.459–1.441%]), whereas 24.55% (95% CI [0.588–1.475%]) of participants did not utilize latrines.

CHAPTER SIX

6.1DISCUSSION

This community-based cross-sectional study found that nearly three-fourths of participants utilized latrines, and that latrine usage was significantly associated with the educational status of the respondent, average monthly income of the household, household size, under 5 children feces disposal, location of the latrine, distance from the house and hygienic condition of latrine was remained associated with latrine utilization. This c community-based cross-sectional study revealed that the utilization of latrine among selected households was 75.45% (95% CI [0.459–1.441%]), whereas 24.55% (95% CI [0.588–1.475%]) of participants did not utilize latrines. This study reveals that the high education level of a mother had a significant association with latrine utilization. This could be attributed to the impact of education on behavior change and the adoption of good latrine hygiene practices at the household level high among educated mothers. Furthermore, the monthly income of the household had also a significant association with latrine utilization. This may due to Household's monthly income determines the availability and quality of latrine, which are the important predictors of utilization of latrine. In addition, this might be due to low-income households had a shortage of money to constrict latrine rather than other important materials and utilities for daily consumption. Household family size was found to be a significant association with latrine utilization. This might be due to the presence of high family size and low. On the other hand, this may also be related to the economic status of the household. The location of the latrine being inside the compound had also a statistically significant association with latrine

utilization. This may due to fear to utilize the latrine during at night and raining because it is far from the resident's house and no roof to prevent raining and it is exposed to an animal attack. Tis study result shows, there was a low utilization of latrine.

6.2 LIMITATIONS OF THE STUDY

one of the limitations of this study was that data was obtained from a cross-sectional survey study, which may be exposed to bias due to self-reporting. During self-reporting, there may be an occurrence of social desirability bias.

6.3 CONCLUSION

This study result shows that the utilization of latrine needs improvements and attention to enhance the proper and adequate utilization of the latrine. It associated with being younger age, maternal education, monthly income, family size, latrine inside the compound as compared with their counterparts were found to be associated factors of the utilization of latrine. Hence, this needs to improve awareness of the community there is a need for health education programs regarding improved use of latrine, cleanliness of latrine, constructing latrine inside the compound and maintenance of latrine for the proper utilization including children should be considered. In addition to this all actors to bridge the apparent gap between knowledge and practice pertinent to upscaling latrine use. Facilitate women education, training on latrine construction skills and capacity building continuously for the community. Not only this they need support on the utilization of the matching resources to tackle the sanitation disparities while utilizing socio-culturally appropriate technological options, suitable for the study community at affordable prices.

6.4 RECOMMENDATION

Depending on the results of this study, the following recommendations forwarded:

To Health extension, Worker and Kebele administrative
Health extension worker and local authorities must provide health education and sensitization for the community to latrine utilization. Health extension worker should have to provide technical support during latrine construction at household level to have durable and easily cleanable latrine.
To the community: Community-based HDAs and kebele cadres at community level should strengthen and enhance the agenda of latrine utilization closer to the community.
To household to use the latrine properly and clean daily and which latrine need maintenance it should be maintain.

7.REFERENCES

1. WHO and UNICEF Joint Monitoring Programmed for Water Supply and Sanitation: 2015.
2. Grosvenor press international LTD., Developing world health: Water supply and Sanitation in developing countries, 1986; pp.31
3. Sanitation: Controlling problems at Source; World Water Day 2001. http://www.who.int/water_sanitation_health.
4. World Health Organization. PHAST step-by-step Guide: Participatory approach for the control of diarrheal diseases, 2000; pp. 13-16
5. . World Health Organization. Healthy villages: A guide for communities and community's health workers, 2002; pp.19-70
6. McCombie J. Field engineering in the developing world: How to Promote the Use of Latrines in Developing Countries**.**2003; www.cee.mtu.edu/peacecorps.
7. United Nations Environment Program, United Nations Children's Fund & World Health Organization. Children in the new millennium: Environmental impact on health, 2002; pp.43-102
8. World Health Organization: *WHO | Facts: Water, sanitation and hygiene links to health*. 2004. URL: http://www.who.int/water_sanitation_health/publications/factsfigures04/en/website
9. UNICEF Sanitation Priority Country Factsheet Ethiopia. Sanitation Priority Country Factsheet UNICEF, 2014 2014. Report No.
10. Agency [Ethiopia] and ORC Macro: *Ethiopia Demographic and Health Survey 2005*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency Statistical and ORC Macro; 2006.
11. Central Statistical Agency [Ethiopia] and ICF International: *Ethiopia Demographic and Health Survey 2011*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency and ICF International; 2012.
12. Central Statistics Authority: Ethiopia Demographic and Health Survey 2011, March 2012 (page 16,148)
13. Community Health Book. The environment and health, 1986; chapter 8; pp. 177-187.
14. . World Health Organization. Inheriting the world. The Atlas of children's health and the Environment, 2004; pp.8-16.

