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Addis Ababa University

Addis Ababa University

School of Graduate Studies

Assessment of utilization of zinc tablet and ORS among under 5 children with acute diarrhea in Akaki Kality sub- city, Addis Ababa.

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List of Abbreviation

AARHB :- Addis Ababa Regional Health Bureau

CSA:- Central Statistics Agency

EDHS:- Ethiopian Demographic and Health Survey

ETEC:- Enterotoxigenic Escherichia Coli

HMIS :- Health Management Information System

NGO:- Non- Government

GOV:- Government

IMCI:- Integrated management of Child hood Illness

LMIC:- Low- and Middle- Income Country

ORS:- Oral Rehydration Salts

ORT:- Oral Rehydration therapy

PPS:- population proportion sample

SSA:- Sub Saharan Afirica

U5CH:- Under five Children

UNICEF:- United Nation Children's Fund

WHO:- World Health Organization

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Annex VII : Declaration

I, the undersigned, Public Health student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health.

Name: Solomon Hassen

Signature: _____

Place of submission: School of public Health, College of Health Sciences, Addis Ababa University.

Date of Submission: November, 2015

This thesis work has been submitted for examination with my approval as university advisor(s).

Advisors

Name	Signature
Dr. Jemal Haidar **(**Associate Professor)	_____

Annex VIII : Assurance of Investigator

The undersigned agrees to accept responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress reports as pre terms and conditions of the research and publications office of Addis Ababa University.

Name of the student: Solomon Hassen Signature: _____ Date: November, 2015

Approval of the primary advisor

Advisors

Name	Signature	Date
Dr. Jemal Haidar **(**Associate Professor)	_____	_____

Abstract

Background: Diarrhea is one of the leading causes of child mortality in under five children. According to the World Health Organization (WHO), an estimated 2.5 billion cases of diarrhea occur among under 5children each year. More than half of the cases occur in Africa and South-East Asia. Diarrhea is a commonly associated problem in children with Zinc deficiency and diarrhea also leads to excess zinc losses. It is anticipated that over one-half of these deaths could be averted through the successful application of zinc as a treatment for childhood diarrhea . According to community based survey, diarrhea is second common cause of under-five mortality (88 per 1000 live births), and morbidity (13%) in Ethiopia. A policy to use zinc to treat children with diarrhoea was adopted by the Ministry of Health of Ethiopia in 2013.

Result:-The prevalence of zinc administration is low in developing country. The aim of the study was to assesses zinc and ORS utilization and associated factors in akaki kality sub city, Addis Ababa, Ethiopia. A community based cross-sectional study was done from February 15,2016 to March 15, 2016 . Four hundred twenty two caregivers were included in the study using a house to house interview technique. The data were collected using a structured questionnaire and analyzed using SPSS version 20. Bivariate and multivariate analyses were used to identify the factors related to zinc administration. Two hundred eight three (67.1%) caregivers were administered zinc and ORS. For how long caregivers give Zinc treatment (AOR= 0.069;95%CI:0.006-0.790), reasons for not giving full dose of Zinc (AOR=26.755;95%CI:2.874-249.069), and source of zinc product(AOR=9.301; 95%CI:1.009-85.709) were the factors associated with zinc administration.

Conclusions :- 67.1% care givers were administered zinc and ORS to the child for the treatment of diarrhea in this study area. Zinc administration was determined by reasons for not giving full dose of zinc, for how long caregivers give zinc treatment and source of zinc product. In the study area there was low zinc and ORS administration for diarrhea treatments.

Recommendations :-Health authority and managers in the study area need to improve the awareness of caregivers in proper utilization of zinc .

List of under five years children treated with zinc and ORS Format(Figure I)

Sub city _____woreda _____health centers_____ Date _____

S.no	Child name	Age	Sex	House no	Mother name	Father name	Woreda	Gote (የቦታው ልዩ ስምቢ/ክርስትያን፤ መስጊድ፤ጋራዥ ወ.ዘ.ተ.)
					Mother name	Fathet name		
					phone	Phone		
					phone	Phone		
					phone	Phone		
					phone	Phone		
					phone	Phone		

Name of health worker filling the formats _____ Responsibility _____

Date _____

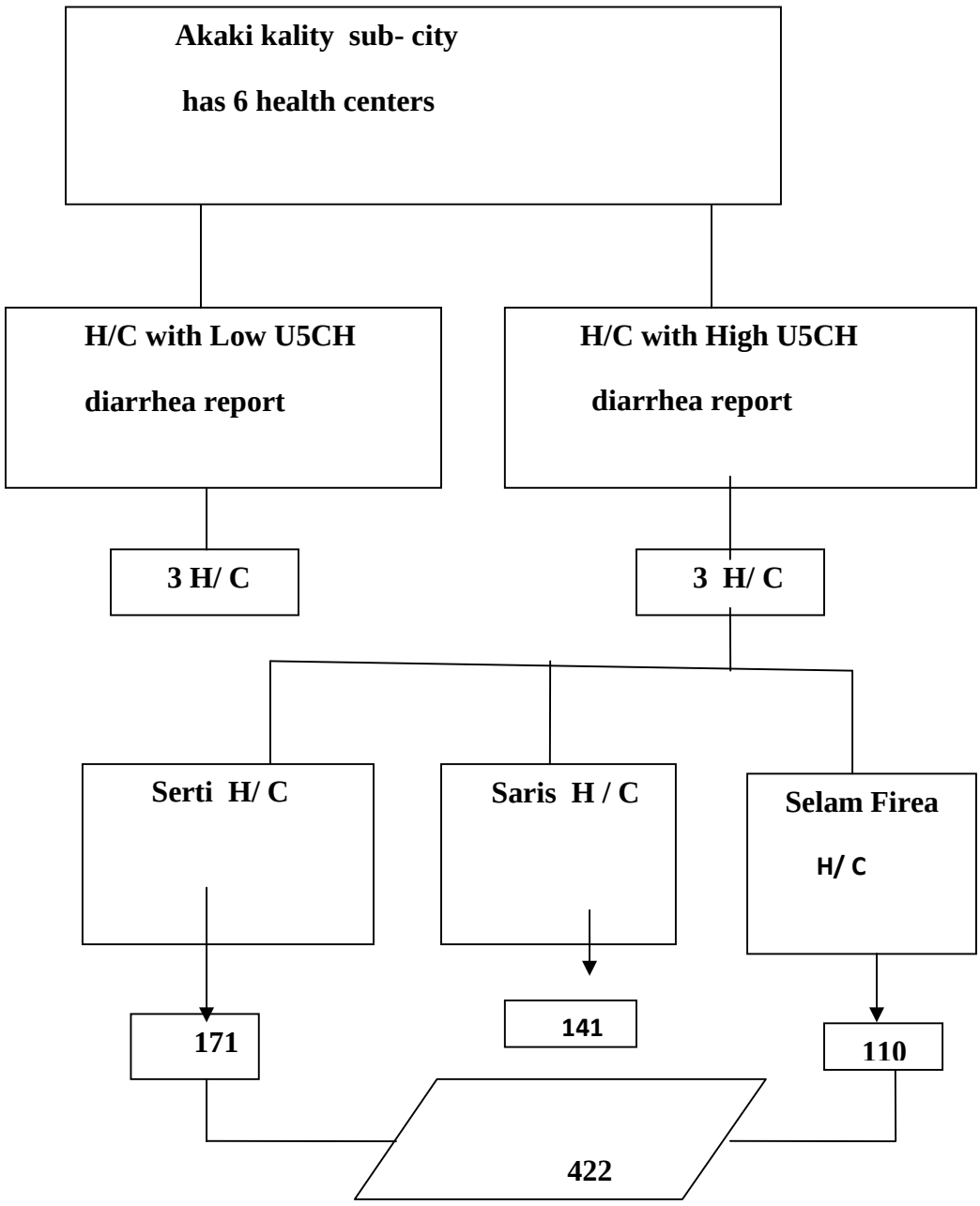


Figure II : . Sampling Procedure

Key ;- H/C = health center ,

U5CH = Under five year children.

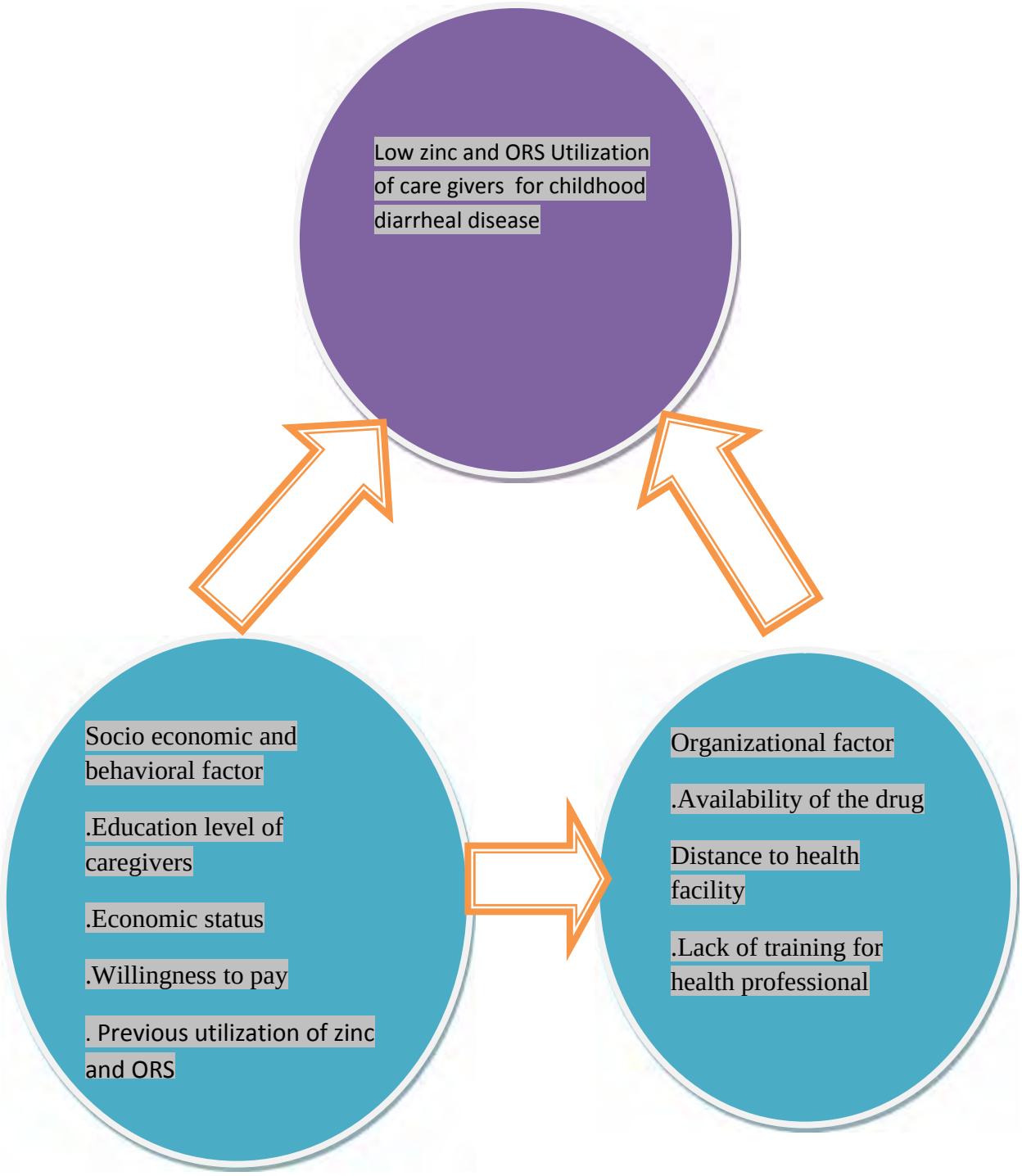

Low zinc and ORS Utilization of care givers for childhood diarrheal disease
Socio economic and behavioral factor
.Education level of caregivers
.Economic status
.Willingness to pay
. Previous utilization of zinc and ORS
Organizational factor
.Availability of the drug
Distance to health facility
.Lack of training for health professional

Figure I:- Conceptual frame work for factors affecting zinc and ORS utilization

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1. Introduction

1.1 Background

According to the World Health Organization (WHO), an estimated 2.5 billion cases of diarrhea is reported in children under the age of 5 years . More than half of the cases occur in Africa and South-East Asia leading to an estimated 2.5 million of child deaths in developing countries every year (1, 2). Diarrhea is a commonly associated with Zinc deficiency in children and it is among the major nutrients lost during the diarrhea episodes(3).Evidences show that over 50.0% of deaths related to diarrhea are preventable and could be averted even more through the successful application of zinc as a treatment for childhood diarrhea(4).Most sub-Saharan African (SSA) countries including Ethiopia suffer from diarrheal problem as well as macro- and micronutrient deficiencies, caused by the interaction of poor or inadequate diets compounded by infectious diseases(5). According to community based report and survey, diarrhea is the second common cause of under-five mortality (88 per 1000 live births), and morbidity (13%) in Ethiopia(6).

Zinc for the treatment of diarrhoea has been recommended by the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) since 2004 (7). In 2013, the Ministry of Health of Ethiopia, has adopted the above recommendation and implemented the use of zinc as a package in the treatment children with diarrhoea. Although treatment of acute diarrhea with oral rehydration solution has been used widely in the country and diarrhea related deaths as a result reduced, the frequency and duration of diarrhea including some of the consequences of diarrhea like severe acute malnutrition remains a problem(8).With the introduction of zinc therapy however, it is documented that the severity including frequency and duration of diarrheal occurrence decreases though majority of caregivers in the country do not manage acute gastroenteritis appropriately at home(9). This study has examined the utilization of Zinc and ORS in selected communities where the magnitude of diarrhea is high.

1.2 Statement of the problem

According to UNICEF (2012),only39% of children under five years receive appropriate treatment for acute gastroenteritis in developing countries with little progress made since year 2000(10).In Africa, there has been increased numbers of diarrheal diseases in many hospitals and clinics. Similarly, in Ethiopia, diarrhea account for about 14% of outpatient visits and 16% hospital admissions attributed to poor hygienic practices of the people and lack of commitment of most health and environmental workers(11, 12). Inappropriate home management of acute gastroenteritis in children under five years contribute largely to the number of children being admitted in various health facilities(10).

In most of the rural areas of Ethiopia, consumption of animal sources of food is low and usually limited to occasional public holidays indicating minimal intake of zinc. This might lead to the assertion why high prevalence of stunting in the country is prevailing(13). Based on the Ethiopia Demographic and Health Survey of 2011,two children in every five with diarrhoea were treated with some form of ORT or increased fluids, while 42 percent of children did not receive any form of treatment(14).

The magnitude of childhood diarrheal disease has a diverse figure in Ethiopia; according to Ethiopian Demographic and Health Survey 13% are suffering from diarrhea .Where as a study at Arba Minch, (South of Ethiopia), Nekemtie (Oromia region, Ethiopia), Mecha (Northwest Ethiopia) and Amhara region reported 30% , 28.9% , 18 % and 13.7% diarrheal cases(13).In all health facilities, caretakers are encouraged to continue feeding and increase the frequency fluid intake to reduce dehydration and also minimize the adverse consequences of diarrhoea and child malnutrition(14).Although complying with the advice is low, the fact that most children with diarrhea when visited the facilities are not well hydrated. This implies that caregiver are not managing adequately their children with zinc and ORS at home, indicating a gap of knowledge.

1.3 Rationale for the study

Zinc deficiency is associated with an increased risk of gastrointestinal infections by affecting the structure and function of the gut. Zinc therapy has been found to reduce the inflammation of the gut and consequently loweres the duration and severity of diarrheal episodes including of subsequent infections for 2–3 months(15).

