ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL ALLIED OF HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

MOTHERS'/CARE GIVERS' KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT MANAGEMENT OF DIARRHEA AND ASSOCIATED FACTORS IN UNDER FIVE CHILDREN IN GINCHI TOWN, WEST SHAWA, OROMIA REGION, ETHIOPIA, 2017

BY:

GADISA BEKLE (BSC)

A THESIS TO BE SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCE, DEPARTMENT OF NURSING AND MIDWIFERY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN PEDIATRICS AND CHILD HEALTH NURSING

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BY:

GADISA BEKLE (BSC)

ADVISORS: RAJALAKSHIM MURUGAN (BSC, MSC, PhD follower)

TADESSE BEDADA (BSC, MSC)

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Approval by the Board of Examiners

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Research Advisors:

Full Name	Rank	Signature	Date
1. Mrs Rajalakshim Murugan (Ass. prof)		_____	_____
Co-advisor			
2. Mr Tadesse Bedada (BSc, MSc)	lecturer	_____	_____

Examiner:

Full Name	Rank	Signature	Date
Mr. Habtamu Abera	(Ass. prof)	_____	_____

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Abbreviations and Acronyms

AAU----------Addis Ababa University

AOR----------Adjusted odds ratio

AIDS ----------Acquired Immunodeficiency Syndrome

BSC----------Bachelor of Science

HIV----------Human Immunodeficiency Virus

IMCI---------- Integrated Management of Childhood Illness

MSC----------Masters of Science

ORT----------Oral rehydration therapy

ORS----------Oral rehydration solution

SPSS----------Statistical package of social science

SSS----------Sugar salt solution

UNICEF--------United Nations Children's Fund

WHO----------World Health Organization

Abstract

Background: Diarrhoea remains the leading cause of morbidity and mortality in children under 5 years old worldwide. The burden is disproportionately high among children in low- and middle-income countries. Worldwide, the majority of deaths related to diarrhoea take place in Africa and South Asia. Nearly half of deaths from diarrhoea among young children occur in Africa where diarrhoea is the largest cause of death among children under 5 years old and a major cause of childhood illness.

Objective: The objective of this study was to assess knowledge, attitude and practice of mothers towards management of diarrhoea for children less than five years and associated factors in Ginchi town, West Shawa, Oromia regional State, and west of Ethiopia.

Methods: A community based cross-sectional study was conducted at Ginchi town from April 1 – 15/2017. Systematic sampling technique was used to get study subject. To determine the sample size a single proportional formula was used. The study sample size was 335. Standardized interview questionnaires were adapted from related articles to collect data on the socio-demographic variables and factors associated with it. Pre-test was done before data collection on 5% of sample size at Gojjo town necessary modification was made. Collected data was entered into Epi-data (version 3.5.1) and exported to SPSS software package version 20.0 for further analysis like frequency tables, SD, mean, binary and multivariate analysis.

Result: Out of 335 sample population 326 respondents were participated, the response rate was 97.3%. Based on the mean, 208(63.8%) of mothers/care givers were had good knowledge. About 202(62%) of the mothers/care givers had favourable attitude. Near to two third of respondents had good practice. Educational status had significance association with knowledge, attitude and practice of mothers on diarrheal management.

Conclusion and Recommendation: Majority of respondents had good knowledge, favourable attitude and good practice toward management of diarrhea. Educational status of mothers/care givers had significant association with knowledge, attitude and practice of mothers/care givers towards management diarrhea for under-five children. Therefore, health education and awareness creation program for the mothers/care givers on management of diarrhoea, and appropriate use of ORS, home based fluid preparation, prevention of diarrhoea is very crucial.

Key words: Knowledge, Attitude, Practice

1. INTRODUCTION

1.1. Background

Diarrhoea is defined as the passage of three or more loose or liquid stools per day or more frequent than normal for the individual. It is caused by Variety of bacteria, viruses and parasites. Infection spreads through contaminated food, drinking water or from person to person as a result of poor hygiene. It is both preventable and treatable disease (1).

Diarrhoea can last several days, and can leave the body without the water and salts that are necessary for survival. Most people who die from diarrhoea actually die from severe dehydration and fluid loss. Diarrhoea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. Infection is spread through contaminated food or drinking water, or from person-to-person as a result of poor hygiene (2).

The Integrated Management of Childhood Illness (IMCI) guidelines advise the use of ORT, along with continued feeding for appropriate diarrhoea case management(3).

Proper home management can reduce morbidity and mortality due to diarrhoea. It was estimated that 60-70 percent of diarrhoea related deaths are caused by dehydration due to loss of water and electrolytes. Factors of particular importance include care givers ‘knowledge about causes of diarrhoea and the associated dangers signs, prevention of dehydration during diarrheal episodes through the use of Oral Rehydration Salts. Managing diarrhoea at home is quite common among mothers, but their level of knowledge is poor. Despite universal popularity of oral rehydration solution (ORS) in preventing dehydration due to diarrhoea, its use in practice is very low. The poor practice of using ORS is accompanied by its incorrect preparation which is related to lack of mothers' prior experience(4). Perception of the seriousness of diarrhoea or other health related conditions is a paramount factor for seeking healthcare(5). There is a practice of reducing and even stopping fluids during diarrhoea(6).

1.2. Statement of the problem

Diarrheal diseases are a collection of diseases caused by multiple viral, bacterial, and parasitic organisms that share common symptoms and not lethal itself. The improper knowledge of mother and their misdirected approach towards its management leads to high degree of mismanagement and resultant severe dehydration. Diarrhoea is one of the major causes of morbidity and mortality in under -five Children all over the world, special in developing countries due to lack of knowledge and practice in diarrhoeal disease management(7).