15. Journal of Health & Population in Developing Countries. Some environmental and Behavioral risk factors affecting childhood diarrhea in the Accra metropolitan area, Ghana: socio-economic, environmental and behavioral risk determinants, 2005 / URL: http://www.jhpdc.unc.edu..

16. World Health Organization. Indicators to improve children's Environmental Health; Diarrheal diseases, 2003; pp.24-26

17. Balthazar J.C., Tiglao T.V.&Tempongko S.B. Hygiene behavior and hospitalized severe Childhood diarrhea; a case control study; Bulletin of WHO 1997, 71(3&4); 323-327

18. Daniels D.L, Counsens S.N, Makoae L.N. &Feachem R.G. A case control study of Improved sanitation on diarrhea morbidity in Lesotho; Bulletin of WHO 1990, 68(4); 455-463

19. VanDeslice J., Popkins B. & Briscoe J. Drinking water quality, sanitation and breast Feeding: their interactive effects on infant health; Bulletin of WHO 1994, 72(4); 587-601

20. Huttly S.R.A., Morris S.S. &Pisani V. Prevention of diarrhea in young children in Developing countries; Bulletin of WHO 1997,&5(2); 163-174

21. World water day. Water, sanitation and hygiene at a glance, 2001 (http:/www.cmhealth.org).

22.Gorter A.C, Sandyford P., Davey Smith G. &Pauw JP. Water supply, sanitation and Diarrheal disease in Nicaragua: Results from a case-control study; International journal of Epidemiology.htm-20(2)527, 1991.

22. KwasiOwusu Boadi and MarkkuKuitunen. Childhood diarrheal morbidity in the Accra Metropolitan Area, Ghana: socio-economic, environmental and behavioral risk Determinants; Journal of Health & Population in Developing Countries /URL:http://www.jhpdc.unc.edu/,March 2005.

23. DebruGuba. Diarrheal Diseases in 520 Cases admitted to Jijiga Hospital, East Ethiopia; Ethiopian Medical Journal, 1987, 25(4); 199-202

24. Pelly M. Diarrheal disease in shelter populations: Practical aspects of management; Ethiopian Medical Journal, 1985, 23(4); 193-196

25. Feachem R.G. & Kolinsky M.A. intervention for the control of diarrheal diseases among Young children: promotion of breast-feeding; Bulletin of WHO 1984, 62(2); 271-291

26. Ministry of health: National hygiene and sanitation strategy, Ethiopia, 2005

WOLKITE UNIVERSITY COLLEGE OF MEDICENE AND HEALTH SCIENCE DEPARETMENT OF PUBLIC HEALTH

Research questioner in 2021 G,C

ANNEX I:

English questionnaire

Household Identification Code_____

Name of Kebele_____

Annex II: Verbal Consent Letter

Dear interviewee, I extend my greeting to you. I / we are here to collect health related data

For the purpose of research from Wolkite university faculty of health science department of health officer. The aim of this Study is to assess the impact of latrine utilization on diarrheal disease in Gubre sub city. We are requesting your permission to participate in an interview on issues related to the impact of latrine utilization on diarrheal disease.

This information was help the policy makers and other responsible bodies as background to

Improve the health status of the related with proper utilization of latrines.

We assure you that whatever information you provide was only used for the purpose of

This research and wouid not be made available to anyone outside of the research team.

Your willingness and support to people respond the interview is very much appreciated. We also

Assure that the interview process was not bring any harm to you and your family. It is also

Your right to withdraw any time from the process when your feeling is uncomfortable with it.

