



Wolkite University
We Strive for Wisdom!

WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF PUBLIC HEALTH

PREVALANCE OF DIARRHOEAL DISEASE AND ITS ASSOCIATED
FACTORS AMONG UNDER FIVE CHILDREN IN AGENA TOWN,
SOUTHERN ETHIOPIA

A RESEARCH PAPER TO BE SUBMITTED TO WOLKITE UNIVERSITY
COLLEGE OF MEDICINE AND HEALTH SCIENCE, DEPARTMENT OF
PUBLIC HEALTH FOR PARTIAL FULFILLMENT OF THE RUQUIREMENTS
FOR THE DEGREE OF BACHELOR SCIENCE IN PUBLIC HEALTH

INVESTIGATORS: 1 Eyerusalem Assefa

2 Gemechis Feyisa

3 Abdulhamid Jemal

ADVISOR: Ms Asegedech W((MPH)

Mr. KENZUDIN A(MPH)

October2021

WOLKITE; ETHIOPIA

ABSTRACT

Background: Diarrhoea is a leading cause of morbidity and mortality throughout the world. Global prevalence of diarrhoeal disease has shown that one billion episode and 3 million deaths occur each year among under 5 children. Thus, the main objective of this study is to assess the prevalence of diarrhoeal disease and its associated factors among under 5 years old children in Agena town, Gurage zone, SNNP, Ethiopia.

Methods: Across-sectional community based survey was conducted from October 2, 2021 to October 15, 2021 on 292 under five children. Data was collected by face to face interviews using pretested structured questionnaire. The data collected was cleaned, coded and entered to SPSS version 20.0 for analysis.

A systematic random sampling technique was used by determining "K" value after identifying total number of under five children.

Result: data was collected from 562 households and the two weeks prevalence of diarrhoea in Under five years old children was 30.1%. High rate was seen in less than one years of age but, no sex variation. Children of mothers' age 20-30 years old had highest diarrhoeal occurrence. Occurrence of diarrhoea was highest in those who started breast feeding their children after 24 hours of delivery (7.7%). Bivariate and multivariate analysis shows that the occurrence of diarrhoea was strongly associated with age of the child [AOR (95% CI) = 10.296 (0.786,50.450)], educational status of mother [AOR (95% CI) = 2.212(0.556, 8.790)], occupation of the mother [AOR (95% CI) =0.825(0.298, 2.286)], monthly income of family [AOR (95% CI) =1.725(0.959, 3.105)], current status of latrine mother [AOR (95% CI) = 0.356(0.173, 0.730)] absence of hand washing facility after using toilet [AOR (95% CI) = 2.621(1.470, 4.672)], but no significant association between occurrence of diarrhoea with age, ethnicity, religion of the mother, initiation and duration of breast feeding.

Discussion

In this study different socio economic and demographic characteristics of data showed that the majority 87(98.9%) of the cases were seen among children of less than 2 years of age group. similarly children's of mothers who were housewife had the high rate of 2 week prevalence of

diarrhoea 48(54.5%) than others, which is similar to study conducted in ArbaMinch(south of Ethiopia). 20(22.7%) cases from the total were children of illiterate mother and 35(39.8%) cases were from mothers who can only read and write; this implies low level of education increases risk of diarrhoea

Conclusion and recommendation: It is concluded that as to this study the prevalence of diarrhoea is high & the possible under line risk factor is improper sanitation. For the future, further research on identifying such problems and giving health education on risk factors of diarrhoea by responsible body is recommended.

ACKNOWLEDGMENTS

First of all we would like to thank Wolkite University College of Health and Medical science, department of Public health for giving us this chance. Secondly, we would like to give our heartfelt gratitude to our advisors Ms. Asegedech and Mr. kenzudin for their guidance, support and encouragement throughout the course of our proposal. Lastly our gratitude goes to health extension workers of Agena who provided valuable information for data collection and support throughout preparation of this research paper.

TABLE OF CONTENTS

PAGE

ABSTRACT	I
ACKNOWLEDGMENTS.....	III
TABLE OF CONTENTS	Error! Bookmark not defined.
ACRONYMS AND ABRIVATION	VI
CHAPTER 1: INTRODUCTION.....	7
1.1 Background	7
1.2 STATEMENTS OF THE PROBLEM	8
1.3. Significance of the Study.....	3
CHAPTER 2. LITERATURE REVIEW	
2.1 Prevalence of diarrhoea.....	4
2.2 Associated factors.....	5
2.2.1 Sociodemographic characteristics.....	5
2.2.2 Behavioral factors.....	5
2.2.3 Environmental factors	6
2.2.3 Conceptual frame work.....	7
CHAPTER 3 OBJECTIVE OF STUDY.....	7
1.3.1 General Objective	7
1.3.2 Specific Objectives of the study are:.....	7
CHAPTER 4: METHODS AND MATERIALS	8
4.1: Study Area.....	8
4.2: Study period:-	8
4.3: Source population:.....	8
4.4: Study population:.....	8
4.5: Sample size determination and sampling Technique	8
4.5.1: Sample size determination	8
4.5.2 Sampling Technique.....	8
4.6 Study variable.....	9
4.6.1 Dependent variable.....	9

4.6.2 Independent variables	9
4.8: Data Collection method and Instrument	17
4.9: Data Quality assurance	17
4.10: Data processing and analysis	17
<u>4.11: Ethical consideration</u>	17
4.12 Dissemination of result	18
4.13 Operational Definitions:.....	18
CHAPTER 5: Result	19
CHAPTER 6: Discussion.....	Error! Bookmark not defined.
6.1 conclusion.....	18
6.2 Recommendation.....	19
REFERENCES	20
ANNEX -II: Questionnaire.....	Error! Bookmark not defined.