Globally, there are about 1.7 billion diarrhoeal cases ever year(8). It is estimated that there are 2.5 billion episodes and 1.5 million deaths annually in children under-five years of age. This accounts for 21% of all the deaths in developing countries and the number has remained unacceptably high. Diarrhoea kills young children more than Acquired Immunodeficiency Syndrome (AIDS), malaria and measles combined. It also exposes children to secondary infection(9, 10) .

Deaths of under five children from diarrhoea have been estimated to be 800000 worldwide from which more than 80% of these deaths occur in South Asia and Africa (46% in Africa alone) (11, 12). To guide these efforts, robust data characterize the burden, risk factors, microbiological aetiology, squeal and case fatality of most life-threatening and disabling episodes are essential; theretofore, such data have been scarce in regions with the highest child mortality(13).

In Sub-Saharan Africa primary caregivers display poor perception about the signs of dehydration, dysentery and management of diarrhoea(14). The attitude of parents and caretakers towards the disease management vary with their perception about its seriousness especially on young children and health care-seeking practices of the primary caretakers of children < 5 years of age(15).

In South Africa, diarrhoea is today regarded as the third leading cause of under-five deaths. These children have died because of the previous poor use of ORT at home by some of the mothers/caregivers and these deaths are caused mainly by dehydration which can be treated with ORT(16). The attitude of parents and caretakers towards the disease management vary with their perception about its seriousness especially on young children and health care-seeking practices of the primary caretakers of children < 5 years of age(15). In Ethiopia also, diarrhea is the second killer of under-five children next to pneumonia(17). The role of the family, especially the mother, is vital in health promotion,

disease prevention and patient care. In the actions mothers take, the minimum required is a brief and superficial examination of the dehydrated child and the amount and type of liquid fed to him/her in the case of diarrhoea, even, these actions are vital for paediatric welfare(18). Other factors involved in the care contribute development of diarrheic children include the quality and quantity of food supplied to the child, along with nutritional factor as well involved. Maternal knowledge and performance play a central role in this regard(19).

Most of the time diarrhoea is managed by mothers in their home. However, their level of knowledge and practice on management is poor. Similarly, their knowledge and practice to use universal popular oral rehydration solution (ORS) in preventing dehydration due to diarrhoea, is also very low. This poor knowledge and practice leads to inappropriate management of diarrhoea and the complication (4, 20).

Harmful practices in the management of childhood diarrhoea are associated with negative health outcomes, and conflict with WHO treatment guidelines. These practices include restriction of fluids, breast milk and/ or food intake during diarrhoea episodes, and incorrect use of modern medicines(21).

Study done in Ethiopia also indicates that 36.7% mothers had poor knowledge, poor practice and unfavourable attitude towards diarrhoea management which was un ignored number (22, 23). In Ethiopia, only few studies have been carried out to investigate the knowledge, attitude and practice of mothers towards management of diarrhoea for children under- five years of age. Especially there is no single study done in the study area regarding this problem. Thus, this study is to fill this gap and determine the current mothers' knowledge, attitudes and practice regarding management of diarrhoea for under five children.

1.3. Significance of the Study

The purpose of this study is intended primarily to assess mothers'/care givers' knowledge, attitude, practice and factors associated with knowledge, attitude and practice towards management of diarrhea for under-five children. Therefore, this is very important to identify areas for improvement regarding diarrheal management and to improve the health of under five children. In addition to this, in our country Ethiopia researches regarding knowledge attitude and practice of mothers/care givers towards management of diarrhea for under five children is scarce particularly there is no single study in this study area. Therefore, the finding of this study will be used by researchers as input information for further study in the future on this area.

For policy makers, the result will hopefully give a base line data for any child health intervention to be implemented at Ethiopian health institutions, beside this, the study can provide information about the overall situation of mother's knowledge attitude and practice toward diarrheal management and the finding of this research makes clinical policy makers to give attention for the development of guidelines regarding diarrheal management.

The finding of this study may also provide important information for health sector programme managers, nurses and guide governmental and nongovernmental health organizations to focus on it.

2. LITRETURE REVIEW

2.1. Diarrhea

Diarrhoea remains the second leading cause of death among children under five globally. Nearly one in five child deaths about 1.5 million each year is due to diarrhoea. It kills more young children than AIDS, malaria and measles combined(24). It also remains a leading cause of mortality and morbidity of children in Sub-Saharan Africa, a region where unique geographic, economic, political, socio cultural, and personal factors interact to create distinctive continuing challenges to its prevention and control. This continuing epidemic deserves sustained programmatic and research attention as international public health moves on to confront newer issues in infectious disease and the changing burdens of disease associated with the demographic transition(25).

In developing countries including Ethiopia diarrhea was a major public health problem resulting in series social and economic consequences. The leading cause of death from acute diarrhea was the loss of water and essential minerals, which can be compensated most cases by an oral Rehydration solution (ORS) (26).

2.2. Knowledge of mothers/care givers about diarrhea and its management

According to study done in Iran among 300 mothers, 52%of them declared that diarrhoea occur due to ingestion of contaminated food and water, while 47.7% reported that tooth eruption can cause diarrhoea. About 36.5% of participants considered unsafe water and unclean hands as one of the factors cause for diarrhoea(27). Another study conducted in Karachi hospital also revealed that 72% mothers reported diarrhea as frequent passing of watery stool. Regarding causes of diarrhoea, 47% of mothers said evil eyes, while 17% considered contaminated water (1). Similarly, study done in Nigeria showed that 11.3% study participants reported that using bad water as cause of diarrhoea while 24.1% said contaminated food is cause for diarrhoea. This study also indicated most of the mothers 53% had poor understanding on cause of diarrhoea. However, larger percentage of the mothers (69%) had an accurate understanding of what diarrhoea was while 18.7% of the mothers had a combination of correct and incorrect symptoms as understanding diarrhoea. Based on the mean value 78.5% mothers/ care givers had good knowledge on diarrhea management (28).