Caregivers play vital role in appropriate management of acute gastroenteritis in children under five years as they are the ones who decide if a child's episode of gastroenteritis warrants a visit to a health facility or if they can manage the episode at home(10).Majority of the caregivers do not manage acute gastroenteritis appropriately at home and use of ORS and Zinc treatment in children with diarrhea is reported to be low in addition to inappropriate use antibiotics and other treatments of no proven value(8). Even though the policy to use zinc as treatment for diarrhea is adopted by federal ministry of health but there is no zinc police and strategy in Ethiopia and currently zinc treatment is a prescription drug. Majority of children with acute diarrhea in Ethiopia are not treated with zinc and there were low utilization of zinc and ORS by caregivers. This study has tried to assess what hinder caregivers of under 5 children with acute diarrhea from using zinc and ORS.

1.4 Significance of the study

This study will have significant input in the strengthening and implementation of the overall zinc and ORS utilization for diarrheal disease.

This study has attempted to assess the magnitude as well as factors responsible for the utilization of zinc. It is hoped that the result of this study will avail evidence based information on the current practice of zinc utilization as well the management of childhood diarrhea which will contribute to improvise the management of diarrhea diseases.

2.Literature review

2.1 Magnitude of diarrhea

Infectious diarrhea can result from a range of pathogens, that include viruses, bacteria and protozoa with rotavirus being the leading cause of severe acute diarrhea(16).The number of rotavirus infection leading to diarrhea annually is estimated at 125 million in children under the age of 5 years globally(17).Other common enteropathogenic causes of under-five gastrointestinal infections include *Shigella*, *Vibrio cholerae*, enterotoxigenic *Escherichia coli* (ETEC), cryptosporidium, campylobacter and salmonella (16).

Diarrhea is a global problem and is defined as 'having loose or watery stools at least three times a day or more frequently than normal for an individual' and remains one of the leading killers of young children. Rehydration is a cornerstone of treatment of diarrhea to prevent dehydration (18). According to the UNICEF study, each child, on an average, in the developing world suffers from diarrheal diseases for more than three times a year (19).

In Ethiopia, morbidity reports and community-based studies indicate that diarrheal diseases causes excess morbidity and mortality affecting both urban and rural children aged from 6 to 23 months(20, 21).

2.2.Factors associated with ORS administration.

2.2.1 Socio economic and behavioral factor

ORS has been available for many years, the switch to low osmolarity ORS has been challenging for some countries. ORS is manufactured locally or imported from a regional or international supplier, including UNICEF (22).

In Ethiopia , only ORS that is included in the kit given to HEWs during their initial training. The average retail price of two sachets of ORS is USD 0.12- 0.18 (2 -3 ETB) and price of 10 cotrimoxazole tablets is USD 0.15- 0.59 (2.5 to 10 ETB) Among those children that sought treatment, 31% of children with diarrhea reportedly received a rehydration solution from an ORS sachet or a recommended home fluid. Antibiotics were used in 15.3% of the cases followed by zinc and antimotility drugs (1.5%, 1.1%, respectively)(23).

2.2.2 Organizational factor

In India, both low osmolarity ORS and zinc products are available through the public and private sectors. Although the country's production capacity is sufficient to meet its needs, zinc is not widely available through either sector (24).

Study done in Ghana revealed that 43% of mothers were aware of ORS. Only 18% of infants received ORS and 19% were given RHS during the recent diarrhoea episode; 69% received neither ORS nor recommended home-made solution (RHS) (11)

The coverage of ORS in developing countries was approximately 35% in 2012 . In India, ORS is more widely available but also suffers from interruptions in availability(24).

In Ethiopia, ORS is available as it is also produced by local manufacturer. However, its wide utilization is limited due to inefficient distribution(23).

Study in Kenya among 771 children,92 (11.99%) of the mothers in the sample had never heard of oral rehydration salts. More than half of the mothers(51.76%) had used ORS and a further 280. 9 (36.25%) had heard of ORS but had never used it(25) .

In Nigeria, according to the National Demographic and Health Survey (NDHS) of 2013, 29% of children with diarrhoea were taken to a health facility, whereas 38% of the children with diarrhoea were treated with oral rehydration therapy (ORT)(26).

In India, private facilities were the primary source of both ORS (80%) and antibiotics (80%). In Kenya, by contrast, public facilities clearly played a much larger role as sources of ORS (67%) and antibiotics (48%)(27).

Study in Kashmir show that among the 1052 enrolled caretakers, 92 (8.7%) children had only received ORS and 810(77%) of children with diarrhoea received antibiotics and 4.8% had received I/v fluids(28).

Study done in India show that 42.4% mothers/caretakers given more drinks to their children and 49.9% mothers/caretakers less amount of food given to their children(29).

Another study in Kenya, show that among 64.1% (n=134) of the caregivers increased the amount of fluids they gave to their children ,15 % reduced the amount, 10.1% gave the usual amount of fluids and 10.5% gave no fluid to their child(10) Study dune in Kenya showed that most of the caregivers gave fluids at home with majority of them183 (87.6%) reporting to have given clean, safe water. 159(76%) gave cereal gruel (uji), 149(71.3%) gave fresh or fermented milk, 113

(54.1%) gave fresh fruit juices,114(54%) gave soups prepared from meat fish or chicken and104(50.2%) gave salt/sugar solution(10).

2.3 Factors associated with zinc administration.

2.3.1 Socio economic and behavioral factor

Research done in Bangladesh, has shown that zinc is well accepted, and most care takers are willing to buy zinc (Old 28). Caretakers of all 73 (100%) zinc-users said they would be willing to pay for zinc in the future. Also, all 36 (100%) caretakers of non- users of zinc reported a willingness to pay for zinc(30).

Even though research done in different countries finding showed willingness to buy zinc but the cost of ORS and zinc supplements may hinder a caregiver from using them to manage acute gastroenteritis at home. Most caregivers who cannot be able to buy these products opt to use traditional herbs instead (UNICEF, 2012) (10).

Zinc is not among the medicines listed for the treatment of diarrhea in the recently revised 'List of Essential Medicines for Ethiopia'. Zinc is currently defined as a prescription-only drug and the average retail price of 10 zinc tablets is USD 0.59 (10 ETB)(23).

2.3.2 Organizational factor

Many countries are hesitant to buy zinc because they have little experience with it as part of diarrhea management programs. They are unsure of the demand of zinc for diarrheal management. Despite this major progress, global zinc availability is still dismally low compared to the global need (31).

The distance of a health facility or pharmacy from caregiver's home is vital to appropriate home management of acute gastroenteritis. Caregivers who live far from a health facility may not be able to obtain ORS sachets and zinc supplements(10)

A cess to appropriate treatment of diarrhea in Ethiopia is constrained due to limited availability of drugs especially zinc, limited care-seeking, poor diagnosis and failure to provide appropriate treatment(23).

Study in Kenya show that 43.1% caregiver received zinc for their child until diarrhea stop; 30 .7% provide zinc for 7 days;19.7% provide zinc for 10-14 days and 6.6% don't know (10).

Study in Kenya showed that among the 109 enrolled caretakers, 73(67%) reported using zinc and 36(33%) did not use zinc for their children's most recent diarrheal episode. Among the 73 zinc-users, 18 (25%) received zinc at home, 48 (66%) obtained zinc at a clinic, 5 (6%) from both clinic and at home, and 2 (3%) from other sources like neighbors(30) **.**

Study in Nigeria show that among the157enrolled caretakers,78 (49.7%) gave their children Oral Rehydration Solution and 13 (8.3%) using zinc at home (32) .

Study in Mali showed that among the 37 caretakers of young children, 28 (75.67%) that had used zinc treatment and 9 (24.32%) that had not used zinc treatment(33).

Study in Mali showed that among the 123 children followed at home after prescribed zinc. 64.0% of them received the full 14 –days course of treatment, and more than 89% were given at least a 10 days course of zinc treatment(33).

A studies done in Ethiopia showed among 609 caregivers ,378(62.1%) reported zinc administered and 231(37.9) do not administered zinc for diarrhea disease (31).

2.4 Harmful practice of caregiver

Harmful practices in the management of childhood diarrhea were associated with negative health outcomes, and conflict with WHO treatment guidelines. These practices include restriction of fluids, breast milk and/or food intake during diarrhea episodes, and incorrect use of modern medicines. Curtailment of fluids and restriction of feeding during diarrhea can increase the risk of dehydration, reduce nutritional intake, and potentially inhibit child growth and development(34). Although demographic and health survey data from many countries indicate that most mothers or caregivers are familiar with ORS diarrhea treatment there was little correlation between knowledge and actual use of the product. The reasons for low use of ORS are a long–standing source of speculation. Some suggest that mothers do not use ORS because it does not treat the symptoms, it tastes bad, or because it does not look like a "real medicine". Others attribute low ORS use to the availability of alternative treatment products, likes antibiotics (35). Although caregivers generally had very positive perceptions of ORS, they typically ranked antibiotics ahead of ORS as the strongest medicine for diarrhea.

In India among401enrolled caretakers,250(62%)ranked antibiotics first and 93(23%) ranked ORS first. while in Kenya,(55%) ranked antibiotics first and116(29%) ranked ORS first(28). Study in Nigeria showed that from 203 mothers interviewed ,46(22.7%) of mothers would use salt sugar solution (SSS) to treat their children who had diarrhea, while ,20(9.9%) of them would use UNICEF oral rehydration salt(ORS) for the same purpose. Seventy-five of the mothers (36.9%) combined both incorrect and correct methods for management of diarrhea. Most of the mothers used antibiotics, anti diarrheal, herbal preparations for treating their babies for diarrhea at home, a practice that should be discouraged(19).

The feeding practice of children under five years during diarrhea shows Only 10 percent of children with diarrhea are given increased liquids and continued feeding as recommended, while 25 percent of children with diarrhea continued to feed and are given ORT or increased fluids suggests that a large proportion of mothers still engage in the dangerous practice of curtailing fluids and food intake when their children have diarrhea(14).

2.5 Socio demography factor

In many developing countries socio demographic characteristics like maternal and child age and availability sanitary facilities, hygienic practices, flies infestations, and regular consumption of street food were also some determinant factors for the occurrence of diarrheal disease(21). Study in India revealed that about 8.3% of slum children suffered from diarrhea during 2 weeks preceding the survey. About 14.6% infants suffered from diarrhea, compared to 12% among those aged 12-23 months (36).

The frequency and severity of diarrhea are aggravated by lack of access to sufficient clean water and sanitary disposal of human waste, inadequate feeding practices and hand washing, poor housing conditions, and lack of access to adequate and affordable health care(21).

2.6 Knowledge of caregiver

During diarrheal episodes incapability of parents/caretakers to recognize early signs of dehydration and inappropriate management results in excessive fluid loss and electrolyte

imbalance, which contribute to critical outcomes(29). Research done in Mali and western Kenya showed that knowledge and use of zinc was high among the caregivers who had recently used it to treat a diarrheal episode. Another study in Bangladesh indicated that caregivers were willing to buy zinc to manage childhood diarrhea(10).

Study in Kenya show that knowledge of all 73 (100%) caretakers of zinc-users correctly stated that zinc should be used for watery diarrhea compared to 26 (72%) of non-users(30)

In Niger among 2940 enrolled caretakers who visited health centers and health posts for simple or severe diarrhea less than 10% of the children were brought to the hospital for treatment.

Care takers in the zinc user group are more knowledgeable about zinc (98%-100%)than did those non user group (64-72%) and 44% did not know where to obtain zinc from , 42% were not prescribed zinc from clinic, 11% were unsure about how to administer zinc,2.8% did not know about the existence of zinc treatment. Majority of them obtained zinc from the health clinic, and so had recent contact with a healthcare worker who likely explained to them the indications for zinc-use.(31).

3. Objective of the study

3.1 General objective of the study

To assesses the utilization of zinc tablet and ORS among under 5 children with acute diarrhea in Akaki Kality sub- city woredas, Addis Ababa, Ethiopia,2016.

3.2 Specific objective of the study

- To assess utilization of ORS and Zinc tablets among under 5 children with acute diarrhea, Akaki Kality sub- city woredas, Addis Ababa, Ethiopia,2016.
- To determine factors influencing ORS and zinc utilization, among under 5 children with acute diarrhea in Akaki kality subcity, Addis Ababa, Ethiopia,2016.

4. Methodology

4.1 Study area and period

The study was be conducted in Akaka Kality sub- city from February15,2016 to March 15, 2016.

Akaki Kality sub- city is one of the ten sub- cities in Addis Ababa City Administration. The sub-city is divided in to 11 woredas constituting 8 urban and 3 rural woreda**.** The sub city has a toal population of 224370 of with108819 : 115551 male to female ratio which is 48.5 percent males and the rest 51.5females. There were 6 government health centers and one private health center in the sub-city.

Of the 11 woredas, six that had governemt facilities reported diarrhea to the next high level using HMIS report form while the remainng 5 woreda do not have health centers. Among those 6 woredas that reported diarrhea, 3 woreda namely woreda eight 40.6% (171), six 33.4% (141) and three 26% (110) with high prevalence of diarrhea were included in the study. According to the Addis Ababa city health bureau report of 2015, the overall prevalence of diarrhea in the sub city was 12.7% (41).

4.2 Study design :- A community based cross - sectional study.

4.3 Source population

All mothers who had under-five-children with acute diarrhea and lived in Akaka Kality sub city.

4.4 Study population

All mothers who had under-five-children with diarrhea in the sampled woredas.

4.5 Sample population

All caregivers who had under-five-children with diarrhea who were prescribed zinc and ORS before 14 days in the sampled woredas.

4.6 Exclusion and Inclusion criteria

Inclusion criteria

Caregivers with under-five-children who were 14 days in the selected woredas during the study period.

Exclusion criteria

Caregiver who were not residences of the selected woreda were excluded from the study.

4.7 Sample size determination

The sample size was computed using the prevalence of 12.7%(37), 5% of marginal error and confidence level 95% using a single proportion $n = (Z \alpha/2)^2 \times P(1-p)/d^2$.

Where;

n1 = Sample size(Objective 1);

$Z \alpha/2 = 1.96$;

d (degree of precision) = 0.05 and

P (prevalence of diarrhea) = 0.127.

$N = (1.96)^2 \times 0.127 \times 0.873/(0.05)^2 = 170.4$ with 10.0% of non response rate, the total sample size required for this study is 187 and shown below.

For the second objective the sample size formula with prevalence of 50.0 was(since p is not known). The sample size was computed a single proportion $n = (Z \alpha/2)^2 \times P(1-p)/d^2$.

Objective	P	1-P	Z	W	NR	Sample Size
Objective - 1	0.127	0.873	0.5	0.05	10%	187
Objective – 2	0.5	0.5	0.5	0.05	10 %	422

Since the larger sample size can accommodate both study objective, 422 is taken as the final samples for the study.

4.8 Sampling procedure

Of the 11 woredas of the sub-city, 6 woredas that reported diarrhea were considered and further stratified into woredas with Low and high burden of U5CH based on the report obtained from the health centers. There were three woredas with high burden of diarrhea and included in this study. The total sample size was distributed to the selected health centers proportionally to their total number of under five children size. Each children treated for diarrhea with zinc tablet and ORS

by the three health centers were listed by special forms(Figure I) and selected by simple random sampling techniques with a random sample of the first case being selected. Based on the sampling frame obtained from the list of the health centers (Figure II).

To make the data collection more easy; 14 days before the study period each children treated with zinc and ORS by the three health centers were listed in especial formats(Figure 1).