Please make (X) mark to indicate the respondents' decision regarding participation in the

Study. The purpose of the study and confidentiality procedures has been explained to me

And I on my own consent: a) Agree _____ b) Disagree_____

Interviewer name_____ Signature_____

Date of interview_____Time started_____ Time completed_____

Result of interview: 1. Completed 2. Respondent not available

3. Refused 4. Incomplete

Checked by supervisor: Name_____ Signature_____ Date_____

QUESTINNAIRE FOR FACTORS ASSOCIATED WITH LATRINE UTILIZATION AMONG COMMUNITY IN WOLKITE TWON CAPITALCITY OF GURAGE ZONE IN GUBRE SUB CITY

NO	**Questions**	**Possible responses**	**CODE**
	Socio Demographic Factors		
001	Sex	1.Male 2.Female	1 2
002	Age	1.18-24 year 2. 25-49 year 3.>50 year	1 2 3
003	Marital status	1. Single 2.Married 3. Divorced 4.Widowed	**1** **2** **3** **4**
OO4	What is your religion?	.1 Orthodox 2. Muslim 3.Protestant 4.Catholic 5.Other	**1** **2** **3**
005	What is your educational level?	1. Illiterate 2. Primary education 3.Secondary 4.Diploma or above	**1** **2** **3** **4**
006	What is your ethnicity?	1. Gurage 2.Amahara 3.Oromo 4.Others/specify__	**1** **2** **3** **4**

007	What is your family's income level in month?	1. <1000 birr 2. 1000-5000birr 3. > 5000	**1** **2** **3**
008	What is your job (mother)?	1. Housewife 2. Daily labour 3. Farmer 4. Government employer 5.Merchant	**1** **2** **3** **4** **5**
009	How many family members do you have?	1. 1 2. 2 3. 3 4. 4 5. 5 and above	**1** **2** **3** **4** **5**
010	Do you have under 5 children in the House?	1.Yes 2.No	

Latrine condition

011	Does the family have latrine?	1.Yes 2.No	1 2
012	If yes, What type of latrine do you have?	1. pit latrine 2. VIP latrine 3.watercarage 4.other	1 2 3 4
013	Is the latrine is available latrine being functional know?	1.Yes 2.No	1 2

014	How many years since latrine is Constructed?	1.1-3yrs 2.4-6yrs 3.7-10yrs	1 2 3
015	Is there fresh faeces seen through the Latrine squat hole (observation)?	1. yes 2.No	1 2
016	Where is disposal of faces of children under five?	1.pit latrine disposal 2.disposal in the compound latrine 3.outside the compound latrine	1 2 3
017	What is the status of latrine?	1. Maintained 2.Needmaintenance 3.Fair 4.Good	1 2 3 4
018	Where is location of latrine?	1.Outside the compound 2.Inside the compound	1 2
019	Is latrine squat hole is covered?	1.Yes 2.No	1 2
020	Which parts of the latrine need Maintenance?	1. Superstructure 2. Slab 3. Roof 4. Latrine pit 5.others/specify_____	1 2 3 4 5
021	Is latrine slab sealed with mud/cement?	1.yes 2.no	1 2

022	How far is the distance between Latrine and the pipe water?	1.1-2meter 2.3-5meter 3. >6meter	1 2 3
023	Does the squatting have cover?	1. yes 2.No	1 2
024	How far is the distance between the Latrine and the house?	1.1-2m 2.3-5m 3.>6m	1 2 3

Utilization of latrines by family members

025	Is the family use the latrine always?	1.Yes 2.No	**1** **2**
026	How frequently cleaning the latrine?	1.Weekly 2.Daily 3.When dirty	**1** **2** **3**
027	What is hygienic condition of the latrine?	1.Dirty 2.Clean	**1** **2**
028	What is main reasons using latrine?	1.Adviced by health extension 2.Self initiation 3.Diseasepreventi	**1** **2** **3**
029	Who is responsible for constructing latrine?	1. man 2. Women 3. Both	**1** **2** **3**

Hand washing and community sanitation

030	Is presence of hand washing facility near latrine?	1.Yes 2.No	

031	How frequently do you wash your hand after toilet?	1.1times 2.2times	**1** **2**
032	Do have soap for hand washing after toilet?	1.yes 2.no	**1** **2**
033	What do you usually use to wash the Hands of children after they defecate?	1.Only water 2.With soap 3. do not wash	**1** **2** **3**