A cross-sectional descriptive study conducted in Dhahran Township, Sunsari, Nepal revealed that majority 62% of mothers explained sign of diarrhoea as loose motions and

abdominal pain. Their knowledge of causative factor indicates 33.3% mothers said that diarrhoea is always associated with vomiting, which is probably because of predisposing factors like altered food and water habits 50.0% (29).

According to study conducted in Ethiopia, 63.6% of mothers had good knowledge towards diarrhea management while 54.1% of mothers had poor practice on diarrhea management. About 55.1% of mothers had good knowledge about home fluid management and 69.4% of them received information about diarrhoea from health professionals. Regarding cause of diarrhoea 66.6% of the mothers said poor hygiene is the cause for diarrhoea. About 70.5% of the mothers said that diarrhoea can result mortality while 9.5% of the mothers said that diarrhoea can cause all mortality, morbidity and growth and retardation in under five children (22). Another study conducted in Ethiopia also indicated that 72.8% of mothers/care givers define diarrhea as frequent passing of watery stool three or more times a day. Majority of (81%) mothers/care givers had awareness about different causes of acute diarrhea like poor hygiene 102(26.2%), contaminated food 76(19.5%), teething 74(19%) and unclean water 17.9% (23).

Regarding sign of dehydration study conducted in Karanchi hospital stated that 40% did not know signs of dehydration while 71% mother said diarrhoea causes lethargy. About 62% mothers knew various preventive methods like washing hands, keeping the environment and the child clean (1). On the other hand study done in Nepal indicated that 33.3% mothers said that diarrhoea is related with vomiting and resulted from altered food and water habits 165 50.0%. Only 3.6% of the mothers knew that the microorganisms are the cause of diarrhoea, where as the rest of mothers said they do not know. Regarding the signs and symptoms of diarrhoea nearly 62% of mothers knew that loose motions and pain abdomen were symptoms of diarrhoea (29).

According to study conducted in Iran dehydration is major (59.7%) complication of diarrhoea followed by vomiting 23.7% and loss of appetite 16.3%. About 12.7% of study subjects considered child's lethargy and 6.3% mentioned dry mouth and eyes as alarming symptoms of diarrhoea. Majority 51% of mothers got information from physician and health center staff 44.6%. About 68% of mothers had good knowledge while 38% had poor knowledge on diarrhea management (27). Furthermore, the performance of 51.98%, 30.03% and 17.99% of the mothers was poor, medium and good, respectively (30).

Cross sectional study conducted in Kolkata, capital of the State of West Bengal in India indicates majority of caretakers reported signs of dehydration as lethargy (84.4%) while

sunken eyes 48.4%, dry mouth 36.7%, thirst 12.8% and skin turgor 2.0% are also mentioned by study participants (31).

Regarding knowledge of ORT study conducted at Johan Heyns Community health centre showed that majority of the care givers 89.4% have heard about ORT while the rest haven't heard of ORT. For those who heard, their source of information was hospital and clinic 89.6% (32). A cross-sectional descriptive study carried out among mothers who attended the OPD at urban health centre attached to the medical college of Bhopal in central India also indicated that, out of the 400 study participants, 243 mothers were aware that ORS is used to fulfil the deficiency of water in diarrheal diseases whereas 24 respondents were aware that ORS is used to fulfil the deficiency of both water and salt in diarrheal diseases. It was also seen that 48 respondents were unaware about the use of ORS(8).

According to study conducted in Ethiopia the overall knowledge of mothers about the causes, transmission, prevention and management of diarrhoea in the study area was 37.5%(33). Another study done Ethiopia also indicated from 390 care givers 46.7% of them had good knowledge about acute watery diarrheal disease case management with ORS utilization while 53.3% had poor knowledge on diarrheal case management(23).

2.3. Attitudes of Mothers/care givers towards diarrhea

Study conducted in Iran revealed, 67% individuals positively responded to the importance of vaccination in preventing diarrhoea(27). On the other hand study done in Jamaica showed that majority 82% of caregivers believes that if a baby swallows his or her saliva during teething their "teething water" cause diarrhoea. Over half of the caregivers 62% thought that coconut water, the fluid in immature coconuts, was a better treatment for a child with diarrhoea than an over-the-counter anti diarrheal or anti motility medication(34). Another study conducted in India indicated that rice water diarrhoea 93.1%, bloody diarrhoea 93.6%, and vomiting 95% were commonly perceived by the caretakers as signs of a more severe form of diarrheal illness that might cause serious harm or death to the child (31). It is similar with study done in Nigeria in which respondents reported four symptoms necessitating the treatment of diarrhoea outside the home namely: passage of blood/mucid stool 30.4%, fever 18.1%, vomiting 24.6% and presence of signs of dehydration 52%. Also, 32.8% agreed that diarrhoea is a normal process when a child is growing up while 125 67.2% of them did not agree (35).

Study conducted at Johan Heyns community health center indicated that majority of mothers 71% had favourable attitude towards management of diarrhea (32). On the other hand study conducted in Ethiopia shows 44.8% of mothers strongly agreed that exclusive breast feeding is important to prevent diarrhoea while 1.3% of mothers strongly disagreed. About 40.6% of the mothers strongly agreed that ORS is a fluid which replaces fluid and electrolyte loss by diarrhoea. Based on the mean value, 50.1% of the mothers had favourable attitude while 49.9% had unfavourable attitude(22).

2.4. Practice of Mothers/care givers diarrhea management

Study conducted in Iran showed that majority of the mothers 56% had good practice of diarrhoea management and diet while 44% had a good practice (27). However, study conducted in Karanchi indicated majority of mothers 75.5% had good knowledge on preparation of ORS and 25% of them gave ORS during diarrhoea episode while 27% of mothers contacted health professionals. About 30% still self medicated, 3% went to traditional healer and 5% waited for the child to recover spontaneously(1). On other hand study done in India indicates out of the 400 participants only 156 (39%) knew correct method of ORS preparation and its use(8).