List of under five years children treated with zinc and ORS Format(Figure I)

Sub city _____woreda _____ health centers_____ Date _____

S.no	Child name	Age	Sex	House number	Mother name	Father name	wore da	Gote የቦታው ታዋቂ መለያ ስም
1					Mother name	Father name		
					Phone no	Phone no		
2					Mother name	Father name		
					Phone no	Phone no		
3					Mother name	Father name		
					Phone no	Phone no		
4					Mother name	Father name		
					Phone no	Phone no		
5					Mother name	Father name		
					Phone no	Phone no		

Name of health worker filling the formats _____Responsibility _____date _____

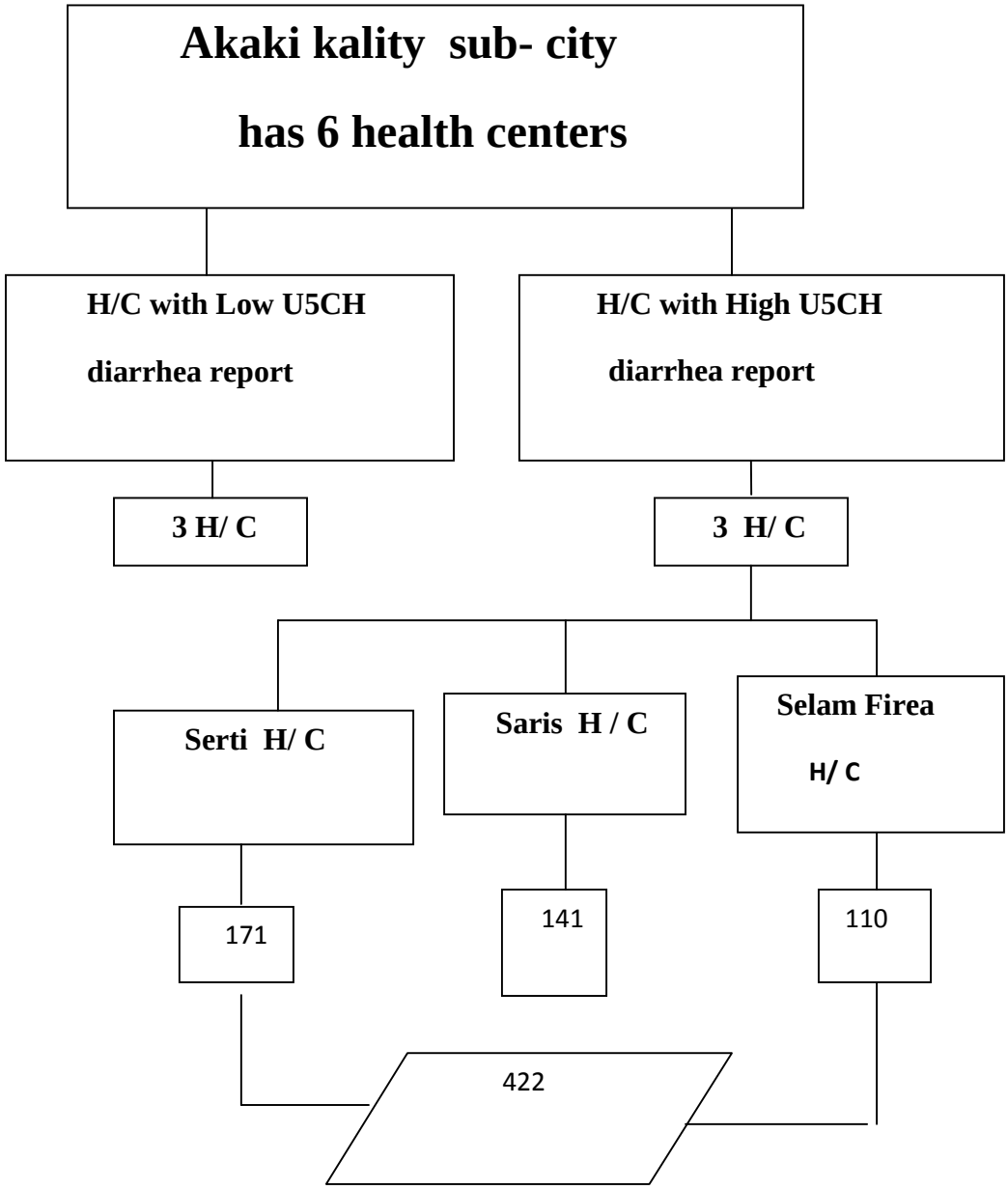


Figure II : . Sampling Procedure

Key ;- H/C = health center ,

U5CH = Under five year children

4.9 Data Collection Procedure
Study tools

The data was collected using pre tested questionnaires

The questionnaire had six sections:- socio-demographic and economics characteristic of care giver, fluid intake , feeding practice, use of ORS and zinc utilization**,** sources and storage of drinking water and personal hygiene practices.

Eleven data collectors and one supervisor who had previous experience in data were recruited in the respective woredas that have BSC in nursing and BSC in public health respectively.

All data collectors were trained for two days on the objective of the study and data collection technique.

Data collection

All data collectors introduce themselves and explain the aim of the study to all participants after obtaining consent from care giver they collect the information based on the data collecting tool. Supervision was done by using check list during data collection . The principal investigator supervised and reviewed every questionnaire for completeness, accuracy and correction were made on spot.

4.10 Study variables and operational definition

4.10.1 Study variable
dependent variables

- Zinc & ORS utilization.

Independent variables

Socio demographic characteristics :- Age , marital status , residency, number of children.

Social economic factors :- Education status , income , occupation.

Health system factor :- Distance .

knowledge on diarrhea , zinc and ORS.

4.10 2 Operational definition

Acute diarrhea : - loose or watery stool for 3 or more times over 24 hour ,lasting less than 14 days.

Appropriate home care experience : Home management of acute diarrhea with prescribed zinc and ORS .

Proper zinc and ORs administration: Care giver who provide zinc and ORS to their children for 10 – 14 days with out interruption.

Caregiver :- The person who provide care for the child and brought the child to health center (mother; father; other family members and house servant or "Mogzite".

Oral rehydration salts (ORS): - Refers to a balanced glucose–electrolyte mixture.

4.11 Data quality management

4.11.1 Data quality

To assure quality of the data, the following measures were taken. Pretest was done among 5 percent of the sample size in similar woreda of the subcity before the actual data collection took place and corrections on the instruments was made accordingly. Every questionnaire was reviewed for completeness and accuracy on daily basis by the immediate supervisor. After checking for consistency and completeness, the supervisor submitted the completed questionnaire to the principal investigator.

4.12. Data processing and analysis

First , the data were checked for completeness, coded and entered in Epi info version 3.5.3 and analyzed using SPSS version 20 statistical software . Both Bivarate and Multivariate analysis were carried out to describe the data according to the objective of the study. Variables with p value less than 0.05 in Bivarate analysis were entered in to multivariate logistic regression model to identify the effect of each independent variable with the outcome variables. A p value less than 0.05 was considered as statically significant.

4.11 Ethical approval

Ethical approval was obtained by Ethical Board of the School of Public Health, Collage of Sciences Addis Ababa University. Permission was also granted by Addis Ababa Regional Health Bureau, Akaki Kality sub-city health offices and woreda health office. Verbal consent from all caregiver involved in the study was obtained after informing the benefits of the study.

4.12 Dissemination of results

The result obtained from this study will be published and presented for the concerned government bodies and to those responsible bodies who works on zinc who want the result of the study to improve zinc and ORS utilization. Also the finding of this study will be presented to the Addis Ababa University, college of health sciences, school of public health and would be also shared to other stakeholders through publications in national/international journals.

RESULTS

A total of 422 caregivers participated in this study making the response rate 100%.

5.1 Socio demographic characteristics of caregivers.

A total of 422 caregivers were participated in this study out of which 384(91%)were females. The mean age in year was 1.52 and standard deviation was 0.523.Regarding educational status,109 **(**25.8%) had completed primary level education and 81(19.2) had completed more than secondary education.

Among the care givers 235(55.7%) had business. Majority of the care giver 394(93.4%) were married. About 198(46.9%) of the study participants were Orthodox Christian, followed by Muslim 107(25.4%). Regarding house hold income,176(41.7%) had gate 1001ETB – 2000 ETB per month and 166(39.3) had gate greater than 2000 ETB.

Table 1: Socio demographic characteristics of the study participants in AkakiKality sub city,Ethiopia,2016

variables		N	(%)
Gender of caregiver	Male	38	9
	Female	384	91
Age of caregiver (in years)	15 - 24	207	49.1
	25 - 34	210	49.8
	35 - 50	5	1.2
Mean and SD	In year	Mean = 1.52 and SD = 0.523	
Educational status	Illiterate	62	14.7
	Able to read and write	84	19.9
	Primary level	109	25.8
	Secondary	86	20.4
	More than secondary	81	19.2
Occupational status	No business	187	44.3
	Private business	59	14

	Private employ	94	22.3
	Government employ	82	19.4
Marital status	Single	20	4.8
	Married	394	93.4
	Separated	5	1.1
	Divorced	3	0.7
Religion	Orthodox	193	45.7
	Muslim	107	25.4
	Catholic	60	14.2
	Protestant	57	13.5
	Others	5	1.2
Income	<500ETB	17	4.1
	500-1000 ETB	63	14.9
	1001-2000 ETB	176	41.7
	>2000	166	39.3

Socio-demographic characteristics of children

Among the enrolled children,51.7(218) were females and 204 (48.3) were males. About 127(30.1%)children were between 12-23 months. Similarly,83(19.7%) and 60(14.2%) were between 24 – 35 and 36 -47 months respectively.

Table 2 :Distribution by socio demographic characteristics of children in AkakiKality sub city,Ethiopia,2016.

variables		N	%
Age of the child (in months)	< 6	65	15.4
	6 - 11	87	20.6
	12 - 23	127	30.1

	24 - 35	83	19.7
	36 - 47	60	14.2
Mean and SD	In month	Mean = 2.33 and SD = 0.902	
Gender of the child	Male	204	48.3
	Female	218	51.7

Diarrhea episodes and ORS utilization

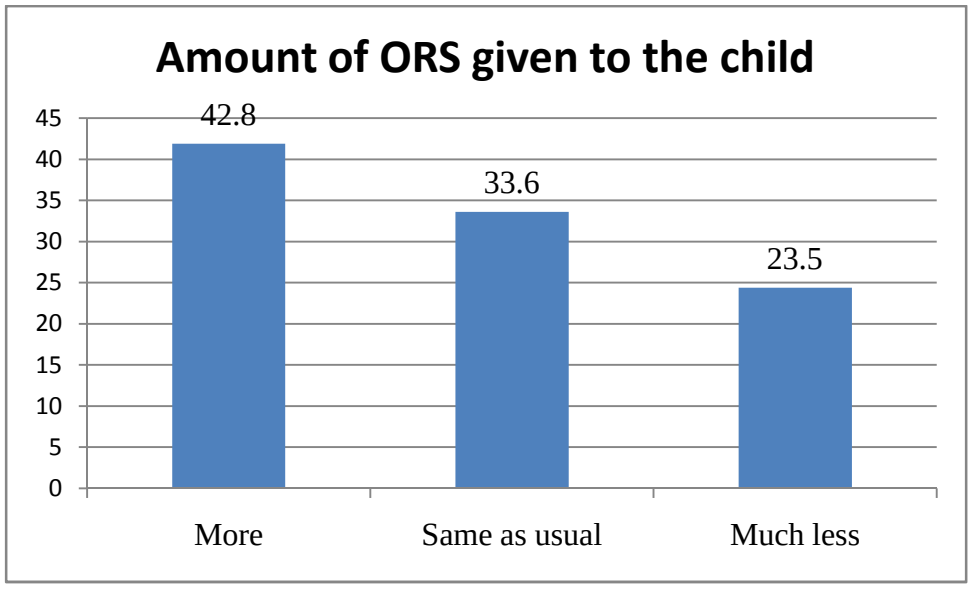
Of the total children, 357(84.6%) had less than 2 days episodes while40(9.5%) had two to four days episodes and 25(5.9%) had grater than or equal to five days episodes. Regarding the source of ORS,340(83.6%),27(6.6%) and 40(9.6%) caregivers received ORS from government health centers, government hospital and private health facility respectively. Most of 183(45%) caregiver kept the prepared ORS for twelve hours and 134(32.9%) kept for twenty four hours.

Majority of the caregiver,266(63%) reported that ORS used to replace fluid lost during diarrhea and on the other hand,156(37%) caregiver were reported that ORS used to stop diarrhea. Regarding to government recommended home fluid ,166(39.3%) caregiver were provided more fluid and 152(36%) caregiver were provided the same as usual. Similarly,104(24.6%) care giver provided much less government recommended home fluid.

Table :3 Frequency distribution of caregiver ORS utilization in Akqkikality sub city, Addis Ababa,2016

Variables		N	%
Episodes	<2 days	357	84.6
	2-4 days	40	9.5
	>= 5 days	25	5.9
ORS used	Yes	407	96.4
	No	15	3.6
Source of ORS	GOV hospital	27	6.6

	GOV health centers	340	83.6
	Private health facility	40	9.6
Amount of ORS given to the child	More than usual amounts	174	42.8
	Same as usual amount	137	33.6
	Much less	96	23.5
Knowledge of ORS	Replace fluid lost	266	63
	Stop diarrhea	156	37
Duration of keeping prepared ORS	.Six hours	90	22.1
	Twelve hours	183	45
	Twenty four hours	134	32.9
Government recommended home fluid	More	166	39.3
	Same as usual	152	36
	Much less	104	24.6



Caregivers feeding practice during diarrhea

About 271(64.2%) caregiver do not breast feed and 151(35.8%) caregivers breast feed the child. Of the total breast feed caregivers 97(64.2%) reported more breast feeding and 28(15.2%) caregivers reported same as usual breast feeding. Majority of caregivers 382(90.5%) did not believe in with holding food or fluid during diarrhea and40(9.5%) caregivers did believe with holding food or fluid during diarrhea. Among the enrolled caregivers 20(48.8%) with held giving cereal gruel("muki" in Amharic) and 15(36.6%) caregivers were with held giving milk. About32(14.6%) caregivers believed that such foods or fluids aggravate the diarrhea and 8(1.9%)caregivers believed that such foods or fluids worsen the smell of diarrhea.

Table :4 Frequency distribution of caregiver breast feeding practice in Akqkikality sub city, Addis Ababa,2016

Variables		N	%
Breast feeding	More	97	64.2
	Same as usual	28	15.2
	Somewhat less	12	7.9
	Much less	14	9.3
frequency of food feeding	More	124	29.4
	Same as usual	85	20.1
	Somewhat less	107	25.4
	Much less	66	15.6
	Never gave food	40	9.5
With held food or fluid	Yes	40	9.5
	No	382	90.5
Types of withheld	Cereals gruel (muke in Amharic	20	48.8

food or fluid	Cows milk	15	36.6
	Any soup	6	14.6
Reason of with held food or fluid	Believed that such foods /fluid aggravate diarrhea	32	80
	Smell	8	20

Care giver zinc utilization

Regarding to the information of zinc, 214(50.7%) of the caregivers heard from television and 87(20.6%) caregivers heard from health care provider, In addition to these 86(20.4%) and 35(8.3%) caregivers were reported by radio and health extanteasion workers respectively. Regarding to source of zinc tablet,283(67.1%) caregivers received zinc tablet from private facilities and any zinc products was not received from public facilities. Among zinc user 262(92.6%) caregiver received zinc from private pharmacy and 21(7.4%) caregivers were received from private clinic.About229(80.9%) caregivers were mix zinc using water and54(19.1%) caregivers mix zinc using ORS solution. Most of 148(52.3%) caregivers were reported zinc gave for seven days, and 81(28.6%) were reported until diarrhea stop. Likewise, 54(19.1%) were reported 10-14 days.