ACRONYMS AND ABBREVIATIONS

EBF	Exclusive Breast Feeding
EDSHS	Ethiopian Demographic and Healthy Survey.
EMJ	Ethiopian Medical Journal
SNNPR	South Nation Nationality and People Region
WHO	World Health Organization.
RIBS	Regional Integrated Basic Service.
JIHS	Jimma Institution of Health Science.
AHRTAG	Appropriate Health Resources and Technologies Action Group

CHAPTER 1: INTRODUCTION

1.1 Background

Diarrhoea is commonly defined as the occurrence of three or more episode of water or loose stool within 24 hours. Main cause of death from acute diarrhoea is dehydration which results from loss of body fluid in watery stool. To put it clearly in other words, it is usually caused by a virus, or sometimes, contaminated food. Less frequently, it can be a sign of another disorder, such as inflammatory bowel disease or irritable bowel syndrome. Diarrhoeal disease can be acute watery diarrhoea, that cannot last longer than two weeks or it can be persistent that can last longer than two weeks, which can also be watery, mucoid or bloody. This condition be directly related to causative agents ^[1].which are known to be viruses, bacteria and parasite. A Rota virus is the most frequent cause of severe life threatening watery diarrhoea in children less than two years of age. Worldwide, most children have infection at this age. Common neurotoxin genius E.Coli is the most important cause of diarrhoea in children and adult, and Shigella is known cause of dysentery in about 60% of all episodes and mainly severe episode. In addition, Entaamebahistolotica is the causative agent for an impudence mucoid diarrhoea ^[1]. Epidemiologically, the infections, that cause diarrhoea, are usually by feco-oral route, which include ingestion of feco-oral contaminated food or water and direct contact with infected faces ^[2].

Among specific behaviours that promote transmission of diarrhoeal disease, failure to breast feed, sub optimal breast feeding, using infant bottle feeding, storing food at room temperature, and using contaminated water for drinking, are the most important manners for the transmission of diarrhoea. Many studies regarding breast feeding on diarrhoea disease suggest that breast milk offers substantial protection against diarrhoea morbidity and mortality; and, more recently, it has been demonstrated that antibodies against enthropathogenic E.Coli to be presented in human colostrum ^[3].

Despite such facts, the incidence and duration of breast feeding is decreasing in many countries including Ethiopia. Hence, it is recommended that optimal breast feeding should be promoted as one important measure to control diarrhoea ^[4].

1.2 STATEMENTS OF THE PROBLEM

Diarrhoeal disease is a leading cause of child mortality and morbidity in worldwide around one billion people lack access to improved water and 2.5 billion have no access to basic sanitation. Every year there are about a billion cases of diarrhoeal disease worldwide. In 2004 diarrhoeal disease was the third leading cause of death in low economic countries causing 6.9 million deaths overall. In under five years old children's diarrhoeal disease is the second leading cause of death only preceded by pneumonia. Out of 1.5 million children killed by diarrhoeal disease in 2004, 88% were under two years old. In developing countries children under three years old experience an average of three episode of diarrhoea every year ^[4].

Globally diarrhoea is the third largest cause of morbidity and mortality among under five children and the six largest cause of mortality among population of all age groups. A ten-year review of the global problem of diarrhoea disease has shown that there are one billion episode and 3 million deaths occur each year among under 5 children, of which 80% were under 2 years of age^[5].

Acute diarrhoeal disease in young children is dominant cause of excessive morbidity and mortality in developing communities of tropical countries. It is closely related to the socio economic and cultural conditions which impose up on these peoples a sub optimal nutrition, marginal sanitation and limited medical services ^[6].

In Africa a child experiences five episodes of diarrhoea per year and 800,000 children die each year from diarrhoea related dehydration ^[7].

Diarrhoea disease is among leading cause of morbidity and mortality among under five children in Ethiopia when we see the prevalence of diarrhoea in our country, it is more common among rural children (19%) than urban children(12%)^[8].

It represents economic burden for developing countries. In many nations more than a third of hospital beds of children are occupied by patients with diarrhoea. These patients are often treated with expensive intravenous fluid and in effective drugs. Diarrhoea disease contribute a lot to the high prevalence of malnutrition one out of every twenty children born into developing countries die before reaching age of five from dehydration resulting from diarrhoea. Acute watery diarrhoea is the commonest form accounting 80 to 82% of the cases children 6 month to 11 months of age are the most commonly affected a time that coincide

with initiation of complementary feeding. The highest mortality of diarrhoea disease is encountered among infant^[9].

Diarrhoeal disease cause about 30% of infant death in developing countries and contribute a lot to the high prevalence of malnutrition one out of every twenty children born into developing countries die before reaching age of five from dehydration resulting from diarrhoea. Acute watery diarrhoea is the commonest form accounting 80 to 82% of the cases children 6 month to 11 months of age are the most commonly affected a time that coincide with initiation of complementary feeding. The highest mortality of diarrhoea disease is encountered among infant.^[10]

In the case of Ethiopia, acute diarrhoea is one of the major contributors to the morbidity of under five children. The recent EDHS 2016 report also showed a 22.5% prevalence of acute diarrhoea at the national level. According to a study conducted in Wolayita Soddo town in southern Ethiopia, the prevalence of acute diarrhoea was 11%. Rural kebeles of Adama district prevalence of acute diarrhoea was 14.7%; in north Gondar 22.1%. In June 4/2012 in Gurage zone, Gummer woreda, the prevalence of diarrhoea morbidity was 14.6%. However, there is a significant research-based information gap in most parts of the zone regarding the prevalence and the associated factors of this disease. Therefore, the main purpose of this study is to assess prevalence of diarrhoea and its associated risk factors among under five children in Agena town.

1.3. Significance of the Study

Diarrhoea disease is one of the leading causes of morbidity and mortality especially in developing countries despite it is both preventable and curable. The data obtained from this study will serve for further study and provide information on issue that may help health workers and policy makers to improve under five children mortality and morbidity rate by diarrhoea in the study area.

CHAPTER2. LITERATURE REVIEW

2.1 Prevalence of diarrhea

Different studies conducted in different countries on the morbidity analysis due to diarrhoea among under five children which show that the median incidence of the diarrhoea was greatest for infants aged 6-11 months (five episodes per children per year).The dangers of diarrhoea are related to dehydration and malnutrition, while dysentery is another important cause of death due to fatal complication associated with it.

The incidence of diarrhoeal disease among under five years old also varied according to regions and localities particularly in very high rate occurred among poor children living in Latin America. ^[11]

Different studies conducted in different countries on the morbidity analysis due to diarrhoea among under five children which shows that the median incidence of the diarrhoea was greatest for infants aged 6-11 months (five episodes per child per year). The incidence of diarrhoeal disease among under five years old also varied according to regions and localities, particularly very high rate occurred among poor children living in Latin America, where under two children experienced 10 or more episode per year. A study done in Brazil also showed that the incidence varied directly with socioeconomic status such that poor rural children experienced five episodes per year than urban children^[12].

In retrospective study conducted in Nigeria showed that the risk of diarrhoeal illness is significantly low in exclusively breast feed children which is 35% during the first 24 months of life compared with 76% of partially breast feed infant and 74% of the formula feed infant^[13].