Another study conducted in Nigeria also indicated that out of 203 mothers, majority 80 (39.4%) could correctly manage diarrhoea at home. About 154 (76%) mothers knew that they should use an oral rehydration salt; of this number, 27.6% could correctly prepare SSS, while 14.3% could do the same for the UNICEF ORS. 22.7% of mothers would use salt sugar solution (SSS) to treat their children who had diarrhoea, while 9.9% of them would use UNICEF oral rehydration salt (ORS) for the same purpose. Among the mothers who used SSS and UNICEF ORS to treat their children at home 31% and 38.9% respectively, would use either of the solutions. However, 63.8% of the mothers described methods that would correctly prepare the UNICEF ORS for use while 14.3% did not know(28).

Home care practices of mothers regarding management of diarrhea were focused in this survey, where it was found that 42.4% mothers gave a usual amount of food, water or breast feed. About 41.8% of the mothers reduced or stopped the usual food, water and / or breast feed and only 15.7% of mothers gave increase amount of fluid to children with diarrhoea(29).

The study conducted in Kenya showed that healthcare-seeking practices for diarrhoea remains a great challenge among the urban poor with more than half 55% of the caregivers

seeking inappropriate health care with a large number of caregivers 35% taking no action regarding the child diarrheal illness. The use of ORS which has been widely recommended for the management of diarrhoea by the UNICEF and WHO is also very low(36).

Regarding to the mothers' practice, study conducted in Ethiopia indicated 46.3% of them had been taken different measures to treat diarrhoea; however, 53.7% of the mothers had not been taken any intervention of diarrhoea. Of the study participants, 44.9% were able to prepare home fluids to manage, while 53.1% of the mothers were unable to prepare home fluid for diarrhoea management. About 41.3% were preventing diarrhoea by keeping personal hygiene, while 36.4% of the mothers had been given soup to treat diarrhoea and 57.2% of the mothers had not been taken any fluid at home. The mean value of knowledge questions was 72.7%, while mean value of practice questions were 44.7%. Based on the mean value, 63.6% and 45.9% of the mothers had good knowledge and good practice respectively(22). About 127 (32.6%) used soup and 28.7% rise water as a primary home management. Majority of them explain impact of diarrhoea as dehydration and fever with bloody stool which accounts 51.9% and 24.2% respectively. Out of 390 care givers 10.5% of them had good practice on diarrheal management by using ORS while 349 (89.5%) them poorly practiced (23).

Even tough, there are some studies on knowledge, attitude and practice of mothers towards management of diarrhoea care in different aspects throughout the world; there is no sufficient study in Ethiopia. Therefore, it is important to study on the level of knowledge, attitude and practice of mothers to the fill this gap.

2.5. Associated factors

The study conducted in India, Coimbatore revealed that there is no significant relation exists between knowledge and practice of caregivers (31).

According to study done in John there was significant association between all demographic variables and knowledge of diarrhea management. Educational level of respondents had significant association with attitude toward diarrhea management by using oral rehydration therapy while care givers' religion and relationship had significance relation with their ORT practices for diarrhea management(32). Study done in India also in lined with this study which showed significant association between educational status and their knowledge of diarrhoea management(8).

Another study conducted in Iran also indicated that the higher level educated and employed mothers had better knowledge on diarrhea management ($P < 0.001$). The

statistical evaluation revealed the significant difference between educational level and employment statuses and maternal practice ($P < 0.001$). Educated and employed women revealed better competence in dealing with diarrhoea and the diet of child with diarrhoea(27). Study done in Nigeria also agreed with this study which indicated significance relation between respondents' knowledge and importance of ORS and their ability to list components of homemade ORS (0.002)(35). Cross sectional study conducted in Pakistan also revealed that association of knowledge status was compared with the status of the mothers and statically significant difference was observed with a p value of 0.00(37).

Study conducted in India indicates that there is significance association between educational status and monthly income with mothers/care givers diarrheal management practice (31). Similar study done in Ethiopia also indicated that in multivariate logistic analysis, single, divorced and widowed marital status of the mothers were independently associated with unfavorable attitude. Single mothers were 2.54 times more likely to have favorable attitude towards management of diarrhea as compared to married mothers. Divorced and widowed mothers were 3.59 and 1.62 times more likely to have favorable towards management of diarrhea as compared to mothers who were married. Illiterate mothers were 2.97 times more likely favorable attitude as compared to those who attend university. Elementary attended mothers were 2.68 times more likely to have favorable attitude towards management of diarrhea as compared to those who attend university. House wife mothers were 2.57 times more likely to have favorable attitude towards management of diarrhea as compared to governmental employee (22).