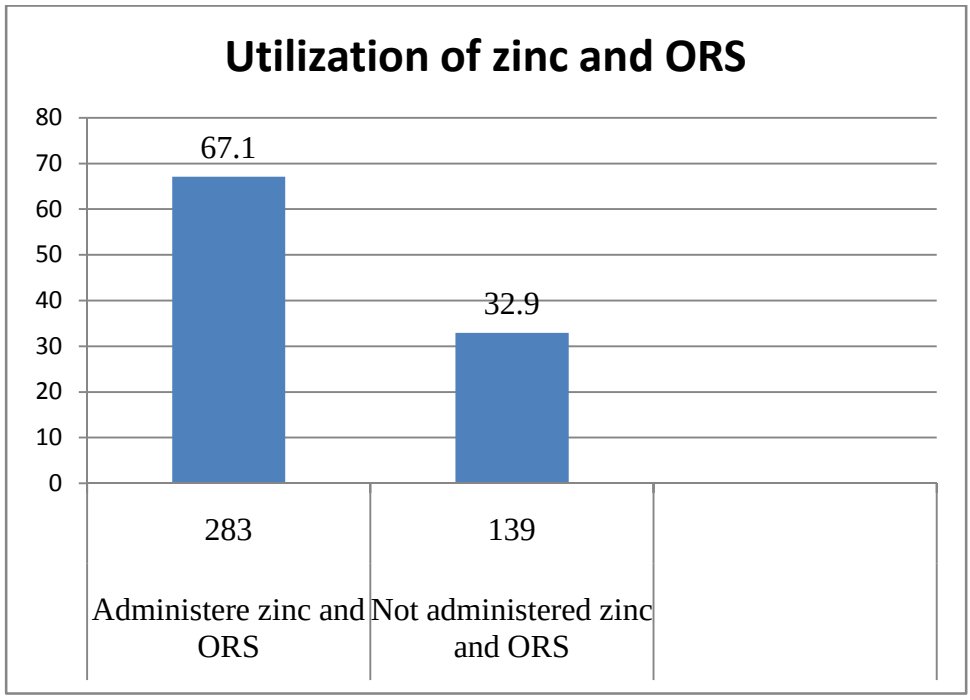
The reasons among the zinc and ORS not users , most caregivers responded that they did not know where to obtain zinc, expensive and unsure about how to administered zinc: 57(41%) ,53(38.1%) and 29(20.9%) respectively.

Almost half 216(76.3%) of the caregivers reported diarrhea stopped after 3 days of taking zinc and 56(19.9) caregivers reported stop diarrhea after 4 days taking zinc. Only 11(3.9%) caregivers said stop diarrhea after 6 days taking zinc. The proportion of caregivers who recommend zinc for watery diarrhea, teething and bloody diarrhea were212(74.9%),34(12%) and 37(13.1%) respectively. Regarding the effect of zinc satisfaction, majority of caregivers 185(65.4%) were reported satisfied on the effect of zinc.

Table :5 Frequency distribution of caregiver zinc utilizatio in Akqkikality sub city, Addis Ababa,2016

Variable	Response	N	%
zinc information	Radio	86	20.4
	Television	214	50.7
	Health care provider	87	20.6
	Health extantion worker	35	8.3
First choice of treatment	Antibiotic	123	29.1
	Anti motility	135	32
	Zinc tab	57	13.5
	Unknown tab/pill	107	25.4
Use zinc and ORS	Yes	283	67.1
	No	139	32.9
Source of zinc	Government hospital	0	0
	Government health center	0	0
	Private pharmacy	262	92.6
	Private clinic	21	7.4
The first interest to get zinc	Government hospital	67	15.9
	Government health center	309	73.2
	Private pharmacy	39	9.2
	Private clinic	7	1.7
Mix zinc tablet	Dilute with water	229	80.9
	Dilute with ORS	54	19.1
Zinc and ORS administered	Until diarrhea stop	81	28.6
	For 7 days	148	52.3
	10 – 14 days	54	19.1
Reason not giving full dose of zinc	Unpleasant taste	13	5.7
	The child not to take	51	22.3
	vomiting	52	22.7

	The diarrhea stop	113	49.3
Reasons not giving zinc to their child	Did not know where to obtain zinc	57	41
	Unsure about how to administer zinc	29	20.9
	Expensive	53	38.1
Duration of diarrhea after taking zinc	Less than 3days	216	76.3
	After 4-6 days	56	19.9
	Above 6 days	11	3.9
Zinc recommended	Watery diarrhea	212	74.9
	Mucous /bloody diarrhea	34	12
	Teething	37	13.1
Zinc satisfaction	Satisfied	185	65.4
	Unsatisfied	98	34.6


Utilization of zinc and ORS
80
70
60
50
40
30
20
10
0
67.1
32.9
283
139
Administere zinc and ORS
Not administered zinc and ORS

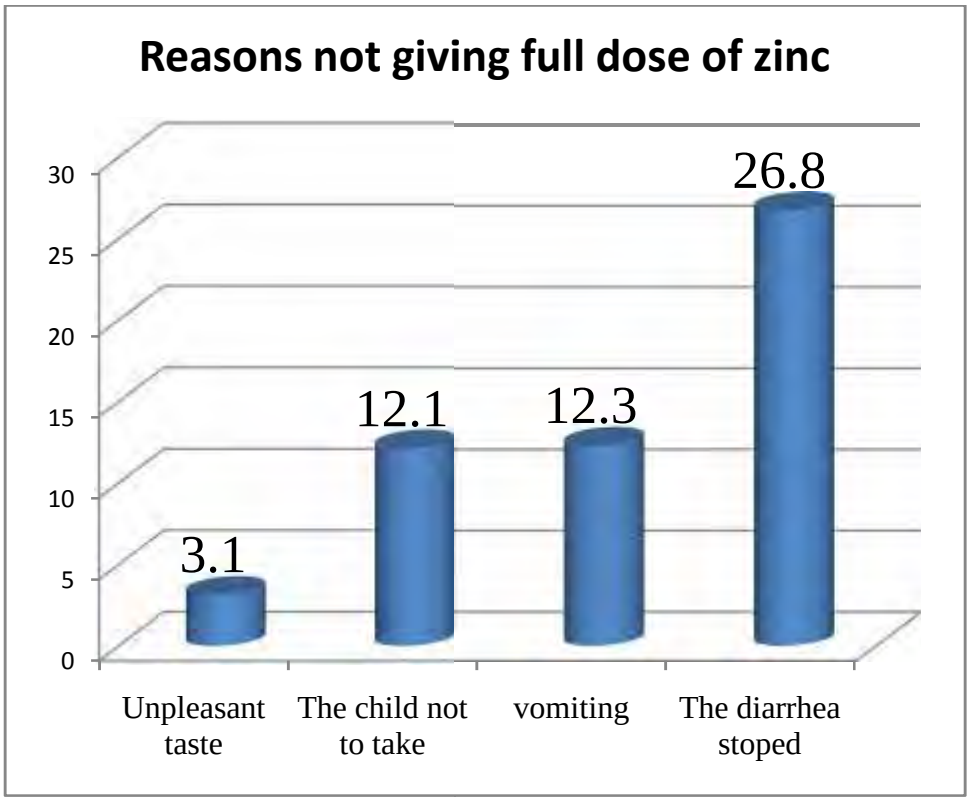


Figure : 5 Bar chart indicating Reasons of caregiver not giving full dose of zinc to the child AkakiKality sub city, Addis Ababa,2016.

Sources and storage of drinking water

Regarding water source,340(80.6%) caregivers were reported from piped into dwelling and 82(19.4%) care givers said from public tap. Majority of 340(80.6%) caregivers were reported the time to go to get water and comeback was less than 15 minutes and 82(19.4%) caregivers responded the time to go to get water and comeback was above 15 minutes. About 405(96%)caregivers did not add anything to water to make safer to drink while 17(4%) caregivers were said add Water guard or chlorine to water to make safer to drink. More than half,257(60.9%)of caregivers had said that drinking water stored in bucket/jerican with cover and 94 (22.3%) care givers were reported drinking water stored in bottle. Some 8(14.9) of care givers were described drinking water stored in pot with cover and 63(9%) drinking water stored in other materials.

Table :6 Frequency distribution of caregiver sources and storage of drinking water among caregivers Akakikality sub city, Addis Ababa,2016

Variable	Response	N	%
Source of drinking water	Pipe into dwelling	340	80.6
	Public tap	82	19.4
Time taken to go to get water and come back	Less than 15 minutes	340	80.6
	Above 15 minutes	82	19.4
Add any thing to water to make safer to drink	Yes	17	4
	No	405	96
Make the water safer to drink	Add bleach chlorine	6	57.9
	Add water guard	11	42.1
Storage of drinking water	Pot with cover	8	1.9
	Bucket/Jerican with cover	257	60.9
	Bottle	94	22.3
	Other	63	14.9

Personal hygiene practices

Regarding the toilet facility, all 422 (100%) caregivers had latrine. Most caregivers responded that they were flushed to piped sewer system, flush to septic thank and flush to pit latrine: 27(6.4%),12(2.8%) and26(6.2%) respectively. Majority of the caregivers 394(93.4%) were said shared toilet facility for less than 10 house holds and 25(6.6%) caregivers were responded shared toilet facility for more than 10 house holds. Only a few caregivers 3(0.7%)were responded did not know whether the toilet facility shared or not. In this study , most caregivers352(83.4%) had reported the feces of the child disposed into latrine and50(11.8%) thrown into garbage. Similarly,11(2.6%) caregivers had responded the child used toilet and 9(2.1%) caregivers said the feces of the child put into the drain or ditch.

Table :7 caregivers personal hygiene in Akqkikality sub city, Addis Ababa,Ethiopia,2016

Variable	Response	N	%
Toilet facility	Flushed to piped sewer system	27	6.4
	Flushed to septic thank	12	2.8
	Flushed to pit latrine	26	6.2
Toilet facility with pit latrine	Ventilated improved pit latrine	226	53.6
	Pit latrine with slab	43	10.2
	Pit latrine with slab / open	88	20.9
Shared toilet facility	Less than 10 house holds	394	93.4
	More than 10 house holds	25	6.6
	Don't know	3	0.7
Washing hands	Before eating	422	100
	Before feeding my child	422	100
	Before breast feeding my baby	388	91.94
	Before cooking	182	43.12
	After visiting toilet	362	85.78
	After caring for child who has defecated	268	63.51
Child defecate	Bare ground at the compound	4	9
	Into chamber pot with out a lid	219	51.9
	Into chamber pot with a lid	199	47.2
Dispose the feces of the child	Child used toilet	11	2.6
	Put (rinsed into toilet or latrine)	352	83.4
	Thrown into garbage	50	11.8
	Put/ rinsed into drain or ditch)	9	2.1
Clean the child after deification	Use tissue paper	55	13
	Use any harmless objects	32	7.6
	Wash anal area with soap and water	335	79.4

Socio demographic characteristics versus zinc administration

There were a significant association between caregiver education and zinc administration days(p= 0.007). Majority of primary level 43(58.9%) and Illiterate 20(58.8%) caregivers were reported zinc was administered for seven days enough to treat diarrhea.

Table 8: Association between socio demographic characteristics of caregivers and days of zinc administration in Akakikality sub city, Addis Ababa , 2016.

		Zinc administration days							
		Until diarrhea stop		For 7 days		10 – 14 days			
		N	%	n	%	n	%	Chi-square	P value
Gender	Male	9	32.1	11	39.3	8	28.6	2.607	0.272
	Female	72	28.2	137	53.7	46	18		
Age of caregiver (in years)	15 - 24	8	9.9	22	14.9	11	20.4	34.932	0.921
	25 - 34	46	56.8	76	51.4	24	44.4		
	35 - 44	27	33.3	50	33.9	19	35.2		
Education	Illiterate	9	26.5	20	58.8	5	14.7	17.650	0.007
	Able to write & read	25	47.2	24	45.3	4	7.5		
	Primary level	18	24.7	43	58.9	12	16.4		
	Secondary & more	29	23.6	61	49.6	33	26.8		
Occupational status	No business	33	28.2	61	52..1	23	19.2	0.048	0.976
	Private business	48	28.9	87	52.4	31	18.7		
	Private employ	28	29.5	47	49.5	20	21.1		
	Government employ	30	31.6	48	50.5	17	17.9		
Religion	Orthodox	40	32.3	57	46	27	21.8	12.783	0.120
	Muslim	14	19.4	46	63.9	12	16.7		
	Catholic	12	26.7	21	46.7	12	26.7		

	Protestant	13	35.1	22	59.5	2	5.4		
	Others	2	40	2	40	1	20		
Marital status	Single	8	25.8	20	464.	3	9.7	2.704	0.259
	Married	73	29	128	80.8	51	20.2		
	Separated	20	74.1	4	14.8	3	11.1		
	Divorce	0	0	0	0	0	0		
Any side income	<500ETB	2	20	5	50	3	30	10 539	0.104
	500-1000 ETB	7	17.5	28	70	5	12.5		
	1001-2000 ETB	35	29.2	66	55	19	15.8		
	>2000	37	32.7	49	43.4	27	23.9		

Table : 9 Bivaraite and multivariate regression analysis results of factors by zinc proper utilization for diarrhea treatment in children, Akakikality sub city, Addis Ababa,2016

Variables		COR[95%CI]	AOR[95%CI]
Gender	Female	Reference	Reference
	Male	0.815[0.392-1.695]	
Education of caregiver	Illiterate	Reference	Reference
	Read and write	1.167[0.608-2.238]	0.242[0.013-4.484]
	Primary	1.588[0.834-3.026]	0.526[0.027-10.390]
	Secondary and more	2.125[1.154-3.913]	0.455[0.023-9.019]
Occupation of care giver	No Business	Reference	Reference
	Private business	1.018[0.676-1.531]	
	Private employ	0.630(0.803-7.504)	
	Government employ	0.720(0.326- 9.530)	
Marital Status of care giver	Single	Reference	
	Married	1.559[0.853-2.847]	
	Separated	3.141(0.620 – 3.291)	

	Divorce	2.720(0.521 – 7.821)	
Household income	<500ETB	Reference	
	500-1000ETB	0.780[0.250-2.429]	
	1001-2000ETB	0.601(0.230-4.217)	
	>2000ETB	0.341(0.352- 41.620	
Reason for not giving full dose of Zinc	Unpleasant test	Reference	Reference
	The child not willing to take	6.429[1.611-25.648]	26.755[2.874-249.069]
	vomiting	3.600[0.991-13.081]	10.794[1.331-87.530]
	The diarrhea stopped	18.514[4.512-75.962]	43.720[5.697-335.496]
For how long caregiver give Zinc Treatment	Until diarrhea stop	Reference	Reference
	For 7 days	0.495[0.218-1.123]	0.689[0.137-3.461]
	10-14 days	0.090[0.025-0.319]	0.069[0.006-0.790]
Source of Zinc product	Private clinic	Reference	Reference
	Private pharmacy	5.258[2.105-13.132]	9.301[1.009-85.709]

Bivariate and Multivariate regression analysis results

Bivariate regression analysis results

Bivariate and multivariate logistic regression analysis was done to identify the factors associated with care givers proper utilization of zinc and ORS to their children. In the bivariate logistic regression analysis, educational status of care giver showed a statistically significant association with zinc provision by care givers. In addition, reasons for not giving full dose of zinc, for how long caregiver give zinc treatment and source of zinc product were found to have a statistically significant association with proper utilization of zinc for children diarrhea treatment. In contrary; gender, occupation, household income and marital status of the care giver were found to have insignificant association with the outcome variable.