According to a cross sectional study conducted in turkey out of 1278 children 458(35.8%) had diarrhoeas episode the risk for presenting diarrhoea, statistically in male children (55.5%, $p=(0.002)$)and infant of mothers with low educational level,59.3% where not exclusive breast feeding^[14].

Using a multi stage cluster sampling conducted a house hold survey of diarrhoea among 4458 children under three years of age in Dakahlik Egypt from June 2002 to May 2003 to determine frequency of diarrhoea and significantly higher among children in rural areas living in overcrowding areas and using non flush toilets^[15].

In Ethiopia many studies examined the diarrhoeal disease morbidity and mortality among under five children bases in 1983 health survey of Ethiopia examined child morbidity by age, sex, geographical region and sanitary facilities the conclusion of the survey was shows that morbidity level peak in second years of life without significant sex difference marked different in geographic region particularity with morbidity in western mountains and access to high quality of drinking watery, latrine and garbage disposal are strongly related to reduce overall morbidity level^[16]

Infant breast feeding practice such as early exclusive breast feeding for the first six month of child is important determinant of nutritional status of the young children. Compared to selected sub Saharan African countries Ethiopian mothers are well in terms of breast feeding indicator.50% of Ethiopian children breast feed within one hour of births this rate is significantly lower than Mozambique(81%)and Malawi(71%).EBF in children less than 4 month old is as high as 62.3%.Timely complimentary feeding among 6-9 month old children is 77% which could also be improved to reach the rate seen in Kenya and Malawi(90%)^[17].

A community based cross sectional study conducted in 32 rural and urban areas of Kefa-Sheka zone assessed the prevalence and to identify the environmental risk factors among under five years children; and the result showed that the overall diarrhoea prevalence was 15%, acute watery diarrhoea, dysentery and persistent diarrhoea were responsible for 66%, 20% and 14% of episode, respectively ^[18].

In addition, different literatures showed that the magnitude of child hood diarrhoeal disease varies across the world from 32.7% in Tanzania to3.58% in India^[19], 21.4% in Iraq and 19.6% in Egypt. In a similar fashion it has diverse figure in Ethiopia; EDHS determined it 22.5% nationally^[20].Where as a study at ArbaMinch (south of Ethiopia), Nekemtie (Oromia region, Ethiopia) and Amhara region reported 30%^[21], 28.9^[22] and 13.7%^[23] respectively.

2.2 ASSOCIATED FACTORS

In Ethiopia many studies examined the diarrhoeal disease morbidity and mortality among under five children bases. In 1983, Health Survey of Ethiopia examined child morbidity by age, sex, geographical region, and sanitary facilities; and the conclusion of the survey shows

that morbidity level is peak in second years of life without significant sex difference marked different in geographic region particularity with morbidity in western mountains; and access to high quality of drinking water, latrine and garbage disposal are strongly related to reduce overall morbidity level ^[18]

2.2.1 SOCIO DEMOGRAPHIC FACTORS

According to EDHS of 2011 diarrhoea in under five children ,lowest in children living in Addis Ababa (12.2%); while those living in Benishangulgumuz and Gambella regions have highest percentage (i.e. both 23%); whereby, 13% of children under five years were reported to have had diarrhoea and 3% had diarrhoea with blood. The incidence of diarrhoea is most common among children age 6-23 months (23-25%), indicating 10.4% of children under 6 month were reported that they have diarrhoea. Furthermore, diarrhoea prevalence is highest among children residing in house hold that drinks from unprotected wells (18%). Besides, according to a cross sectional study conducted in turkey out of 1278 children 458 (35.8%) had diarrhoeas episode risking for presenting diarrhoea, statistically in male children (55.5%p= (0.002) and infant of mothers with low educational level, 59.3% where not exclusive breast feeding

2.2.2 BEHAVIORAL FACTORS

In retrospective study, which had been conducted in Nigeria, showed that the risk of diarrhoeal illness is significantly low in exclusively breast feed children which is 35% during the first 24 months of life compared with 76% of partially breast feed infant and 74% of the formula feed infant (Scott-Emuakpor, 1998).

Infant's breast feeding practice, such as early exclusive breast feeding for the first six month of child, is important determinant of nutritional status of the young children. Compared to selected sub Saharan African countries, Ethiopian mothers are well in terms of breast feeding indicator.50% of Ethiopian children breast feed within one hour of births which is significantly lower than Mozambique (81%) and Malawi (71%). EBF in children less than 4 month old is as high as 62.3%.

Timely complimentary feeding among 6-9 month old children is 77% which could also be improved to reach the rate seen in Kenya and Malawi (90%) ^[19].

2.2.3 ENVIRONMENTAL FACTOR

Using a multi stage cluster sampling conducted a house hold survey of diarrhoea among 4458 children under three years of age in Dakahlik, Egypt, from June 2002 to May 2003, to determine the frequency of diarrhoea and significantly higher among children in rural areas living in overcrowding areas and using non flush toilets^[15].

When comparing with toilet facility those children residing in household, that has no toilet facility, have high prevalence (13.7%). 32% of children with diarrhoea were taken for advice or treatment to health facility or provider^[23].

According to a community based cross sectional study done in Bale zone Goba woreda (Ethiopia) showed that the prevalence of timely initiation of breast feeding was 52.4%. Bivariate analysis showed that the attendance of formal education, being urban residents, institutional delivery, and postnatal counseling on breast feeding were significantly associated with timely initiation of breast feeding practice^[21].

Conceptual framework for prevalence of diarrhoeal disease and it's associated factors among under 5 children