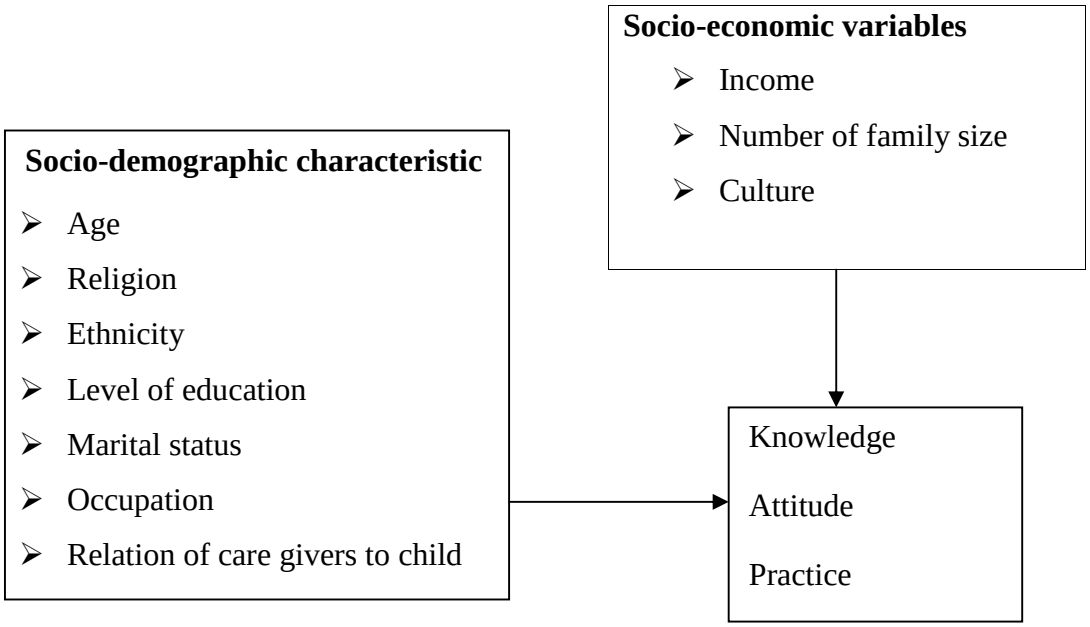


Figure 1 : Conceptual framework ***(developed based on literatures 21, 22, 35, 37)***

3. OBJECTIVES

3.1. General Objective

- The main aim of this study was to assess knowledge, attitude and practice of mothers towards management of diarrhea for children less than five years at Ginchi town, Oromia regional State, West Shawa, Ethiopia, 2017.

3.2. Specific Objectives

- To assess knowledge of mothers/care givers on management of diarrhea
- To asses attitude of mothers/care givers towards management of diarrhea
- To determine practice of mothers/care givers on diarrhea management
- To identify factors associated with Knowledge, Attitude and Practice of mothers/care givers towards the management of diarrhea

4. METHODS

4.1 Study area and study period

Study was conducted in Ginchi town, West Shawa zone, Oromia Region. Ginchi town is located 85 km from the capital city of Ethiopia, Addis Ababa. There are 2 Kebele in the town. There are 2025 households who have under five children and 3642 under five children in Ginchi town according to evidence from Dandi woreda health bureau. Regarding Health Facilities in Ginchi town, there are one health centers, 2 health post and 5 private clinics in the town.

The study period was from April 1-15/2017.

4.2. Study Design

A community based quantitative cross- sectional study was conducted.

4.3. Population

4.3.1. Source Population

All mothers/care givers who have under five children and live in Ginchi town were the source populations.

4.3.2. Sampling population

Selected mothers/care givers who have under five children were the study population.

4.4. Sample size and Sampling procedures

4.4.1 Sample Size Calculation

From the source population the size of the sample was determined by the following Standard formula.

$$n = \frac{(z1 - \alpha/2)2\ p\ (1-p)}{d2}$$

Where n= minimum sample size required

P = overall knowledge of mothers on diarrhoea management was 37.5% in Asossa, Ethiopia in, 2015(33).

d = the margin of sampling error tolerated (5%)

Z1 -α/2 = the standard and normal variable at (1-α) %

Confidence level and α is 5% which 95% confidence level 1.96

$$\text{Therefore ni} = \frac{(z1 - \alpha/2)^2\ p\ (1-p)}{d2}$$

$$ni = \frac{(1.96)^2 \times 0.375 \times 0.625}{} = 360$$

(0.05)2

Because of the source population is less than 10,000; sample size correction will be made to estimate the final sample size.

$$nf = \frac{n}{1+n/N} = \frac{3}{1+3/2} = 305$$

By adding a 10% of the sample size for non-response rate to maintain the generalizability of the data, the total **335** individuals will be included in the study.

4.4.2. Sampling technique and procedure

There are two kebeles in Ginchi town. Both kebeles were included in the study. Each house hold was selected by systematic sampling techniques. The first house hold was selected by lottery method and continues every K interval. For household which had two or more mothers/care givers study subject was selected by lottery method. To get the list of registration of mothers who had under-five children, the data was taken from local health extension workers. Then the sample is determined using proportional allocation to size. If the eligible mother was absent from the house at the time of data collection, the next house was visited.

K01=980/162 ≈ 6 K02=1045/ 173 ≈6

In Ginchi town there are 2 kebeles and both of them was included in this study. The total numbers of mothers who have under-five children are 2025. Out of these 980 are in 01 kebele and 1045 are in 02 kebele.

Based on proportional allocation to size this 335 study subjects were distributed to each kebele using the following formula.

$$\mathbf{nk} = \frac{\mathbf{n \times Nk}}{\mathbf{N}}$$

Where; nk =required sample size from each kebele (01 and 02 kebele)

nf= the total sample size = 335

After that the sample size will be allocated to each kebele as follows;

$$nk\ 01 = \frac{n \times Nk\ (01)}{N} = \frac{980 \times 335}{2025} = 162$$

nk 02= $\frac{n \times Nk\ (02)}{N} = \frac{1045 \times 335}{2025} = 173$

Therefore to get 335 mothers of under-five children from both kebeles of the town; 162 was taken from 01 and 173 from 02 kebele.