Multivariate regression analysis results

Those variables which were statistically significant at bivariate analysis at p value of 0.05 were included in the multivariate logistic regression analysis. In multivariate logistic regression analysis; reasons for not giving full dose of zinc and for how long caregiver give zinc treatment, source of zinc product were found to have a statistically significant association with proper utilization of zinc for diarrhea treatment in children after holding other variables constant.

Pertaining the Knowledge of care givers about Zinc treatment, care givers who said zinc treatment is from 10-14 days were 31% less likely (AOR= 0.069;95%CI:0.006-0.790) to utilize zinc properly for diarrhea treatment as compared to those who said until diarrhea stops and the association was statically significant. On the other hand, the association was insignificant for those who said the treatment is for seven days as compared to the reference category (AOR=0.689; 95%CI: 0.137-3.461).

Regarding Reasons for not giving full dose of Zinc; care givers who said the child not willing to take zinc were 27 times more likely (AOR=26.755;95%CI:2.874-249.069), who said vomiting were 10 times more likely (AOR=10.794;95%CI:1.331-87.530) and who said the diarrhea stopped were 43 times more likely (AOR= 43.720;95%CI:5.697-335.496) for proper utilization of zinc and ORS for diarrhea treatment as compared to the reference category and the association was found statistically significant.

Looking at source of zinc product; care givers who bought from private pharmacy were 9 times more likely (AOR=9.301; 95%CI:1.009-85.709) to properly utilize zinc for diarrhea treatment in children as compared to those who bought zinc from private clinic and the association was statistically significant.

Discussion

In this study 422 caregivers were included and making the response rate 100%. Of the total 422 enrolled caregiver 187(44.3%) had no business and 235(55.7%) caregiver had business. The magnitude of Zinc and ORS administration for diarrheal disease is 283 (67.1%) which is higher than the finding from Nigeria (8.3%) and is similar to Kenya (67%). This may be due to the

information of caregivers about zinc and the sickness of the child (AOR= 5.039; 95%CI: 1.384-18.357) (32,33).

The current study revealed that zinc is not available in government health facility and all zinc user caregiver buy zinc tablet from private clinic and private pharmacy. Private health facilities clearly played a much larger role as sources of zinc. Which is different from the study done in Bangladesh zinc is available in rural place of public health facility (28). 139(32.3%)caregiver were not provide zinc tablet and ORS for their children during diarrhea. Study in Kenya 130(62%) were not give zinc. Among the care givers who had given zinc to their children ,majority of them 44(55.7%) had obtained zinc from a public health facility, 28(35.4%) from a private clinic/pharmacy(10). Study done in Kenya among the 73 zinc-users, 18 (25%) received zinc at home, 48 (66%) obtained zinc at a clinic, 5 (6%) from both clinic and at home, and 2 (3%) from other sources like neighbors(32) **.** This may be due to zinc tablet is available in every parts of the countries.

In this study, among the 283 zinc user caregiver 54(19.1%) provide zinc for 10 – 14 days which is lower than the finding from Kenya (19.7%)(10) . Also this study revealed 28.6% of care giver provide zinc until diarrhea stop which is lower than the finding from Kenya (43.1%)(10). Among the 283 zinc users caregivers 148(52.3%) provide zinc for 7 days which is higher than the finding from Kenya (30.7%). This may be due to the source of information from health professional and it might be due to the current health status of the child after taking zinc tablet and ORS. The health worker working in child OPD and pharmacy may not provide adequate information to caregiver about zinc and because of the improvement of child health after taking zinc tablet the care giver stopped giving all dose to the child.(AOR= 0.069;95%CI:0.006-0.790) (10).

Among the 283 respond ants 212 (74.9%) caregivers of zinc users correctly stated that zinc should be used for watery diarrhea and this is contradict with the study done in Kenya, all 73(100%)caregivers of zinc users correctly stated that zinc is used for watery diarrhea(32).This may be due to the information provided to the care givers by health professionals is not different.

In this study, among 422 enrolled caregivers 135(32%) ranked anti motility first and 123(29.1) ranked antibiotic first which is different than the finding from Bangladesh (55%) (28).

In this study, among all care givers 96.4% gave ORS to their children which is higher than the finding from Kenya (51.76%) and Kashmir (8.7%) (25,27). Regarding the source of ORS,340(90.2%) caregivers were received ORS from public facilities which is larger than the finding from study in Kenya (67%) (38). In this study, 40(9.6%) caregivers were received ORS from private facilities which is less than the finding from India(80%)(38). This showed that the sources of ORS were different in the study areas.

The current study raveled that among the 422 caregivers majority,166(39.3%) of the caregivers were given more fluid to their child which is less than to the finding from Kenya(64.1%).Also the study raveled 152(36%) caregivers were given the same as usual which is larger than the finding from Kenya(10.5%) (10).EDHS,2011, confirm that two children in every five with diarrhoea were treated with some form of ORT or increased fluids, In all health facilities caretakers are encouraged to continue feeding and increase the frequency of fluid intake to reduce dehydration and also minimize the adverse consequences of diarrhoea and child malnutrition(14).Those finding showed that the efforts of health care provider need more and caregivers still not have adequate understanding about the importants of fluid replacement during diarrhea.

Regarding reasons of caregiver not providing full dose of zinc; 113(49%) caregiver were responds until the diarrhea stopped(AOR= 43.720;95%CI:5.697-335.496),51(22.3%) were reported the child not willing to take(AOR=26.755;95%CI:2.874-249.069),52(22%) caregivers said vomiting(AOR=10.794;95%CI:1.331-87.530) and 13(5.7%) caregivers were responded unpleasant taste. The current study raveled that113(49%) caregivers respond the reason for not giving full dose of zinc is diarrhea stopped which is less than to the finding from Kenya(80%)(32). Also this study shows 52(22%) of the caregivers stopped giving zinc because of vomiting which is less than the finding to Kenya(32). This may be due to better health information provided by health care provider to the communities.

The study revealed that reason for the 139(32.3%) zinc and ORS not users;57(41%) caregivers were responded that did not know where to obtained zinc, 53(38.2%) expensive and 29(20.8%) unsure about how to administered zinc. This finding is higher than the study done in Kenya. Thirty-six caretakers did not use zinc when their children had diarrhoea, reporting the following

reasons: 16 (44%) did not know where to obtain zinc from15 (42%) were not prescribed zinc from clinic, 4 (11%) were unsure about how to administer zinc, and 1 (2.8%) did not know about the existence of zinc treatment(32). This may be due to weak social and community mobilization on health in the both countries.

Strength of the study

- Processed high response rate(100%)
- The caregivers address of the father and mothers were listed in especial formats while the child prescribed with zinc and ORS in the health centers before 14 days of the study period.
- Qualified data collectors

Limitation of the study

- Recall bias
- The cross sectional nature of the study only shows the current status of zinc administration for diarrhea.

Conclusions

This study was detected caregivers were not giving full dose of zinc, for how long caregivers give zinc treatment and source of zinc product. In the study area there was low zinc and ORS administration for diarrhea treatments.

Recommendations

Health authority and managers in the study area need to improve the awareness of caregivers in proper utilization of zinc and ORS.

In addition, promoting through community mobilization, posters, leaflets and banners need to be implemented.

Even if the sources of zinc is not statically significant with the out come variable, the current study revealed that zinc is not available in government health facility. Suggesting to avail the tablets by government health facilities in order to minimize diarrhea related mortality.

REFFERENCES

1.Archana Patel ca, Michael J Dibley, Manju Mamtani, Neetu Badhoniya, and Hemant Kulkarni Zinc and copper supplementation in acute diarrhea in children. BMC Med. 2009;7(22).

2.A. Chiabi FM, J. B. Bogne, V. Takou, R. Ndikontar, M. Nankap, et al. Current Approach in the Management of Diarrhea in Children. Clinics in Mother and Child Health [Internet]. 2010; 7:[, 7 pp.].

3.Damte Shimelis DB, Debela Challi Effect of Zinc supplementation in treatment of acute diarrhoea among 2-59 months children treated in Black Lion Hospital, Addis Ababa, Ethiopia. EthiopJHealth Dev. 2008;22(2):187-90.

4.Charles P. Larson SKR, Azharul Islam Khan, Ahmed Shafiqur Rahman, and Firdausi Qadri. Zinc Treatment to Under-five Children: Applications to Improve Child Survival and Reduce Burden of Disease. J Health Popul Nutr. 2008; 26(3):356–65.

5.Haidar J. Common micronutrient deficiencies among food aid beneficiaries:. Ethiop J Health Dev. 2011;25(3):222-9.

6.Tamiso A. Prevalence and determinants of childhood diarrhoea among graduated households, in rural area of Shebedino district, Southern Ethiopia. Science Journal of Public Health. 2014;2(3):243-51.

7.Walker CLF. Zinc for the treatment of diarrhoea: effect on diarrhoea morbidity, mortality and incidence of future episodes. 2010 39(1):63-9.

8.Zulfiqar A Bhutta SMB, Robert E Black,Kenneth H Brown,.Julie Meeks Gardner, Adi Hidayat. Therapeutic effects of oral zinc in acute and persistent diarrhea in children in developing countries. Am J Clin Nutr 2000;72 (6):1516-22

9.Mazumder S. Effectiveness of zinc supplementation plus oral rehydration salts for diarrhoea in infants aged less than 6 months in Haryana state, India. 2010

10.WAMBUI NM. BARRIERS TO APPROPRIATE HOME MANAGEMENT OF ACUTE GASTROENTERITIS BY CAREGIVERS OF CHILDREN UNDER FIVE YEARS: NAIROBI; 2014.

11.AMO KA. ASSESSING MOTHERS' KNOWLEDGE OF PREVENTION OF DIARRHOEAL DISEASES AMONG CHILDREN UNDER FIVE YEARS KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY; 2007.

12.Wanzahun Godana BM. Environmental factors associated with acute diarrhea among children under five years of age in derashe district, Southern Ethiopia. Science Journal of public Healh. 2013;1(3):119-24.

13.Tilahun Belete Mossie DGT, Addisu Workineh Kassa. Childhood diarrheal disease among under five children at Dejen district, Northwest Ethiopia. American Journal of Health Research. 2014; 2(4): 177-81.

14.Agency CS. Ethiopia Demographic and Health Survey. Addis Ababa, Ethiopia: 2011.

15.Khan WU. Zinc supplementation in the management of diarrhea Biological, behavioural and contextual rationale. 2011.

16.Lamberti LM. EVALUATING A CHILDHOOD DIARRHEA MANAGEMENT PROGRAM IN UTTAR PRADESH, GUJARAT AND BIHAR, INDIA. 2014.

17.Adimora G. Home management of childhood diarrhoea. 2011;14 (2): 237-41.

18.Doreen M. Othero ASSO, Ted Groenewegen , Dan O. Kaseje4 and Otengah P.A5. Home Management of Diarrhea among Underfives in a Rural Community in Kenya. East African Journal of Public Heath. 2008; 5(3): 142-6.

19.Ahmed F. Management of Diarrhea in Under-fives at Home and Health Facilities in Kashmir. nt J Health Sci (Qassim). 2009 3(2):171–5.

20.Dessalegn M. Predictors of under-five childhood diarrhea. EthiopJ Health Dev. 2011;25(3):192-200.

21.Mohammed S. The Burden of Diarrheal Diseases among Children under Five Years of Age in Arba Minch District, Southern Ethiopia, and Associated Risk Factors. 2014 2014(2014):2014 Volume ().

22.a CLFWOFMWYREB. Zinc and low osmolarity oral rehydration salts for diarrhoea:a renewed call to action. Bull World Health Organ 2009 87(10):780–6.

23.Health MSf. Strategy to Increase Access to Treatment of Childhood Diarrhea, Malaria and Pneumonia in Ethiopia Management Sciences for Health 2012.

24.Lamberti LM. EVALUATING A CHILDHOOD DIARRHEA MANAGEMENT PROGRAM INUTTAR PRADESH, GUJARAT AND BIHAR, INDIA. 2014.

25.Grace Njeri MM. HOUSEHOLD CHOICE OF DIARRHEA TREATMENTS FOR CHILDREN UNDER THE AGE OF FIVE IN KENYA: EVIDENCE FROM THE KENYA DEMOGRAPHIC AND HEALTH SURVEY 2008-09 European Scientific Journal 2013 9 (6).

26.Anne-Laure Page SH, Francisco J Luquero, Ali Djibo, Mahamane Laouali Manzo and Rebecca F GraisHealth care seeking behavior for diarrhea in children under 5 in rural Niger. BMC Public Health 2011; 11(389).

27.Greg Zwisler ES, and Melissa Moodley. Treatment of diarrhea in young children: results from surveys on the perception and use of oral rehydration solutions, antibiotics, and other therapies in India and Kenya. J Glob Health 2013 3 (1): 010403

28.Fayaz Ahmed AF, Imtiyaz Ali, M Thakur, A Muzaffar,* and M Samina. Management of Diarrhea in Under-fives at Home and Health Facilities in Kashmir Int J Health Sci 2003 34 (1): 171–5.

29.Atul Choube SPB, Anurag Srivastava, Mukesh Sharma. Knowledge and child care practices regarding childhood diarrhoea. Ind J Comm Health. 2014;26(3):285-91.

30.George A. Otieno GMB, Bryan O. Nyawanda, Frances Aboud, Robert F. Breiman, Charles P. Larson, et al. Caretakers' Perception towards Using Zinc to Treat Childhood Diarrhoea in Rural Western Kenya. J Health Popul Nutr 2013 31(3):321–9.

31.WOLDEGEBRILE A. ASSESMENT OF PREVALENCE OF ZINC ADMINSTRATION FOR DIARROHEA DISEASE IN UNDER FIVE CHILDREN AND FACTORS AFFECTING INHEALTH CENTERS OF ADDIS ABABA, ETHIOPIA M.P.H. Thesis. 2015

32.Alex–Hart BANOaBA. Home Management of Diarrhoea by Caregivers Presenting at the Diarrhoea Training Unit of a Tertiary Hospital in Southern Nigeria. British Journal of Medicine & Medical Research. 2014;4(35): 5524-40.

33.PETER J. WINCH KEG, SEYDOU DOUMBIA, AMY E. PATTERSON, ZANA DAOU, SEYON COULIBALY, ERIC SWEDBERG, ROBERT E. BLACK, AND OLIVIER FONTAINE. SHORT REPORT: PRESCRIPTION AND ADMINISTRATION OF A 14-DAY REGIMEN OF ZINC TREATMENT FOR CHILDHOOD DIARRHEA IN MALI. Am J Trop Med Hyg. 2006; 74(5):880–3.

34.Carter E. Harmful practices in the management of childhood diarrhea in low- and middle-income countries. 2015; 15: 788.

35.Zwisler G. Treatment of diarrhea in young children. J Glob Health. 2013 3(1).

36.Gupta A. Risk Correlates of Diarrhea in Children Under 5 Years of Age in Slums of Bankura, West Bengal. 2015 7(1):23–9.

37.Bureau AAcH. 3rd Quarter child OPD diareal HMIS report. Addis Ababa city 2015.

Annex **I : Information sheet**

This sheet is to be read for the participants of the study.