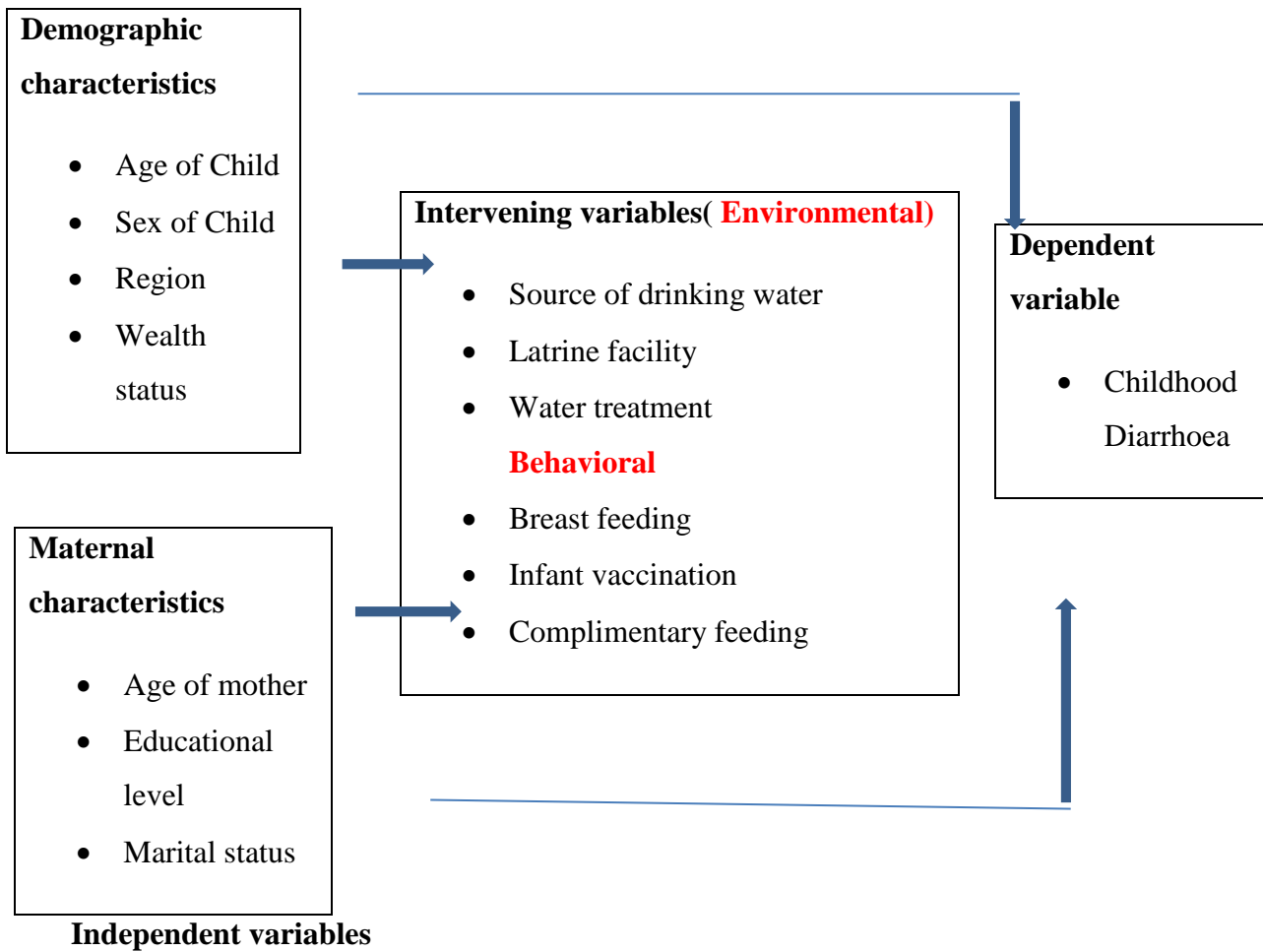


Figure 1: conceptual framework developed for the study of determinants of diarrhoea among under 5 children.

CHAPTER 3. OBJECTIVES OF THE STUDY

3.1 General Objective

To assess the prevalence of diarrhoeal disease and associated factors among under five children in Agena town, Southern Ethiopia.

3.2 Specific Objectives of the study are:

1. To assess the prevalence of diarrhoeal disease among under five years old children.
2. To determine the associated factors associated with the diarrhoeal diseases

CHAPTER 4: METHODS AND MATERIALS

4.1: Study Area and period

The study was conducted in Agena town, southern part of Ethiopia. Agena town is located 200 km far away from Addis Ababa (the capital city of Ethiopia), to southwest and 55km from Wolkite town to the east. Climatic condition of the town is the type stated as ‘*dega*’ with estimated altitude of 2315 m above sea level. The total household of the town is 860. From these, in 562 households there are 744 under five children. The study was conducted from October 2-October 15, 2021.

4.2: Source population:

All under five children living in Agena Town are source population

4.3: Study population

The study population of this study was all randomly selected children of under five years of age in Agena town.

4.4: Eligibility criteria

Inclusion criteria: Children who lived in Agena town for at least six months and whose

Mothers/care takers were able to communicate with data collectors will be included.

Exclusion criteria: Those children whose mothers are seriously ill or unable to respond.

Those whose houses which are closed during three visit periods.

4.5: Sample size determination and sampling Technique

4.5.1: Sample size determination

Sample size was determined by using single population proportion formula based on the following assumption; thus, the sample size will be determined considering the calculation as follows:

p= prevalence of diarrhoea in Ethiopia which is 22.5 % ^[22]

d=margin error which is 5%

z=confidence interval which is 1.96

$$n = \frac{(Z_{\alpha/2})^2 p (1-P)}{(d)^2}$$

$$n = \frac{(1.96)^2 (0.225) (0.775)}{(0.05)^2}$$

$$n = 265 + 0.1 * 265 = 292$$

4.5.2 Sampling Technique

A systematic random sampling technique was used by determining "K" value after identifying total number of under five children.

$$K = N/n = 744/292$$

$$= 2.5 \sim 3$$

4.6 Study variables

4.6.1 Dependent variable

- Prevalence of diarrhoea disease was considered as a dependent variable.

4.6.2 Independent variables

As independent variables, the study encompassed:

- *Socio demographic characteristics*: child's age, sex, occupational and educational status mother/care giver.
- *Environmental variables*: Availability of latrine, source of water, hand washing facilities.

- **Behavioral variable:** patterns of breast feeding, length of breast feeding, time of initiation of breast feeding.

4.7: Data Collection method and Instrument

A structured close ended questionnaire, which included all the relevant information to meet the objectives, was originally developed in English, then translated into Amharic and back translated to English to check for consistency. Data collectors were also trained on the content of the questionnaire and process of data collection. Data was collected by face to face interview of the respondents. The target population was identified by home to home visit with the help of health extension workers as it was given polio vaccine to those our target population. A systematic random sampling technique was used by determining K value.

4.8: Data Quality assurance

Before the actual data collection was commenced, pretested will in adjacent woreda health facility on 5% of respondents to ensure the validity of the survey tools and to standardize the questioners. The principal investigator made frequent check on the data collection process to ensure the completeness and consistency of the gathered information. Any error that couldfound during the process was corrected immediately.

4.9: Data processing and analysis

The collected data was cleaned, edited, complied, and organized/presented by graphs, charts and tables and interpreted to give the necessary information. The data collected was cleaned, coded and entered to computer with SPSS version 20.0. Finally, Bivariate and multivariate analysis was used to assess the presence of association between dependent and independent variable.