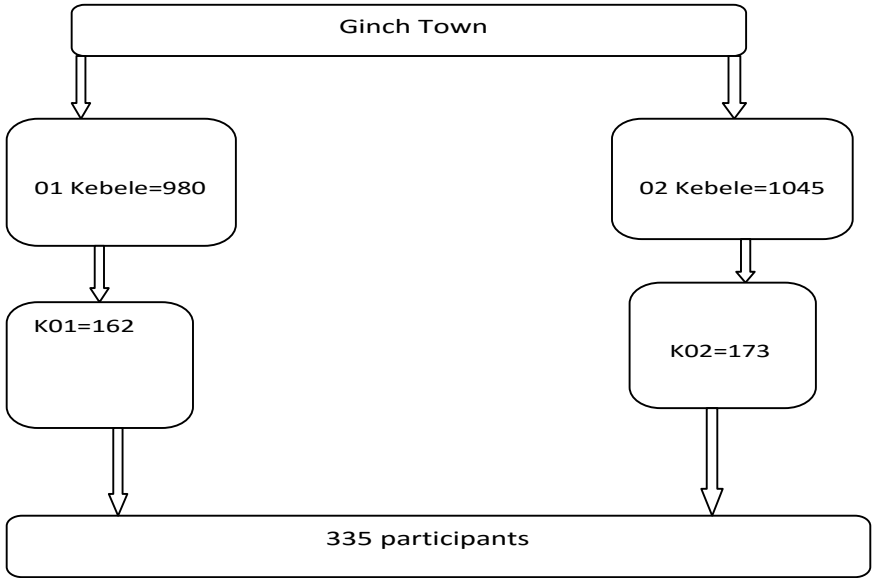


Figure 2: Schematic representation of sampling procedures.

4.5. Inclusion and Exclusion criteria

4.5.1 Inclusion criteria

Mothers/care givers those who have under five children and only living in Ginchi town for last 6 months.

4.6. Data Collection Procedure

4.6.1. Instrument and measurement

Structured interviewer administered questionnaire for knowledge, attitude an n practice of mothers and semi structured for age and income were used to collect data from mothers/caregivers of under-five children by interview. It was constructed by adapting from two published articles (30, 31) and modification was made. First the questionnaire was prepared by English version and then translated to Afan Oromo (Local language) then back to English. The questionnaire consists of four parts. The first part contains about socio-demographic characteristics of mother/caregivers. The second part is fifteen questions for knowledge assessment of the mother/caregivers about diarrhoea management; the third part is twelve questions to assess attitudes of mother. The attitude

was assessed by five point Likert scale which corresponds with strongly disagree (1), disagree (2), neither agree nor disagree (3), agree (4), strongly agree (5). The fourth part is twelve questions for assessing mothers practice towards diarrhoea management. The overall knowledge, attitude and practice score was estimated by taking the average score of all subscales. The subscale score was obtained by summing items score and divide by total number of items. For knowledge if above or equal to the mean it was considered as good knowledge and if less than the mean it was said poor knowledge. For attitude the subscale was obtained by summing items score and divided by total number of items. Above or equal the mean indicates favorable attitude while below the mean indicates unfavorable. For practice also subscale was obtained by summing items score and divide by total number of items. Mothers those score above or equal the mean considered as good practice while those score blow the mean are poor practice.

4.6.2. Data collectors

Four BSc nurses were recruited as data collectors and two BSc (Assistant lecture) nurses were also recruited as supervisors. All data collectors and supervisors were oriented for a day on data collection process by principal investigator for clarifying how to interview the study participants. Pre test was done two weeks before the start of actual data collection on 5% of the sample size. The data collectors were interview the mother/caregivers of under-five children, record the result in a consistent manner and finally submit the result to the principal investigator as scheduled. The principal investigator and the supervisors strictly follow the overall activities for each activity on daily base to ensure the completeness of questionnaire, to give further clarification and support for data collectors.

4.7. Study variable

4.7.1 Dependent variable

- Knowledge
- Attitude
- Practice

4.7.2. Independent variable

- Age
- Religion
- Ethnicity
- Culture

- Level of education
- Marital status
- Occupation
- Relation of care givers to child
- Income
- Family size

4.8. Operational Definitions

Knowledge: Mothers/care givers understanding about diarrhea and its management towards their underfive children. Knowledge score considers as a good and poor knowledge based on the mean score of knowledge questions (mean =16).

Attitude: Mothers/care givers perception toward diarrhea management towards their underfive children (mean =7).

Practice: Mothers/care givers action towards the management of diarrhea towards their under five children. Practice score considers as a good and poor practice based on the mean score of practice questions (mean =6).

Good knowledge: Those mothers/care givers who answer above or equal to the mean of the knowledge questions were considered as good knowledge.

Poor knowledge: Those mothers/care givers who answer below the mean of the knowledge questions were considered as poor knowledge.

Favourable attitude: Those mothers/care givers who scored above or equal to the mean value on attitude questions.

Unfavourable attitude: Those mothers who scored less than the mean value on attitude questions.

Good practice: Those mothers/care givers who abele to answer above or equal to the mean of the practice questions were measured as good practice.

Poor Practice: Those mothers/care givers who answer below the mean of the practice questions were measured as poor practice.

4.9. Data quality assurance

All data collectors and supervisors were oriented and trained on how to interview and record the data and assigned out of their respective kebele to minimize information bias. Validity of the tool was checked by different expertise. In order to assess the reliability of the instrument, clarity of the questionnaire and respondent reaction to the questions and

interviewer, data collection tool was pre-tested two weeks prior to the actual data collection on 5% of the calculated sample size of mothers/care givers at Gojjo town and adjustment was made on the research tools based on reaction of the respondents.

If the mother /caregivers were not present during data collection period, the next house was visited. During the data collection time close supervision and monitoring were carried out by supervisors and the investigator to insure the quality of the data. Finally the collected data was checked by the supervisor and principal investigator for its completeness.