Good morning/ Good afternoon, my name is --------- and I am one of the data collectors for the study being conducted by Addis Ababa University, College of Health Sciences, School of Public Health to assess utilization of zinc and ORS among children under 5 years. in Akaki Kality sub-city woreda.You are selected scientifically to be participant in this study if you give me consent after you have understood the following information sheet:

Title of the study: Community based cross-sectional study to assess utilization of zinc and ORS among children under 5 years old with diarrhea in Akaki Kality sub-city woreda

Back ground of the study: According to the World Health Organization, an estimated 2.5 billion cases of diarrhea occur among children under 59 months of age each year. More than half

of the cases occur in Africa and South-East Asia and diarrhea causes an estimated 2.5 million child deaths in developing countries each year. In Ethiopia, diarrhea is the major killer of children and thus is a serious public health problem. Zinc supplementation during diarrhea can reduce the severity and duration of the episode.

Objective of the study: Assessment of utilization of zinc tablet and ORS among under 5 children with acute diarrhea in Akaki Kality sub-city woreda.

Benefit of the study: -the participant will teach the important of using ORS and zinc tablet.

- The result of his study will be used as the base line for other studies related to Zinc and ORS utilization.
- The result of the study will be used to determine the existing utilization of zinc as a treatment of childhood diarrhea
- The result will be used the policy makers and managers to design strategy; guideline and policy in the prevention and control of diarrhea.

Harm of the study: the study has no any harm except that participant will spend up to 20 minutes in the interview.

Rights of the participant: -participation has full right

- Not participant
- The participant can stop participating in the study at any time
- The participant can skip question which S/he does not want to respond
- During the interview, the participant can ask questions which are not clear

Confidentiality: - the secrecy of any information forwarded will be maintained

Persons to contact:

This research project will be reviewed and approved by the institutional review board of Addis Ababa University. If you want to know more information you can contact the Committee through the address below. If you have any question you may contact the following individuals.

Investigator:

Solomon Hassen: Addis Ababa University, College of Health Sciences, School of Public Health, Department of Nutrition Master of public health**,** Tel -0911-90-46-06**,** P.O.BOX 1234**,** Email: - shst2004@gmail.com

Advisors: Dr. Jemal Haidar (Associate Professor): Addis Ababa University, College of Health Sciences, School of Public Health .

Annex II: Consent form

I --------have well understood the study information sheet read above.

And now I am in a position -------- to participate in the study by giving information.

To be voluntary sign below and conduct interview

Not to be voluntary---------- go to the next care giver

Signature of the interviewer ----------

(Signature of the interviewer certifies that informed consent has been given verbally by the respondent)

Questionnaire identification number _____

Name of the Interviewer _____ Signature _____date _____

Name of the supervisor _____ Signature _____ date _____

Address of the investigator:

Mob = 0911-90-46-06

Email = shst2004@gmail.come

For further question/ information use the address of the IRB School of public health:

Addis Ababa University, School of public health

Phone number=

Email=

Annex III: Amharic consent form

የፍቃድ መጠየቂያ ቅፅ

እኔ---------- የጥናቱ መግለጫ ተነቦልኝ/አንብቤና ተገንዝቤ

የጥናቱ ተሳታፊ ለመሆን ፍቃደኛ ሁኛለሁ፡፡

ለፍቃደኝነት ማረጋገጫ በማስፈረም ጥናቱን ማካሄድ፡

ፍቃደኛ አልሆንኩም -------- ወደ ምትቀጥለው/ሚቀጥለው ሕጻን ተንከባካቢ እለፍ፡፡

(የመረጃ ሰብሳቢው ፊርማ መኖር ግለሰቡ የጥናቱ ተሳታፊ ለመሆን ፍቃደኛ መሆኑን ያመለክታል)

የመጠይቅ መለያ ቁጥር ----------

የመረጃ ሰብሳቢው ስም----------ፊርማ----------ቀን----------

የተቆጣጣሪው ስም----------ፊርማ----------ቀን----------

<u>የተመራማሪው አድራሻ</u>

ሞባይል፡- 0911-90-46-06

ኢሜል፡- shst2004@gmail.come

ለበለጠ መረጃ የሚከተለውን የተቋሙን ገምጋሚ ቦርድ አድራሻ ይጠይቁ

አዲስ አበባ ኒቨርሲቲ የማህበረሰብ ጤና ትምህርት ቤት

ስል፡-

ኢሜል፡-

Annex IV: Amharic information sheet

ለሚጠናዉ ጥናት ማብራሪያ መስጫ ቅፅ

መግቢያ ፤ ይህ የመረጃ ቅፅ የሚዘጋጀዉ ለሚጠናዉ ጥናት አስፈላጊ ማብራሪያ ለመስጠት ነዉ፡፡ የጥናቱ ዋና አላማ ምርምሩ በሚካሄድበት በአዲስ አበባ ጤና ቢሮ ስር ከሚገኙ መንግስታዊ ጤና ጣቢያዎች ዕድሜአቸው ከ 5 ዓመት በታች የሆኑ ሕጻናት ለተቅማጥ በሽታ ማከሚያ የተሰጣቸው ዚንክ እና ኦ አር ኤስ መበኖሪያቤታቸው ያላቸውን አጠቃቀም ምን እንደሚመስል ለማወቅ እና ለታዩት እግሮችም በቀጣይ መፍትሄ ለማመላከት የሚያስችል ነባራዊ ሁኔታ ለማጥናት ነው፡፡

የጥናቱ ቡድን የሚያካትተዉ በስነ-ምግብ የሁለተኛ ዲግሪ ተመራቂ ተማሪ እና ከአዲስ አበባ ዩኒቨርሲቲ ልምድ ያላቸዉ የህብረተሰብ ጤና አጠባበቅ እና ስነ ምግብ ባለሙያ በአማካሪነት ነዉ፡፡

የጥናቱ ዋና ተመራማሪ፤ አቶ ሰለሞን ሐሰን

የጥናቱ አማካሪ፤ ዶ/ር ጀማል **ሀይደር** (ተባባሪ ፕሮፌሰር)

ለጥናቱ የገንዘብ ድጋፍ የሚያደርገዉ አካል፤አዲስ አበባ ዩኒበርሲቲ ተመራማሪዉ ትምህርቱን የተከታተለበት ዩኒበርሲቲ፤አዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ፣የህብረተሰብ ጤና አጠባበቅ ስልጠና ተቋም፡፡

ይህን የመረጃ ቅፅ ያዘጋጀዉ ከላይ ስሙ የተጠቀሰዉ ተማራማሪ ሲሆን የጥናቱ ዋና አላማ ምርምሩ በሚካሄድበት በአዲስ አበባ ጤና ቢሮ ስር ከሚገኙ መንግስታዊ ጤና ጣቢያዎች ዕድሜአቸው ከ 5 ዓመት የሆኑ ሕጻናት ለተቅማጥ በሽታ ማከሚያ የተሰጣቸው ዚንክ እና ኦ አር ኤስ በመኖሪያ ቤታቸው ያላቸውን አጠቃቀም ምን እንደሚመስል ለማወቅ እና ለታዩት ችግሮችም በቀጣይ መፍትሄ ለማመላከት የሚያስችል ነባራዊ ሁኔታ ለማጥናት ነው፡፡

የጥናቱ ተመራማሪዎች የማህበረሰብ ጤና የሁለተኛ ዲግሪ ተመራቂ ተማሪ እና አንድ የአዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና አጠባበቅ ከፍተኛ ልምድ ያላቸዉ ባለሙያ ናቸዉ፡፡

የጥናቱ ዓላማ:

የጥናቱ ዋና አላማም ምርምሩ በሚካሄድበት በአዲስ አበባ ጤና ቢሮ ስር ከሚገኙ መንግስታዊ ጤና ጣቢያዎች ዕድሜአቸው ከ 5 ዓመት በታች የሆኑ ሕጻናት ለተቅማጥ በሽታ ማከሚያ የተሰጣቸውን ዚንክ እና ኦ አር ኤስ በመኖሪያ ቤታቸው ያላቸውን አጠቃቀም ምን እንደሚመስል ለማወቅ እና ለታዩት ችግሮችም በቀጣይ መፍትሄ ለማመላከት የሚያስችል ነባራዊ ሁኔታ ለማጥናት ነው፡፡

ጥናቱ በዋናነት ማጥናት የተቀረጸው በተቅማጥ በሽታ የታመሙትን ሕጻናት በዚንክና በኦ አር ኤስ አክሞ ለማዳን በሚደረገው ጥረት ላይ በሕጻናት ተንከባካቢዎች፤በሕክምና አገልግሎት ሰጭዎች አሰተምህሮት እና አቅርቦት ያሉትን ችግሮች በመለየት ከሚመለከታቸው የጤና አመራሮች እነ በፕሮግራሙ ላይ ከሚሰሩ ባለድርሻ አካላት ጋር በመሆን ችግር ፈቺ የሆነ መርሐ ግብር በመቅርጽ ለተፈጻሚነቱ አስፈላጊው ጥረት እንዲያደርጉ ለማመላከት ነው፡፡

ከጥናቱ የሚገኘው ውጤት ጥናቱ ለተካሄደበት አዲስ አበባ ክልል ጤና ቢሮ ፤ከፍለ ከተማ ጤና መምሪያ እና ጤና ጣቢያዎች በማድረስ ለችግሩ መፍትሄ የሚሆን የትግበራ ዕቅድ እንዲያቅዱ በማድረግ ሙያዊ አስተያየት በመስጠት በዚንክ እነ በኦ አር ኤስ አጠቃቀም ጉድለት ምክንያት ሊደርስ ያለውን የሕጻናት ሕመም እና ሞት ለመግታት እንዲያግዝ ድጋፍ ለማድረግ ነው፡፡

በጥናቱ መሳተፍ ስለሚያስገኘዉ ጠቀሜታ

በጥናቱ እርሰዎ በመሳተፉ አሁን የሚገኝ/የሚሰጥ ጥቅም እንደሌለ ልግልፅለዎት እወዳለሁ ነገር ግን ይህ ጥናት ተጠንቶ ካለቀ በኋላ የተገኘዉን መረጃ መሰረት አድርጎ የሚመለከታቸዉ አካለት እንዲያዉቁት በማድረግ አስፈላጊ የሆነ ችግሩን የሚፈታ የእቅድ እና የአተገባበር እስትራቴጂ ዝግጅት እንዲደረግ ሙያዊ ድጋፍ ለማድረግ ዝግጁ መሆናችን እንገልፃለን፡፡ በእቅዱ መሰረት እንዲተገበር በማድረግም በዚንክ እነ በኦ አር ኤስ አጠቃቀም ጉድለት ምክንያት ሊደርስ ያለውን የሕጻናት ሕመም እና ሞት ለመግታት እንዲያግዝ ድጋፍ ለማድረግ ነው፡፡

በጥናቱ መሳተፍ ሊፈጥረዉ የሚችለዉ ተፅኖ/ምቾት ስለመኖሩ

በጥናቱ እርሰዎ በመሳተፈዎ/ፉ ምንም ዓይነት ችግር እንደማያመጣ ለመጠቀስ እወዳለሁ፣ ምን አልባት የማቀርብልዎትን ጥያቄዎች ለመመለስ የተወሰነ ሰዓት ልወስድብዎች እችላለሁ፤ በጥያቄዎቹ የሚሰጡኝን ማንኛዉንም ዓይነት መረጃ ለማንም የማይደርስ መሆኑን እና ሚስጥራዊነቱ የተጠበቀ መሆኑን ልገልፅልዎት እወዳለሁ፡፡

ማንኛዉን ዓይነት ጥያቄ በፈለጉ ጊዜ ለመጠየቅ እንዲያግዘዎት የሚረዳ አድራሻ፤

ይህ ጥናት ሳይናሳዊነቱ እና ለህብረተሰቡ የሚጠቅም መሆኑን በአዲስ አበባ ዩኒቨርሲቲ የሚገኝ የጥናት እና ምርምር ደህንነት ፈቃድ ሰጪ ኮሚቴ የሚታይ እና የሚፀድቅ መሆኑን በመግለፅ ማንኛዉንም አይነት ጥያቄ ለኮሚቴዉ ማቅረብ ከፈለጉ ከዚህ በታች በተጠቀሱት አድራሻዎች መጠቀም የሚችሉ መሆኑን እንገልፃለን፡፡

የጥናቱ ተመራማሪ

አቶ ሰለሞን ሐሰን: አዲስ አበባ ዩኒበርሲቲ ጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና አጠባበቅ ትምህርት ተቋም የማህበረሰብ ጤና ትምህርት ክፍል ስልክ - 0911-90-46-06, የፖስታ ሳጥን ቁጥር 1234, ኢሜል አድሬስ: -

የጥናቱ አማካሪ: ዶ/ር ጀማል ሀይደር (ተባባሪ ፕሮፌሰር): አዲስ አበባ ዩኒበርሲቲ ጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና አጠባበቅ ትምህርት

Annex V . Interview questionnaire

Interview Questionnaire:- Questionnaire for collecting data on utilization of zinc tablets and ORS from the caregiver.

Identification /Information shet

INTERVIEWER VISITS

	1	2	3	Final result
Date Interviewers Name Result*	_____ _____ _____	_____ _____ _____	_____ _____ _____	Day _____ Month_____ Year _____ Int. number ----- Result _____
	_____	_____		Total number of visits

Next visit: Date Time	_____	_____		_____

RESULT CODES:

1 Completed 4 Refused 7 Other _____

2 Not at home 5 Partly completed (specify)

3 Postponed 6 Incapacitated

Non response rate _____

001. ID number of Questionnaire _____

002. Woreda _____

003. Village _____

Section I: Questionnaire for caregiver on Socio-demographic factors			
S.No.	**Questions**	CODING CATEGORIES	SKIP
1.1	What is your age? (age in completed years) (Fill in the space provided)	Years ---------- 1	
1.2	Residency **(circle your choice)**	Rural _____ 1 Urban _____ 2	

1.3	What is the gender of care giver?	Male _____1 Female _____ 2	
1.4	What is your Education	Illiterate _____ 1 Able to write and read_____ 2 Primary level _____3 Secondary level _____4 More than secondary_____5	
1.5	What is your occupation?	No business _____ 1 Government employ_____ 2 Private business _____ 3 Private employ _____ 4	
1.6	What is your Ethnicity ?	_____	
1.7	What is your religion ?	"Orthodox _____ 1 Muslim _____ 2 Catholic _____ 3 Protestant _____ 4 Other _____ 5	
1.8	What is your marital status?	Single/Never married_____ 1 Married _____2 Divorced/separated _____3 Widowed _____4	

1.9	What is your source of income	_____	
1.10	How much is your monthly income /Including any side income (in Ethiopian birr)?	_____	
1.11	How many children do you have?	_____	
1.12	What is the child's age? (In Months)	_____	
1.13	What is the gender of the child?	Male _____ 1 Female _____ 2	

Section 2.0: Questionnaire for caregiver on ORS utilization and Fluid intake			
2.1	How many episodes of diarrhoea has the child had for the last three months ?	_____	

2.2	How many days has the child had diarrhea ? (The most resent diarrhea)	_____	
2.3	Did you hear about ORS ?	YES_____1 NO _____2	→ 2.4
2.4	Where did you hear about ORS ?	Radio _____ 1 Television _____ 2 Health care provider ____ 3 Health Extension worker__4 Friend _____5 Neighbors_____ 6	

2.5	Where did you seek advice or treatment ?	**Public sector** GOVT. hospital _____ 1 GOVT. health center _____2 GOVT. health station/clinic _____3 GOVT. health post/HEW _____ 4 Other public _____5 (specify) **NGO** Health facility _____1 VCHW _____ 2 **Private MED. sector** Private hospital _____1 Private clinic_____2 Pharmacy _____3 Other private MED_____4 **Other source** Other drug vender/store _____1 Other shop _____2 Other traditional healer _____3 Other _____4	
2.6	Where did you first seek advice or treatment ? **Use letter code from** 2,4.	_____	
2.7	Did you give ORS solution to your child	Yes ---------- 1 No ----------2	