4.10: Ethical consideration

The research proposal was submitted to Wolkite University research and publication office forethical consideration. Then official letter was obtained from Wolkite University College of public and medical science, health officers and medical science coordinating office. This official letter was submitted to Agena town authorized body for their cooperation and permission. The purpose and objective of the study was explained to the participants before the starting of interview and informed consent was obtained from them. Participation in the study was on voluntary bases. Participants who would be unwilling to participate in the study and those who will wish to quit from the study at any point in time was informed to do so without any restriction.

4.11 Dissemination of result

The result of the study was disseminated to college of public health & medical science & concerned body by presentation, written research report and to whom the information is needed as base line for further study.

4.12 Operational Definitions:

Diarrhoea: is passage of three or more loose or watery stool in 24 hours period.

Acute diarrhoea: Diarrhoea beginning acutely and last for less than fourteen days.

Persistent diarrhoea: Diarrhoea beginning acutely and lasts for more than fourteen days.

Dysentery: Diarrhoea with visible blood in the faeces.

Exclusive breast feeding: Feeding infants only with breast milk for the first 6 month child except prescribed antibiotics and vitamins.

Diarrhoeal episode: Provided that child facing watery, mucoid or bloody diarrhoea three or more times within 24 hours or more after three days of first attack.

CHAPTER 5: RESULT

A total of 292 mothers with under five children were interviewed. All the mothers participated in the study and all the questionnaires were filled correctly. The mean age of mother was around 27 and 260(89%) were between 20 and 49 age group.

Majority of the respondent were Orthodox Christianity followers around 165(56.5%) and the rest were protestants 89(30.4%), Muslim 28(9.5%). Concerning educational status 150(51.3%) of the mothers were primary schools and above, 107(36.6%) of the mothers can read and write and only 35(11.1%) were illiterate. Among the interviewed mothers the majority 135(46.2%) were housewife, about 92(31.5 %) of mothers were government employers and 64(21.9) were merchants. According to this study 77.4% of families' income is 500-1500 and the remaining 22.6% families' income is >1500 Ethiopian birr.

Table 5.1: Socio- demographic characteristics of study respondent in Agena town, October 2021

Variable	Frequency	Percent (%)
Age of mother in year		
15-20	32	11
21-30	117	40
31-49	143	49
>49		
Total	292	100
Age of the child		
<6 months	71	24.3
7-11 months	119	40.8
12-24months	81	27.7
25-59mohths	21	7.2
Total	292	100
Sex of child		
Male	136	46.6%
Female	156	53.4%
Marital status		
Single		100

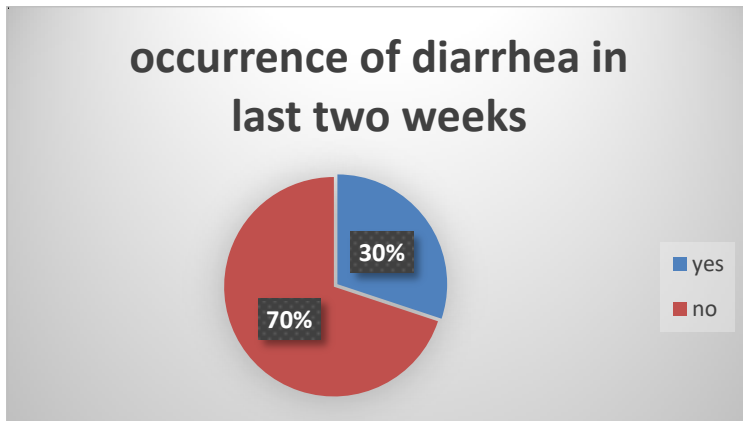
Married	292	
Widowed		
Divorced		
Total	292	100
. Religion		
Muslim	28	13
Orthodox	165	56.5
Protestant	89	30.4
Catholic		
Total	292	100
Ethnicity		
Gurage	224	76.7
Amhara	32	11
Tigray	1	0.3
Oromo	9	3.1
Other	26	8.9
Total	292	100
Occupation		
House wife	135	46.2
Merchant.	64	21.9
Gov' t employee	92	31.5
Daily labourer	1	.3
Total	292	100
Education status		
Illiterate	35	12
Read and write	107	36.7
Primary	114	39
Secondary and above	36	12.3
Total	292	100
Monthly Income in Ethiopia Birr		
500-700	104	35.6
701_1000	65	22.3
1001-1500	57	19.5
>1500	66	22.6
Total	292	100

Of all the under five children included in the survey, 136(46.6%) were male and 156 (53.4%) were females. Out of all selected under five children, 84.9% of children are on breastfeed, 136(55.3%) got breast milk within first hour and 110(44.7%) got after one hour of life. Majority 271(92.8%) of under five children included in the survey were between the age group of 0-24 months. The rest 21(7.2%), belongs to the age group of 25-59 months.

Table5.2: distribution of breast feeding initiation, length, pattern of breast feeding and initiation of Complementary food in Agena town, Gurage zone, October, 2021.

Variables	Category	frequency	Percent(%)
Breast feeding	Yes	248	84.9
	No	44	15.1
Initiation time	<1hr	136	46.6
	>1hr	110	37.7
	Total	246	84.2
Length	<4	139	47.6
	4-6 month	109	37.3
	Total	248	84.9
Pattern	Exclusive	145	49.7
	Partial	100	34.2
	Not breastfeed at all	0	0
	Total	245	83.9
Complementary food	Yes	246	84.2
	No	46	15.8
Age of complementary food	<6month	87	29.8
	At 6 month	131	44.9
	>6month	28	9.6
	Total	246	84.2

5.3: chartShows occurrence of diarrhoea in last two weeks among under five children of different age at Agena town, Gurage zone,October, 2021