4.10. Data Processing and Analysis

The collected data was checked manually for completeness and consistencies, after that coded and entered into Epi-data (version 3.5.1) and transferred to SPSS version 20 for analysis. Each correct alternative under each knowledge question was graded as 1 point and incorrect was graded as 0. Finally, it was dichotomize as good knowledge and poor knowledge based on the sum of correct responses of each items of knowledge questions by taking the mean score as cut-off point. This assumption also works for attitude and practice. Simple frequencies were done to see the overall distribution of the study participants with the different study variables. Frequency tables, pie chart and bar graphs were used to present data frequencies and percentage. Descriptive statistics were used to summarize the socio-demographic characteristics of the study participants and the awareness of diarrhea management. To identify factors associated with diarrhea management, binary logistic regression analysis were carried at two levels, first bivariate logistic regression was performed to each independent variable with the outcome. Strength of association was measured using odds ratio, and 95% confidence intervals. Statistical significance was declared at P value < 0.05.

4.11. Ethical considerations

Ethical clearance was obtained from AAU, department of nursing and midwifery research committee review board after approval of the proposal. Official letter was written to Oromia health bureau and to Ginchi Town Health sector from respective office. Permission from Ginchi health sector was taken. Each study participant was adequately informed about the objective of the study and anticipated benefit and risk of the study by their data collector. Verbal consent was obtained from study participants for protecting autonomy and ensuring confidentiality. Respondents were also told the right not to respond to the questions if they don’t want to respond or to terminate the interview at any time.

5. RESULTS

5.1. Socio demographic characteristics

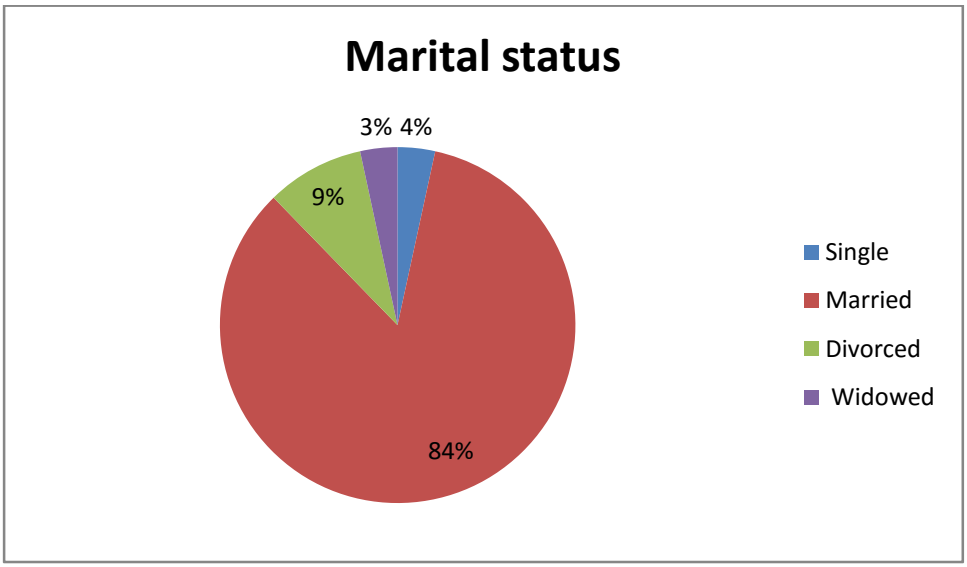
Total of 335 sample population only 326 respondents were participated, the response rate was 97.3%.

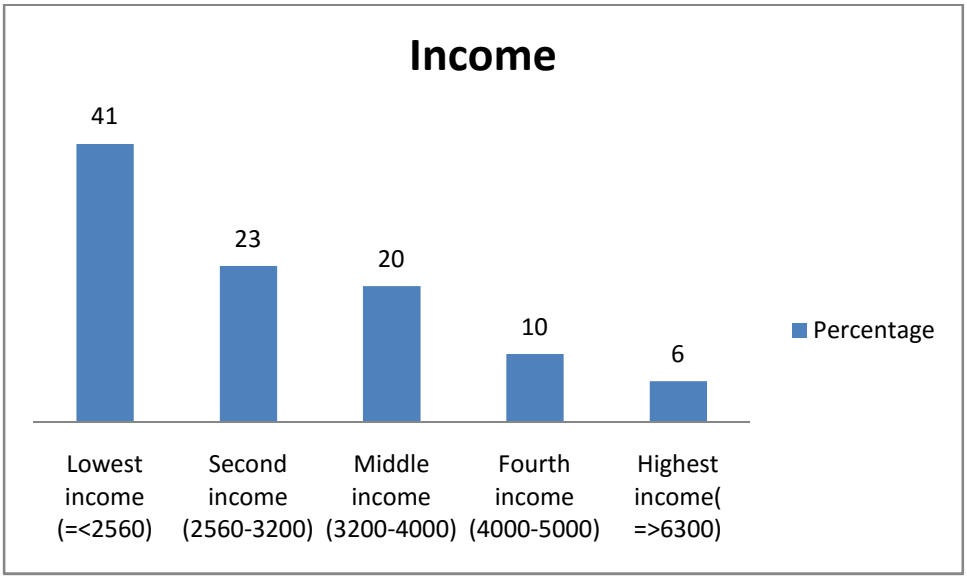
Regarding the age group of mothers/care givers, 97(29%) was found between the ages of 30 – 34 years with the mean 4.18 and SD + 1.34.The religion of mothers/care givers indicated, more than half 182(55.8%) were Orthodox and ethnicity of Oromo 225 (69%). The study also indicated that 103 (31.6%) mothers/care givers were attended elementary school while 80 (24.5%) received no formal education. Regarding occupational status of mothers/care givers, 193 (59.2%) were house wives, 46 (14.1%) and 48(14.7) were governmental employee and merchant respectively. Regards to relationship to the child, majority of respondents were mothers which accounts 274 (84%) followed by grandmother 30(9.2%). More than two third 202(62%) of study participants had less than five family members (Tab-1).