2.8	How much government Recommended Home Fluid(RHF) have you been giving the child since diarrhoea started? (The most resent diarrhea) ?	More _____ 1 Same as usual _____ 2 Somewhat less _____ 3 Much less _____ 4 Other _____ 5 Noting to drink _____ 6	
2.9	Which treatment did you first chose for treating your baby for diarrhea?	Antibiotic _____ 1 Anti motility _____ 2 ORS_____ 3 Herbal medication _____ 4 Don't know _____ 5	
2.10	How much ORS have you been giving the child since diarrhoea started? (The most resent diarrhea)	More than usual amount_____ 1 Same as usual amount _____2 Much less _____ 3 Other _____4 Noting to drink _____ 5 Don't know _____6	
2.11	What is ORS solution used for?	Replacement of fluid lost during diarrhoea _____ 1 Stopping diarrhea _____ 2 Other _____ 3 Don't know _____ 4	

2.12	How long do you keep the prepared ORS?	"Until it is finished _____ 1 Six hours _____ 2 Twelve hours _____ 3 Twenty four hours _____4 Other _____5 Don't know" _____6	

Section 3.0: Questionnaire for caregiver on Feeding practices			
3.1.	Do you breastfeed your child?	a) Yes b) No	→ 3.3
3.2.	If yes, how have you been breastfeeding the child since the time diarrhoea started?	"More _____ 1 Same as usual _____ 2 Somewhat less _____ 3 Much less _____ 4 Noting to feed _____ 5 Don't know/ missing" _____ 6	
3.3.	How much food have you been giving the child since the time diarrhoea started?	"More _____ 1 Same as usual _____ 2 Somewhat less _____ 3 Much less _____ 4 Never gave food _____5 Don't know/ missing"_____6	
3.4	Did you withheld food or fluid?	Yes _____1 No _____2	→ 4.1
3.5	Which food or drink withheld ?	"Cereal gruel (in Amharic Muke) __1	

		Cows milk _____ 2 Any soups _____3 Clean and safe water _____4 Other _____5	
3.6	Why you withhold the above foods or fluids?	"Believed that such foods or fluids aggravate diarrhea _____1 Smell _____2 Other _____3 Don't know/ missing" _____4	

Section 4.0: Questionnaire for caregiver on Utilization of zinc tablet			
4.1.	Have you ever heard about zinc ?	Yes _____ 1 No _____ 2	→ 4.3
4.2.	where did you hear about zinc ?	"Radio _____ 1 Television _____ 2 Health care provider ____ 3 Health Extension worker__4 Friend _____5 Neighbors"_____ 6	
4.3	What was given to treat the diarrhea?	**Pill or syrup** Antibiotic _____ 1 Anti- motility _____ 2 Zinc tab_____3 Other (Not Antibiotic ,anti-motility or, zinc.) _____ 4 Unknown pill or syrup____ 5	

		Injection' Antibiotic injection _____ 1 Non antibiotic injection _____ 2 Unknown antibiotic injection _____3 Intravenous _____-4	
4.4	Have you given your child zinc product and ORS since diarrhoea started?	Yes _____ 1 No _____ 2	→4.9
4.5	where did you obtain the zinc product?	**Public sector** GOVT. hospital _____ 1 GOVT. health center _____2 GOVT. health station/clinic _____3 GOVT. health post/HEW _____ 4 Other public _____5 **NGO** Health facility _____ 1 VCHW _____2 **Private MED. sector** Private hospital _____1 Private clinic _____2 Pharmacy _____3 Other private MED_____4 **Other source**	

		Other drug vender/store _____ 1 Other shop _____2 Other traditional healer _____3 Others _____4	
4.6	Where did you first seek advice or zinc treatment? **Use letter code from** 2,4.	_____	
4.7	Do you give ORS solution along with zinc product?	Yes _____1 No _____2 Don't know _____3	→4.9 4.9
4.8	How do you mix zinc tablet?	"Dilute with water_____ 1 Dilute with ORS_____ 2 Mix with breast milk_____ 3 Others _____4	
4.9	For how many days did you give zinc to a child with diarrhoea?	Until diarrhoea stop _____ 1 For 7 days _____2 10-14 days _____3 Other _____4 Don't know _____5	
4.10	What was the reason not giving full dose of zinc to your child at home?	" unpleasant taste _____1 The child not to take _____2 Vomiting _____ 3 The diarrhea stopped _____ 4 Don't know "_____5	→ 4.12
4.11	What was the reason for care taker did not used zinc when	Did not know where to obtain zinc_____1 Where not prescribed zinc from clinic___2	

	their children had diarrhea?	Unsure about how to administer zinc_____3 Expensive _____4 Other _____5	
4.12	When was the diarrhea stopped after the caretaker used zinc for their children ?	_____	
4.13	For which condition the caretakers would recommend zinc for their children? (For zinc users caretakers)	Watery diarrhea _____1 Mucous/bloody diarrhea _____2 Fever _____ 3 Cough _____ 4 Teething _____ 5	
4.14	**What was the satisfaction of** caretakers who gave zinc to their children?	Zinc tastes better than other medicines __1 The taste of zinc is similar to other medicines. _____2 The taste of zinc is worse than other medicines. _____3 I am satisfied with the zinc treatment____4 Other _____ 5 Don't know _____ 6	

Section 5.0: Questionnaire for caregiver on sources and storage of drinking water			
5.1.	What is the main source of drinking water for members of your household?	**Piped water** Piped into dwelling_____ 1 Public Tap/Standpipe _____ 2	 5.5

		Piped to Yard/Plot _____ 3	
5.2	What is the main source of water used by your household for other purposes such as cooking and handwashing?	**Piped water** Piped into dwelling _____ 1 Public Tap /Stand pipe _____ 2 Piped to yard/Plot _____ 3	→ 5.5
5.3	Where is that water source located?	In own dwelling _____ 1 Elsewhere _____ 2	→ 5.5
5.4	How long does it take to go there, get water, and come back?	Less than 15minutes _____1 Above 15 minutes _____ 2 Don't know _____ 3	
5.5	Do you do anything to the water to make it safer to drink?	Yes _____ 1 No _____ 2 Don't know _____ 3	→ 5.7
5.6	What do you usually do to make the water safer to drink?	Add bleach chlorine _____ 1 Add Water guard/ Bishan Gari/ Aqua tabs--2 Noting is added to make the water safe ____ 3 Other_____4	
5.7.	How do you store drinking water in your house?	Pot with cover _____1 Bucket / Jerikan with cover _____2 Bottles and put them in refrigerator _____3 Other (specify) _____4	

Section 6.0: Questionnaire for caregiver on personal hygiene practices			
6.1	Do you have latrine	**Yes---------- 1** No ---------- 2	→ 6.5
6.2	What kind of toilet facility do members of your household usually use? If the respondent does not understand which type of toilet they have, ask to observe the toilet facility and circle the appropriate code.	**Flush or pour flush toilet** Flush to piped sewer system _____ 1 Flush to septic tank _____2 Flush to pit latrine _____3 Flush to somewhere else _____4 Flush, don't know where _____5 **Pit latrine** Ventilated Improved Pit Latrine (VIP) ___1 Pit Latrine with slab _____2 Pit latrine with slab / Open _____3 Other _____4	
6.3	Do you share this toilet facility with other households?	Yes_____ 1 No _____ 2	→ 6.5
6.4	How many households use this toilet facility?	Less than 10 house holds _____1 10 and above house holds _____2 Don't know _____3	
6.5	When do you wash your	Before eating _____1	

	hands? (tick as many as possible)	Before feeding my child _____2 Before breastfeeding my baby_____3 Before cooking _____4 After visiting toilet _____5 After caring for a child who has defecated __6	
6.6	Where do/does your child/children defecate?	Bare ground at the compound _____ 1 Into chamber pot without a lid _____ 2 Into chamber pot with a lid _____ 3 Into a washing basin _____ 4	
6.7	How do you dispose the faeces of your child/children?	Child used toilet _____1 Put/ rinsed into toilet or latrine. _____2 Buried _____3 Thrown into garbage _____4 Put/ rinsed into drain or ditch _____5 Left in the open _____6 Other _____7	
6.8	How do you clean child/children who has/have defecated?	Use tissue paper _____1 Use any harmless object _____2 Use tissue paper and wash anal area with soap and water _____3 Wash anal area and use mother's cloth to dry -----4	

_____The End of the Question _____

I thank you very much on behalf of Addis Ababa University for your time and cooperation

.

Annex VI : Amharic questionnary / የአማርኛ ጥያቄዎች

ለሕጻናት ተንከባካቢዎች ስለ ኦ አረ ኤስ እና የዚንክ ኪኒን አጠቃቀማቸውን ለማወቅ የተዘጋጁ ጥያቄዎች

የቃለ መጠይቅ ጥያቄ

በጠያቂው የሚሞላ

	1	2	3	የመጨረሻ ውጤት
ቀን የጠያቂው ስም ውጤት*	_____ _____ _____	_____ _____ _____	_____ _____ _____	ቀን _____ ወር_____ ዓመት _____ የጠያቂው ቁጥር ----- ውጤት _____
ቀጣይ ጉብኝት: ቀን ጊዜ	_____ _____	_____ _____		በጠቅላላ የተጎበኙ ብዛት _____

የውጤት መለያ:

1 የተጠናቀቀ 4 ፍቃደኛ ያለመሆን 7 ሌላ _____

2 በቤት የሉም 5 በከፊል የተጠናቀቀ (ይገለፅ)

3 ለሚቀጥለው ተላልፏል 6 መመለስ ያልቻለ/ ለች (Incapacitated)

001. የጥያቄው መለያ ቁጥር _____

002. ወርዳ _____

003. መንደር / ጎጥ _____

ክፍል 1 ፡ 0 በማህበራዊ ስነ ሕዝብ ለሕጻናት ተንከባካቢዎች የተዘጋጀ ጥያቄ			
ነ.ነ	ዕድሜዎ ስንት ነው?(በዓመት) (በባዶ ቦታ ፃፍ)	---------- ዓመት	
ነ.2	መኖሪያዎ (መልሱን ክበብ)	ገጠር _____ 1 ከተማ_____ 2	
1.3	የሕፃናት ተንከባካቢ ፆታ	ወንድ _____1 ሴት_____ 2	
1.4	የትምህርት ደረጃዎ ስንት ነው ?	ያልተማረ ----------1 ማንበብ መፃፍ የሚችል/የምትችል ------- 2 የመጀመሪያ ደረጃ ----------3 ዝቅተኛ ሁለተኛ ደረጃ ----------4 ከፍተኛ ሁለተኛ ደረጃ ----------5	
1.5	ሥራዎ ምንድነ ነው?	ሥራ የሌለው ----------1 የመንግስት ሰራተኛ ----------2 የግል ነጋድ ----------3 የግለሰብ ተቀጣሪ ----------4	
1.6	ብሔረሰብዎ ምንድነ ነው?	----------	
1.7	ሐይማኖትዎ ምንድነ ነው?	ኦርቶዶክስ ----------1 እስላም ----------2 ፕሮቲስታንት ----------3 ካቶሊክ ----------4 ሌላ ካለ ይጠቀስ ----------5	
1.8	የጋብቻ ሁኔታ ?	ያላገባ ----------1 ያገባ ----------2 ፍች ----------3 በሞት የተለየ/ች ----------4	
1.9	የገቢ ምንጫችሁ ምንድነው ?	----------	
1.	የወር ገቢአችሁ ሁሉንም ዓይነት ገቢ	----------	

10	አካቶ በኢትዮጵያ ብር ስንት ነው?		
1.11	ስንት ልጆች አለሽ/ አለህ ?	----------	
1.12	የሕጻኑ ዕድሜ ስንት ወር ነው?	---------- -	
1.13	የሕጻኑ ፆታ ምንድ ነው?	ወንድ ---------- 1 ሴት ----------2	

ክፍል 2፡ 0 የሕጻናት ተንከባካቢዎች ለሕጻናት በተቅማጥ በሽታ ወቅት ፈሳሽ መስጠታቸውን የተመለከቱ ጥያቄዎች			
2.1	ባለፈው ሶስት ወር ሕጻኑ/ኗ ስንት ጊዜ በተቅማጥ በሽታ ታመመ?	----------	
2,2	ለስንት ቀናት ሕጻኑ/ኗ ተቅማጥ በሽታ ነበራት/ረው?	---------- ---------	
2.3	ስለ ኦ አር ኤስ ሰምተው ያውቃሉ?	አዎ ----------1 አይ ---------- 2 ⟶ 2.5	
2.4	የት ነው ስለ ኦ አር ኤስ የሰሙት?	በሬድዮ ----------1 በቴሌቪዥን ----------2 በጤና ሙያተኞች ----------3 በጤና ኤክስቴንሽን ሰራተኛ ---------- 4 በጓደኛ ----------5 በነረቤት ----------6	
2.5	ልጆ በተቅማጥ በሽታ በታመምበት ወቅትከሚከተሉት ውስጥ ከየትኛው ነበር መድሐኒት/ ኦ አር ኤስ ለማግኘት የፈለጉት ?	**ከሕዝብ ተቋም** የመንግስት ሆስፒታል ---------- 1 የመንግስት ጤና ጣቢያ ----------2 የመንግስት ክሊኒክ ----------3 የጤና ኬላ(የጤና ኤክስቴንሽን ሰራተኛ) –4 ሌሎች የመንግስት ተቋም ---------- 5 **መንግስታዊ ያልሆኑ ድርጅት**	

		የጤና ተቋም ---------- 1 የበጎ ፍቃደኛ ጤና ሰራተኞች -------- 2 **የግል ጤና ተቋማት** የግል ሆስፒታል ---------- 1 የግል ክሊኒክ ---------- 2 መድሐኒት ቤት ---------- 3 ሌሎች የግል ጤና ተቋማት ---------- 4 **ሌሎች** ሌሎች መድሐኒት መሸጫ/ መከማች ------1 ሌሎች ሱቅ ----------2 የባሕል መድሐኒት ቤት ----------3 ሌሎች ይግለፁ ----------4	
2.6	ከተራ ቁጥር 2.4 ከተጠቀሱት ዝርዝር ውስጥ የመጀመሪያ ምርጫዎ ከየትኛው ነው መድሐኒት /ምክር ማግኘት የሚፈልጉት ?	----------	
2.7	አ አር ኤስ ለሕፃኑ ሰጥተውታል?	አዎ----------1 አይ ----------2	
2.8	በቅርቡ ለሕጻኑ የተቅማጥ በሽታ ባመመው ወቅት መንግስት የፈቀደው በቤት ውስጥ የሚዘጋጁ ፈሳሾች እንዴት ነበር የሚሰጡት /ጧት?	ከበፊቱ መጠን የበለጠ ----------1 ልክ እንደ በፊቱ ----------2 ከበፊቱ መጠን በታች ---------- 3 ከበፊቱ መጠን በጣም ያነሰ ----------4 ሌላ ---------- 5 ምንም ፈሳሽ አልሰጠኋትም/ ሁትም ----6	
2.9	በመጀመሪያ ደረጃ የትኛውን መድኃኒት ዓይነት ልጆ በተቅማጥ በታመመ ወቅት የሚምረጡት?	አንቲ ባዮቲክ ----------1 የቁርጠት መድኃኒት ----------2 አ አር ኤስ ----------3 የባህል መድኃኒት ----------4 አላውቅም ----------5	
2.10	ሕጻኑ በተቅማጥ በሽታ በታመመችበት /በት ወቅት እንዴት ነበር አ አር ኤስ	ከበፊቱ መጠን የበለጠ ----------1	