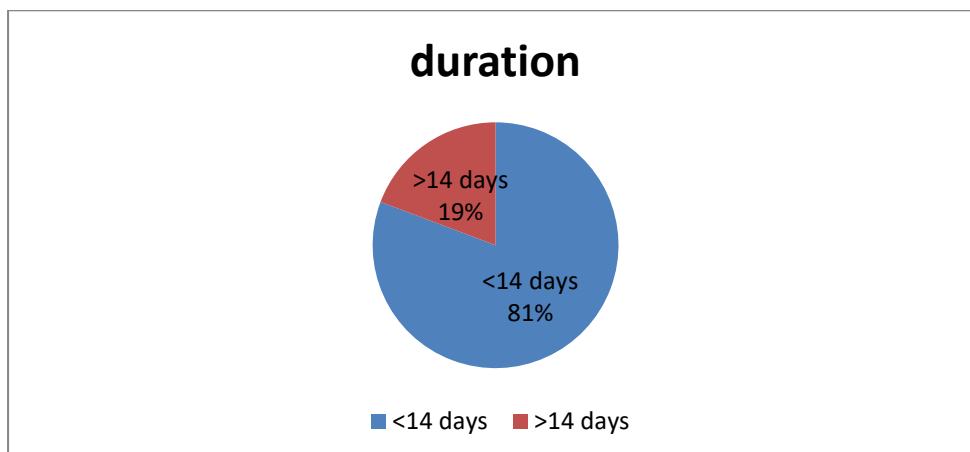


Among the interviewed ones, the two weeks prevalence of diarrhoea was 88(30.1 %). Of this the types of diarrhoea were watery 25.4%, mucoid 2.7% and bloody 1%. From these 81% of the cases remain for less than 14 days.

5.4.TableShows type of diarrhoea occurred in last two weeks among under five children of different age at Agena town, Gurage zone,October, 2021

<i>Variable</i>	<i>category</i>	<i>Frequency</i>	<i>Percent (%)</i>
<i>Type of diarrhoea</i>	<i>watery</i>	77	87.5
	<i>mucoid</i>	8	9
	<i>bloody</i>	3	3.5

5.5 chart shows duration of diarrhoea among under 5 children in Agena town.



All of the families use pipe water for drinking. From these, 277(91.5%) of families wash their drinking water container.

Table 5.6: shows distribution of households by their major sources of drinking water in Agena town, Gurage zone, October, 2021.

Source of drinking Water	frequency	Percent
Pipe water	292	100
Protected spring		
Protected well		
Portal		
Unprotected spring		
Unprotected well		
Total	292	100

According to our study all of the families who were interviewed have latrine.

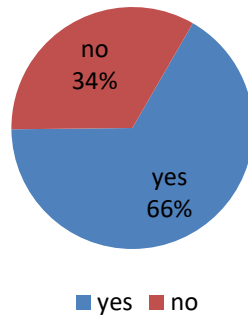
Table 5.7: shows distribution of households with the presence of latrine in Agena town, Gurage zone, October, 2021.

Presence of latrine	Frequency	Percent(%)
Yes	292	100
No	-	-
Total	292	100

Chart 5.8: shows distribution of households with presence of hand washing facility after using toilet in Agena town, Gurage zone, October, 2021.

66.5 % of household have hand washing facility after using toilet and 33.5% don't have.

presence of hand washing facility



Among the total 292 children 137(46.9%) were fully immunized and the rest 155(46.9%) were partially immunized.

Table 5.7: shows distribution of households with Immunization status in children < 1yr of in Agena town, Gurage zone, October, 2021.

Immunization status in children < 1 year of age	Frequency	Percent
	Fully vaccinated	137
Partially	155	53.1
Not immunized	-	-
Total	292	100

In this study from the total family 91.5% of them wash and cover their drinking water container and only 8.5% of them didn't.

Table 5.8: shows distribution of households who wash and cover drinking water container in Agena town, Gurage zone, October, 2021.

	Frequency	Percent
Wash drinking water container and cover it		
Yes	277	91.5
No	25	8.5
Total	292	100

5.9 FACTORS ASSOCIATED WITH PRESENCE OF DIARRHIA AMONG UNDER CHILDREN

Different maternal, childhood, environmental, and household variables were tested for their association with the presence of diarrhoea among under five children by binary logistic regression analysis. First the association of each variable with the occurrence of diarrhoea among under five children was assessed by the binary logistic regression and then their variables which were less than 0.25 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. Bivariate and multivariate analysis shows that the occurrence of diarrhoea was strongly associated with age of the child [AOR (95% CI) = 10.296 (0.786,50.450)], educational status of mother [AOR (95% CI) = 2.212(0.556, 8.790)], occupation of the mother [AOR (95% CI) =0.825(0.298, 2.286)], monthly income of family [AOR (95% CI) =1.725(0.959, 3.105)], current status of latrine mother [AOR (95% CI) = 0.356(0.173, 0.730)] absence of hand washing facility after using toilet [AOR (95% CI) = 2.621(1.470, 4.672)], but no significant association between occurrence of diarrhoea with age, ethnicity, religion of the mother, initiation and duration of breast feeding

SOCIODEMOGRAPHIC CHARACTERISTICS

Among the factors age of the child (age less than two years is twice a risk than being greater than two, maternal education (having low educational level shows twice risk than having higher educational status, occupation being a housewife increases the risk. Mothers with monthly income of less than 1500 ETB were three times more likely to have their children a diarrhoeal disease than those who earned 500-700.

But the age of the mothers, religion of the mother, marital status and infant immunization did not illustrate significant association to this study.

BEHAVIORAL CHARACTERISTICS

From the factors complementary food, duration and initiation of breast feed time and infant vaccination has no association.

ENVIRONMENTAL CHARACTERISTICS

Among the factors current status of latrine and absence of hand washing facility have significant association; but, distance of latrine from house, type of container and distance of water from house has no association according to our study.

5.9.1 LOGISTIC REGRESSION ANALYSIS

Table 12: Regression Analysis of prevalence of diarrhoea among under five children and its associated factors in Agena town, Gurage zone, October, 2021.

Variables	Category	Diarrhea		P-value	95% C.I.(COR)	95% C.I.(AOR)
		Yes n %	No n%			
Age of the child	<6months	17(19.3)	54(81.7)	0.003		
	7-11 months	38(43.1)	81(56.9)	0.083	0.123(0.029-0.529)	6.296(0.786-50.450)
	12-24 months	32(36.4)	49(63.6)	0.026	0.139(0.033-0.584)	10.127(1.311-78.19)
	25-49 months	1(1.1)	20(98.9)	0.008	10.845(0.288-408.936)	16.000(2.048-124.9)
Educational status	Illiterate	20(22.7)	15(77.3)	0.000		
	Read and write	35(39.8)	72(60.2)	0.260	4.902(1.487-16.157)	2.212(0.556-8.790)
	Primary	26(29.5)	88(70.5)	0.884	3.771(1.017-13.990)	0.917(0.284-2.959)
	Secondary and above	7(8)	29(92)	0.354	5.484(0.774-38.870)	0.582(0.185-1.827)
Occupational status	House wife	48(54.5)	87(44.5)	0.000		
	Gov't employee	26(29.5)	38(70.5)	0.000	0.825(0.298-2.286)	3.995(2.007-7.685)
	Merchant	13(14.8)	79(85.2)	0.000	7.808(1.964-31.037)	5.282(2.516-1.109)
Monthly income	500-700	36(40.9)	68(59.1)	0.000		
	701-1000	16(18.20)	49(81.8)	0.069	1.260(0.415-3.831)	1.725(0.959-3.105)
	1001-1500	15(17)	42(83)	0.962	0.358(0.093-1.383)	1.017(0.519-1.991)
	>1500	21(23.9)	45(85.1)		0.566(0.200-1.608)	
Duration of breast feed	<4month	42(47.7)	97(52.3)	0.105	1.292(0.700-2.385)	0.613(0.364-1.035)
	4-6 month	41(46.9)	68(83.1)	0.067		
Current status of latrine	Filled	39(3.4)	8(96.6)	0.246		
	Required maintenance	13(14.8)	62(85.2)	0.322	6.315(0.327-122.040)	0.492(0.121-2.005)
	Not clean	42(47.7)	73(52.3)	0.005	1.050(0.058-19.037)	0.356(0.173-0.730)
	Good	30(34.1)	44(65.9)	0.128	(0.066-20.506)	0.634(0.353-1.140)
Distance of latrine from home	<15m	31(35.2)	95(64.8)	0.098	0.491(0.228-1.061)	0.653(0.394-1.082)
	>=15m	57(64.8)	109(35.2)			
Hand washing facility	Yes	71(80.7)	123(19.3)	0.001	0.339(0.032-3.559)	2.621(1.470-4.672)
	No	17(19.3)	81(80.7)			
Infant vaccination	Fully immunized	25(28.4)	52(71.6)	0.375	1.349(0.733-2.483)	1.310(0.722-2.376)
	Partially immunized	36(41)	101(59)			

CHAPTER SIX

6.1 DISCUSSION

In this study different socio economic and demographic characteristics of data showed that the majority 87(98.9%) of the cases were seen among children of less than 2 years of age group. similarly children's of mothers who were housewife had the high rate of 2 week prevalence of diarrhoea 48(54.5%) than others, which is similar to study conducted in ArbaMinch(south of Ethiopia). 20(22.7%) cases from the total were children of illiterate mother and 35(39.8%) cases were from mothers who can only read and wright; this implies low level of education increases risk of diarrhoea ^[15]. As to this study majority of diarrhoea was watery 82.9% and acute cases which is similar to study done in Kefa sheka zone. ^[18]

This study attempted to assess the prevalence of diarrhoeal disease among under five year's old children's and socio economic and demographic characteristics of the community which might have impact on diarrhoeal disease. The two week prevalence of Diarrhoeal disease in the study community was 30.1%, which is more than prevalence of diarrhoea in Under five children at national level (22.5 %)^[20] when we compare with world , 3.58% in India^[19],21.4% in Iraq and 19.6% in Egypt to 32.7% in Tanzania. In a similar fashion it has diverse figure in Ethiopia. as a study done at ArbaMinch(south of Ethiopia),Nekemtie (Oromia region, Ethiopiaand Amhara region reported 30%^[21],28.9^[22],13.7%^[23] respectively, closer to lower limit range probably because of the difference in the study design, sampling technique,educational status of the studied community ,sample size and different season of year in which the study conducted.

Children of mothers' age 20-30 years old had highest diarrhoeal occurrence. Occurrence of diarrhoea was highest in those who started breast feeding their children after 24 hours of delivery (7.7%). Bivariate and multivariate analysis shows that the occurrence of diarrhoea was strongly associated with age of the child [AOR (95% CI) = 10.296 (0.786,50.450)], educational status of mother [AOR (95% CI) = 2.212(0.556, 8.790)], occupation of the mother [AOR (95% CI) =0.825(0.298, 2.286)], monthly income of family [AOR (95% CI) =1.725(0.959, 3.105)], current status of latrine mother [AOR (95% CI) = 0.356(0.173, 0.730)] absence of hand washing facility after using toilet [AOR (95% CI) = 2.621(1.470,

4.672)], but no significant association between occurrence of diarrhoea with age, ethnicity, religion of the mother, initiation and duration of breast feeding

According to this study only 194 house hold has hand washing facility after using toilet from the total of house hold 292 who had latrine. From these, 57.7% had diarrhoea. Bivariate and multivariate analysis was done and shows negative association between occurrence of diarrhoea and presence of hand washing facility after using toilet.

6.2 CONCLUSIONS

According to this study all respondents were mothers and majority of them were in age group of between 31-49 years, Orthodox in religion and Gurage in ethnicity. More than half of study population was educated and most of them were house wife. Around half of the mothers got 500-700 birr per month.

The two weeks prevalence of diarrhoea was (30.1%) which is high even though, easily preventable.

All of the house hold has latrine facility, but 35.5% of them had no hand washing facility after using toilet.

Almost all of the house hold use pipe as source of drinking water.

Logistic regression was done and there is strong association between occurrence of diarrhoea and age of the child, hand washing facility, educational status and occupation of the mother.

6.3 RECOMENDATION

1. To recommend Agena health center to give sustainable and community based education on recommended breast feeding.
2. To recommend Agena town extension workers to give education on importance of washing hand after using toilet because 35.5% of the house hold who has latrine had no hand washing facility after using toilet.
3. To recommend Gurage zone health beauro to give health education on risk factors of diarrhoea in collaboration with other center