	የምትሰጪው/የምትሰጠው?	ልክ እንደ በፊቱ ----------2 ከበፊቱ መጠን በታች ---------- 3 ሌላ ----------4 ምንም ፈሳሽ አልሰጠኋትም/ ሁትም ----5 አላውቅም ---------- 6	
2.11	ኦአር ኤስ ለምንድን ነው የሚጠቅመው?	በተቅማጥ የወጣውን ፈሳሽ ለመተካት ----1 ተቅማጡን ለማስቆም ---------- 2 ሌላ ካለ ይጥቀሱ---------- 3 አላውቀውም ---------- 4	
2.12	የተዘጋጀው ኦ አረ ኤስ ለምን ያክል ጊዜ ያቆዩታል ?	እስከጨረሰችው/ሰው ጊዜ ያክል ------1 ለስድስት ሰዓት ----------2 ለ12 ሰዓት ----------3 ለ24ሰአት ----------4 ሌሎች ---------- 5 አላውቅም ---------- 6	

ክፍል 3፡0 የሕጻናት ተንከባካቢዎች በሕጻናት አመጋገብ ላይ የተዘጋጁ ጥያቄዎች			
3.1	ጡት እያጠቡ ነው?	አዎ ---------- 1 አይ ---------- 2	
3.2	በተቅማጥ በሽታ በታመመበት /ችበት ወቅት ጡትዎን እንዴት ነው የሚያጠቡት?	ከበፊቱ መጠን የበለጠ ---------- 1 ልክ እንደ በፊቱ ---------- 2 ከበፊቱ መጠን በታች ---------- 3 ከበፊቱ መጠን በጣም ያነሰ ---------- 4 ምንም ፈሳሽ አልሰጠኋትም/ ሁትም ---5 አላውቅም ---------- 6	
3.3	ሕጻኑ በተቅማጥ በሽታ በታመመበት ወቅት እንዴት ነበር የሚመግቡት?	ከበፊቱ መጠን የበለጠ ---------- 1 ልክ እንደ በፊቱ ---------- 2 ከበፊቱ መጠን በታች ---------- 3	

		ከበፊቱ መጠን በጣም ያነሰ ---------- 4 ምንም ፈሳሽ አልሰጠኋትም/ ሁትም ---5 አላውቅም ---------- 6	
3.4	ሕጻኑ በተቅማጥ በሽታ ህመም ወቅት የማይመግቡት ምግብ እና የማያጠጡት ፈሳሽ አለ?	አዎ ---------- 1 የለም ---------- 2	→ 4.1
3.5	መልስዎ አዎ ከሆነ ከሚከተሉት የትኛው ዓይነት ምግብ እና ፈሳሽ ነው?	ከተለያዩ እህል ዓይነት የተዘጋጁ ሙቅ ---------- 1 ከላም ወተት ----------2 የትኛውንም ዓይነት ሾርባ ----------3 ንጹህ ውኃ ----------4 ሌላ ---------- 5	
3.6	ከላይ የተጠቀሱትን የምግብ ዓይነት እና ፈሳሽ ለምንድነው ለሕጻኑ/ኗ የከለከሉት/ሏት?	ተቅማጡ ይባባስበታል/ባታል ብዬ ----------1 መጥፎ ሽታ ስለሚያስከትል ----------2 ሌላ ---------- 3 አላውቅም ---------- 4	

ክፍል 4፡0 የሕጻናት ተንከባካቢዎች በዚንክ ኪኒን ያላቸውን አጠቃቀም ለመለየት የተዘጋጁ ጥያቄዎች			
4.1	ስለ ዚንክ ሕክምና ሰምተው ያውቃሉ ?	አዎ ----------1 አላውቅም ----------2	→ 4.3
4.2	ከሆነ ስለ ዚንክ ሕክምና ከየት ነው የሰሙት ?	ሬድዮ ----------1 ቴሌቪዥን----------2 ከጤና ሙያተኞች ----------3 ከጤና ኤክስቴንሽን ----------4 ከጓደኛ ----------5 ከጎረቤት ----------6	

4.3	ተቅማጡን ለማዳን የሚሰጠው መድሐኒት የቱ ነው ?	**ኪኒን/ሽሮፕ** አንቲባዮቲክ ----------1 የቁርጠት መድሐኒት ----------2 ዚንክ ----------3 ሌላ ይገለጽ ----------4 የማላውቀው ኪኒን /ሽሮፕ ----------5 **መርፌ** አንቲባዮቲክ ----------1 ከአንቲባዮቲክ ውጭ ----------2 የማላውቀው አንቲባዮቲክ ----------3 በደም ስር የሚሰጠ መድሐኒት ----------4	
4.4	የተቅማጥ በሽታ ሕጻኑ ሲይዘው የዚንክ መድሐኒት እና ኦአረ ኤስ ሰጥተውታል ?	አዎ ---------- 1 አይ ----------2	→ 4.11
4.5	የዚንክ መድሐኒት ከየት ነው የሚያገኙት ?	**ከሕዝብ ተቋም** የመንግስት ሆስፒታል ---------- 1 የመንግስት ጤና ጣቢያ ---------- 2 የመንግስት ክሊኒክ ---------- 3 የጤና ኬላ(የጤና ኤክስቴንሽን ሰራተኛ) –- 4 ሌሎች የመንግስት ተቋም ---------- 5 **መንግስታዊ ያልሆኑ ድርጅት** የጤና ተቋም ---------- 1 የበጎ ፍቃደኛ ጤና ሰራተኞች ---------- 2 **የግል ጤና ተቋማት** የግል ሆስፒታል ---------- 3 የግል ክሊኒክ ---------- 4 መድሐኒት ቤት ---------- 5 ሌሎች የግል ጤና ተቋማት ---------- 16 **ሌሎች** ሌሎች መድሐኒት መሸጫ/ መከማቻ ----------1 ሌሎች ሱቅ ----------2	

		ሌሎች የባሕል መድሐኒት ቤት ----------3 ሌሎች ይግለፁ ----------4	
4.6	ከጥያቄ ተራ ቁጥር 4.5 ውስጥ ከየትኛው ነው የዚንክን መድሐኒት በመጀመሪያ ለማግኘት የሚፈልጉት?	----------	
4.7	ለሕጻኑ ኦ አር ኤስ እና ዚንክ አሟሙተው ሰጥተውታል ?	አዎ ----------1 አይ ----------2 አላስተውስም ----------3	→ 4.9
4.8	ዚንኩን በምንድ ነው አሟሙተው ለሕጻኑ የሚሰጡት ?	በውኃ ----------1 በኦ አር ኤስ ----------2 በጡት ወተት ----------3 ሌሎች ይግለፁ ----------4	
4.9	በተቅማጥ በሽታ ለታመመ ሕጻን ለስንት ቀናት ዚንክ ኪኒን ይሰጣል	ተቅማጡ እስኪቆም ድረስ ----------1 ለ7 ቀን ----------2 ከ10—14 ቀናት ----------3 ሌላ ----------4 አላውቀውም ----------5	
4.10	ለምን የታዘዘውን የዚንክ ኪኒን ጨርሰው ለሕጻኑ ያልሰጡትም ?	የዚንክ ኪኒን ጠአሙ ደስ ስለማይል ----------1 ሕፃኑ ስለማይወስድልኝ ----------2 ስለሚያስታውካቸው ----------3 ተቅማጡ ስለቆመ ----------4 አላውቀውም ----------5	
4.11	ለምንድን ነው የሕጻኑ አሳዳጊዎች ሕጻ በተቅማጥ በሽታ በታመመበት ወቅትዚንክ ያልሰጡት ?	ዚንክ የት እንደሚገኝ ስለማላውቅ ----------1 ከጤና ድርጅት ስለማይታዘዝልን ----------2 ዚንኩ እንዴት እንደሚሰጥ አላውቅም ----------3 የዚንክ መድሐኒት ውድ ስለሆነ ----------4 ሌላ ይገለጽ ----------5	
4.12	ሕ ጻኑ የዚንክ እንክብል መውሰድ		

	በጀመረበት በስንተኛው ቀን ተቅማጡ ቆመለት / ላት ?	----------	
4.13	ለሕጻኗ ለተቅማጥ በሽታ ማዳኛ የዚንክ መድሐኒት የሰጠችዋ እናት ከተጠቀሱት ውስጥ ዚንክ እንክብል መሰጠት አለበት የሚሉት ለየትኛው ዓይነተ ተቅማጥ ነው ?	ለውኃ መሰል ተቅማጥ ----------1 ደም ለቀላቀለ ተቅማጥ ----------2 ለትኩሳት ---------- 3 ለሳል ----------4 ለግግ ----------5	
4.14	የዚንክ እንክብል ለሕጻናቶቻቸው የሰጡ ተንከባካቢዎች ያገኙት እርካታ ምን ነበር ?	የዚንክ መድሐኒት ጠዓም ከሌሎች መድሐኒት ይሻላል ---- 1 የዚንክ መድሐኒት ጠዓም ከሌሎች መድሐኒት ተመሳሳይ ነው ----------2 የዚንክ መድሐኒት ጠዓም ከሌሎች መድሐኒት የባሰ ነው --3 በዚንክ መድሐኒት ውጤት ረክቻለሁ ----------4 ሌላ ይገለጽ ----------5 አላውቅም ----------6	

ክፍል 5፡ 0 ሕጻናት ተንከባካቢዎች ውኃ ከየት እንደሚያገኙ እና እንደሚያስቀምጡ የተመለከቱ ጥያቄዎች			
5.1	የቤተሰቦ ዋና የመጠጥ ውኃ ከየት ነው የመታገኙት ?	**የቧንቧ ውኃ** ወደ መኖሪያ ቤት የተዘረጋ የቧንቧ የመስመር ውኃ---1 የሕዝብ የቧንቧ ውኃ ----------2 ወደ እርሻ ቦታ የተዘረጋ የቧንቧ የመስመር ውኃ-----3	5.5
5.2	ለቤተሰቦ ለሌላ አገልግሎት ለምግብ ማብሰያና ለእጅ መታጠቢያ የሚሆን ውኃ ከየት ነው የመታገኙት ?	**የቧንቧ ውኃ** ወደ መኖሪያ ቤት የተዘረጋ የቧንቧ የመስመር ውኃ - 1 የሕዝብ የቧንቧ ውኃ ----------2 ወደ እርሻ ቦታ የተዘረጋ የቧንቧ የመስመር ውኃ ---3	
5.3	ውኃው የት ነው የሚገኘው ?	በራሳችን መኖሪያ ግቢ ----------1	5.5

		የትም---------- 2	
5.4	ውኃው ቀድቶ ለመመለስ የሚወስደው ጊዜ ስን ነው ?	ከ15 ደቂቃ በታች ---------- 1 ከ 15 ደቂቃ በላይ ---------- 2 አላውቅም ---------- 3	
5.5	ውኃው የተሸለ ተስማሚ እንዲሆን የምታደርጉት ነገር አለ	አዎ ---------- 1 አይ ----------2 አላውቅም ---------- 3	→ 5.7
5.6	ውኃው የተሸለ ተስማሚ እንዲሆን ምን ትጨምሩበታላችሁ ?	ክሎሪን ---------- 1 ጋሪ/አኩዋ ኪኒን ----------2 ሌሎች----------3 አላውቅም ----------4	
5.7	ለመጠጥ የሚሆነው ውኃ በምንድን ነው የመወታስቀምጡት ?	ከዳን ባለው ማሰሮ ----------1 ከዳን ባለው ባልዲ---------- 2 በጠርሙስ አድርጎ ፍሪጅ ማስቀመጥ----------,3 ከዳን ባለው ጠርሙስ----------4	

ክፍል 6፡ 0 የሕጻናት ተንከባካቢ የግልና የሕጻነት ንጽሕና አጠባበቅ ትግበራ			
6.1	ሽንት ቤት አሎት ?	አዎ ---------- 1 የለም ---------- 2	→ 6.5
6.2	ቤተሰቦ የሚጠቀሙበት ሽንት ቤት ምን ዓይነት ነው ?	**በውኃ ለሚሰራ ሽንት ቤት** በውኃ የሚሰራ ሆኖ ከፍሳሽ ማስወገጃ ስርዓት ጋር የተገናኘ ----------1 በውኃ የሚሰራ ሆኖ ከፍሳሽ ማጠራቀሚያ ጋር የተገናኘ ----------2 በውኃ የሚሰራ ሆኖ ከፍሳሽ ከሽንት ቤት ጉድጓድ ጋር	

		የተገናኘ _____-3 በውኃ የሚሰራ ሆኖ ከፍሳሽ ማስወገጃ ስርዓት ጋር የተገናኘ ----------4 በውኃ የሚሰራ ሆኖ ከምን ጋር እንደተገናኘ ያልታወቀ ----------5 **የጉድጓድ ሽንት ቤት** የአየር ዝውውር ያለው ሽንት ቤት ----------1 ማስተንፈሻ ያለው ሽንት ቤት ----------2 ክፍትት ያለው ሽንት ቤት ----------3 ሌላ ይገለጽ ----------4	
6.3	በቤተሰብዎ ሽንት ቤት ሌሎች አባወራዎች ይጠቀሙበታል ?	አዎ ---------- 1 አይ ---------- 2	→ 6.5
6.4	ስንት አበወራዎች በሽንት ቤቱ ይጠቀማሉ ?	ከ10 በታች አባወራዎች ይጠቀማሉ ----------1 አስር እና ከዚያ በላይ አባወራዎች ይጠቀማሉ --------2 አላውቅም ----------3	
6.5	መቼ ነው እጅዎን የሚታጠቡት ? (ብዙ መልሶችን መምረጥ ይቻላሉ)	ከምግብ በፊት ----------1 ሕጻኑን ከመመገቤ በፊት ----------2 ምግብ ከማዘጋጀቴ በፊት ----------3 ከማህበራዊ ግንኙነት በኋላ ----------4 ከሽንት ቤት መልስ ----------5 ሕጻኑን ካፀዳዱ በኋላ ----------6	
6.6	ሕፃኑ የት ነው የሚያፀዳዱት ?	በመሬት ላይ ----------1 ክዳን ባለው ፖፖ ----------2 ክዳን በሌለው ፖፖ ----------3 በእጅ መታጠቢያ ----------4	
6.7	የሕጻኑ ዓይነ ምድር እንዴት ያስወግዱታል ?	ልጁ ሽንት ቤት ይጠቀማል ----------1 ወደ ሽንት ቤት ይ ጨመራል ----------2	

		እቀብረዋለሁ ----------3 ወደ ውኃ መውረጃ ቱቦ እጨምረዋለሁ ----------4 ወደ ቆሻሻ ማጸራቀሚያ እወረውረዋለሁ ----------5 ሜዳ ላይ ይፀዳዳል ----------6 ሌላ ይጠቀስ ----------7	
6.8	ልጅ ካፀዳዱ በኋላ እንዴት ነው የሚጠርጉላቸው ?	በሶፍተ ወረቀት እጠርግለታለሁ ----------1 ጉዳት በማያስከትል ነገር እጠርግላቸዋለሁ ---------2 ቂጡን በውኃና በሰሙና አጥበዋለሁ ----------3 በውኃ ቂጡን በማጠብ በእናትዮዋ ጨርቅ ማድረቅ --4	

---------- ጥያቄው አልቋል ----------

ስለትብብራችሁ እና ስለ ሰጣችሁን ጊዜ በአዲስ አበባ ዩኒቨሪስቲ ስም አመሰግነሰለሁ !!

DECLARATION

I the undersigned declare that this thesis is my original work, has never been presented in this or any other university, and that all the resources and materials used for the thesis development, have been quoted and acknowledged as completed references.

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Place: Addis Abab, Ethiopia

This thesis work has been submitted for examination with my approval as university primary adviser.

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