REFERENCES

1. World Health Organization: Readings on diarrhoea students' manual. Geneva, 2011.
2. SK Dhir, J Kumar, J Meena, P Kumar: Breast feeding intense mortality in children hospitalized with diarrhoea. *Journal of tropical pediatrics* 2021,37(6).
3. AHRTAG: Preventing food born infection and hygiene, food safety and diarrhoea, dialogue in diarrhoea. *The intense letter sue* 1998(36)1-8).
4. World Health Organization:Recent report diarrhoea's disease. Feb. 2013 (www.WHO.Int./medical center/ fact sheets), ts 330/en/index.Htme.
5. *Disease of children in subtropics and tropics*; eds: D.bjellite and J.p Stanfield, third edition 1991
6. World Health Organization: Dietary management of young children without diarrhoea. *A manual for managers of health programs*(B.B.jellife and E.F.P jellize), WHO 2019.
7. *Demographic and health survey of Ethiopia*; A.A, 2011.E.C.
8. Girma R.etal: Environmental determinate of diarrhoea among under five children Ethiopian *Journal of health science*, vol 18 Nov. 2; July, 2008.
9. World Health Organization: persistent diarrhoea in developing countries,*Buuetin of WHO* 2006.
10. Tsinuel Girma, et.al.: Pediatrics wither note for health science student. 2006. *Buletin of WHO*.
11. C.Bern, et.al.: Magnitude of global problem of diarrhoea disease,In:*Buuetin of WHO* 2006.
12. Scott-EmuakporM.: Moka for UA comparative study morbidity and mortality of breast feed and bottled nigerianmteants East Africa med J1998;67(6).4J2J7.
13. Maimed DA, Fealthem R. G., HuttlySRA:Infants feeding and risk of severe diarrhoea in Basranciry:*A case control study Bull WHO* 1998;67(6)7016.
14. Mohammed S., EhlayesAbdwbaribener,HatimM.Abdurahman: Protective effect of breast feeding on diarrhoea among children in rapidly growing neullydevelopedcomtry:*Turkish Journal of pediatrics*.
15. Prevalance and determinant of diarrhoeal disease,*Egypt* 2005([http://www empoustsoint](http://www.empoustsoint))
16. Animut Alebel, et.al.: Determinant of exclusive breast feeding in Ethiopia; *Journal of Healthy and DEAV*. 2018.
17. Lindtjen B.et.al.:Morbidity of infectious disease;*Scandinavian journal* 2003
18. Setegn Muche & Teshager Zerihun. Assessment of determinant of diarrhoea in Keffa-Sheka woreda in southern Ethiopia: Individual- and Community-Level Risk Factors Associated with Childhood Diarrhoea in Ethiopia: *A Multilevel Analysis of 2016 Ethiopia Demographic and Health Survey*.

19. Kumar SG,SubitaL.: Diarrhoeal disease in developing countries..*Jawaharlal Institute of post graduate medical education research,India,11(8);38.APR-JUNE 2012*
20. EDHS, centers statistical agency OMEDHS Addis Ababa, Ethiopia, 2016.
21. Tilahun Belete Mossieet.al:Childhood Diarrhoeal Disease among under Five children at Dejen District, North west, Ethiopia, 2014.
22. Eshete WB.: A stepwise regression analysis on under five diarrhoeal morbidity prevalent in Nekemte town western Ethiopia, *East Afr J Public Health*.2008;5:193-8
23. Muluken D. & Abera K.: Predictors of under five childhood diarrhoea: Mecha District, West Gojam, Ethiopia. *EJHD*.2011;25;(2):1

WOLKITE UNIVERSITY

**COLLEGE OF MEDICINE AND HEALTHSCIENCE DEPARTMENT OF
PUBLIC HEALTH OFFICER**

Questionnaire

Introduction: *This questionnaire is designed to collect data from resident of Agena town. The general objective of this Study is to assess the prevalence of disease and its associated factors in under five children in Agena town, Gurage zone, SNNP Ethiopia. The questionnaire has three parts. Part one focuses on demographic characteristics of mothers or care takers, part two focuses on environmental factors information and part three focuses on behavioral factor information. This questionnaire will be translated to Amharic in order to get complete information from respondents.*

I. Identification

Woreda _____ Kebele _____ House
number _____

*Relation of the person interviewed to the child 1. Mother 2. Father 3.
Grandmother 4. other specify*

II. General information

I. Socio demographic characteristics

1. Age of the mother/care take.....year.

2. Age or child months _____.

3. Sex of the child 1, male 2, female

*4. Ethnicity of the mother/care taker 1, Gurage 2, Amhara 3, Tigre 4, Oromo 5,
others specify*

5. Marital status 1 single. 2, married 3, widowed. 4, divorced

*6. Religion of the mother/care taker. 1, Muslim 2, Orthodox 3, Protestant 4,
Catholic 5, others specify*

7. Educational status of the mother or care taker

1, Illiterate 2, Read and write 3, Primary 4, Secondary and above.

8. Occupational status of the mother/care taker

1, House wife 2, merchant 3, gov't employees 4, daily laborer 5, other specify.

9. Monthly income of family..... birr.

1, 500-700 birr 2, 701-1000 3, 1001-1500 birr 4, >1500 birr

II BEHAVIORAL factors

10. Do you give your child breast feed? 1, yes. 2 no

11. Initiation. Of breastfeed 1, <1hr 2 >1hr

12. If yes child breastfeeding status 1, exclusive 2, partial

13. Duration of breastfeeding 1, <4 month 2, 4-6 months 3, totally not breastfed

14. Child given complementary food? 1, yes 2, no

15. If yes, age at which complementary food was started? 1, <6 month 2, at 6 month 3, >6 month

16. Did your child have diarrhoea in the last 2 weeks? 1, Yes. 2, No

17. If your answer to question number 14 is yes what type? 1, Watery 2, Mucoïd 3, Bloody.

18. Duration of the diarrhoea? 1, < 14 days 2, >or=14 days.

19. Action taken for the illness.

1, Treated at health facility 2, traditionally treated 3, Home care is given 4 Nothing done.

20. What changes was made on breast feeding when the child had diarrhoea?

1, Maintained 2, Reduced 3, Stopped

21. Did he/she recover now? 1 Yes 2, No

III Environmental factors

22. Do you have latrine? 1, Yes 2, No

23. If your answer is yes on question number 20 Type of latrine facility

1, pit 2, VIP3, water carriage 4, others

24. What is current status of latrine? 1, filled 2, required maintenance 3, not clean 4, Good

25. Ownership of latrine 1, private 2, shared

26. Distance of latrine to home 1, <15cm 2, >=15cm

27. Do you have hand washing facility after using toilet? 1, Yes 2, No.

28. If yes on question no 25 what do you use to wash your hands?

1, water only 2, water with soap 3, ash with water 4, other

24. What is the major source of drinking water for the family?

1, Pipe water 2, Portalwater 3, well 4, spring.

30. Distance of water from the house? 1, <10cm 2, 10_20cm 3, >20cm

31 If source of water is well or spring, 1, protected 2, unprotected

32 If sources is well or spring do make water treatment at house hold level? 1, yes 2, no

33 what type of container do you use store water? 1, jerrican 2, pot 3, tanker 4, others

34 Do you wash container and cover it 1 Yes 2 no

35. Is there child <1 year in the family? 1, yes 2, no

36. If yes, is the infant vaccinated accordingly? 1, fully immunized 2, partially immunized 3, not immunized

Thank you very much for giving response!