Table 1: Socio-demographic variables of the mothers / care givers in Ginchi town, West Shawa zone, Oromiya regional state Western Ethiopia, 2017

Variables		Frequency(n=326)	Percentage (100%)
Age	15-19	1	0.3
	20-24	21	6.4
	25-29	89	27.3
	30-34	97	29.8
	35-39	73	22.3
	40-44	23	7.1
	45-49	14	4.3
	50 and above	8	2.5
Religion	Orthodox	182	55.8
	Muslim	30	9.2
	Protestant	102	31.3
	Other *	12	3.7
Ethnicity	Oromo	225	69
	Amhara	50	15.3
	Guragae	41	12.6
	Others*	10	3.1
Educational status	Not formal education	80	24.5
	Elementary school	103	31.6
	High school	69	21.2
	Above high school	74	22.7
Occupation	Governmental employee	46	14.1
	Private employee	39	12.0
	House wife	193	59.2
	Merchant	48	14.7
Relation of caregiver to child	Mother	274	84.0
	Sibling	22	6.7
	Grand mother	30	9.2
Family size	Less than or equal to four	202	62
	Above five	124	38

Others*Wakefata, Jehova, Adventist Others*Tigre, Kambata


Marital status
3%
4%
9%
84%
Single
Married
Divorced
Widowed


Income
41
23
20
10
6
Lowest income (=<2560)
Second income (2560-3200)
Middle income (3200-4000)
Fourth income (4000-5000)
Highest income(=>6300)
Percentage

5.2. Knowledge of Mothers (care givers) about diarrhea and its management

Out of fifteen knowledge questions asked to caregivers of under-five children about diarrhea and its management from the total of 326 mothers/care givers 208(63.8%) of them had good knowledge based on the mean which is 16. About 212 (29%) of respondents were defined diarrhea as frequent passing of watery stool. 237(72.7%) of mothers/care givers consider diarrhea as serious disease of under five while 89(27.3%) said it is not serious disease. Regarding cause of diarrhea about 234(20%) mothers/care givers were answered that intestinal parasites as cause of diarrhea for under five children, 204(17.2%) were responded that it caused by poor hygiene and 202(17%) said diarrhoea caused by tooth eruption. More than half of respondents 311(60.1%) said mortality and morbidity are impact of diarrhea on under five children. Regarding prevention of diarrhea189 (28.4%) of participants responded that hand washing as diarrheal prevention method followed by safe disposal of stool of young children which accounts 187(28.1%). About 179 (54.9%) of mothers/ care givers do not know sign and symptoms of dehydration while 147(45.1%) know dehydration signs and symptoms. On importance of ORS, 169(52%) of respondents reported ORS used as prevention of dehydration. On the other hand more than `half 197(60.4%) know when to start ORS and 175(53.6%) know when to stop ORS (Tab 2).

Table 2: Knowledge of mothers/care givers on diarrheal disease and its management for under- five children in Ginchi town, West Shawa zone, Oromiya regional state Western Ethiopia, 2017

Variable	Category	Frequency	Percentage
Definition of acutediarrhea(n=731)	Frequent passing of watery stool(3 or more times)	212	29
	Frequent passing of non watery stool	147	20
	Blood in stools	145	19.8
	Mucus in stool	227	31
Cause of diarrhea(n=1187)	Poor hygiene	204	17
	Contaminated food	169	14.2
	Contaminated water	207	17.4
	Tooth eruption	202	17
	Intestinal parasites	234	20
	Flies	171	14.4
Impact of diarrhea(n=518)	Mortality and morbidity	311	60.1
	Growth retardation	207	39.9
Method of diarrhoea(n=665) prevention	Proper breast-feeding	153	23
	Proper hand-washing	189	28.4
	Safe disposal of the stools of young children	187	28.1
	Immunization	136	20.4
Symptoms of diarrhea(n=1067)	Becoming weak or lethargic	215	20
	Repeated vomiting	188	17.6
	Fever and blood in stool	215	20
	Marked thirst of water	128	11.9
	Frequent passing of stool and poor feeding	279	26.1
	Reduced urine output	42	3.9
Is diarrhea a serious child illness (n=326)	Yes	237	72.7
	No	89	27.3
Hand washing by soap prevents diarrhea (n=326).	Yes	192	58.9
	No	134	41.1
Knowledge of dehydration signs	Yes	147	45.1
	No	179	54.9
Eating habit during the diarrhea illness(n=326)	About the same	22	7
	More than usual	10	3
	Much less	294	90
Importance of giving ORS to your child? (n=326)	To increase the diarrhea	7	2
	To decrease the diarrhea	150	46
	To prevent dehydration	169	52

According to this study majority of mothers/care givers 232(26.7%) heard about ORS from health center while 184(21%) and 172(19.8%) heard from TV and radio respectively (Tab.3).

Table 3: Mothers'/care givers' source of information about ORS in Ginchi town, West Shawa, Oromia region, Ethiopia, 2017

Variable	Category	Frequency (N=870)	Percantage
Source of information about ORS	Health post	158	18.2
	Health center	232	26.7
	Hospital	48	5.6
	TV	184	21
	Radio	172	19.8
	Friend	76	8.7

5.3. Attitude of mothers /care givers towards diarrhea and its management

The mean value of the attitude is 7. Based on the mean value, 202(62%) of the mothers had favourable attitude while 123(37.7%) had unfavourable attitude. About 58(17.8) mothers/care givers strongly agree that vaccination can prevent diarrhea while 22(6.7%) and 76(23%) were strongly disagree and disagree respectively. Majority 141(43%) of mothers/care givers agreed that ORS is better than traditional medicine to manage diarrhea. Nearly half 156(48%) of study participants strongly agreed that exclusive breast feeding is important to prevent diarrhea while 13(4%) mothers strongly disagreed. 134(41) of the mothers strongly agreed that ORS is a fluid which replace fluid and electrolyte loss by diarrhea. About 112(34% of mothers strongly agreed that diarrhea is caused by tooth eruption while 20(6%) disagreed (Tab 4).

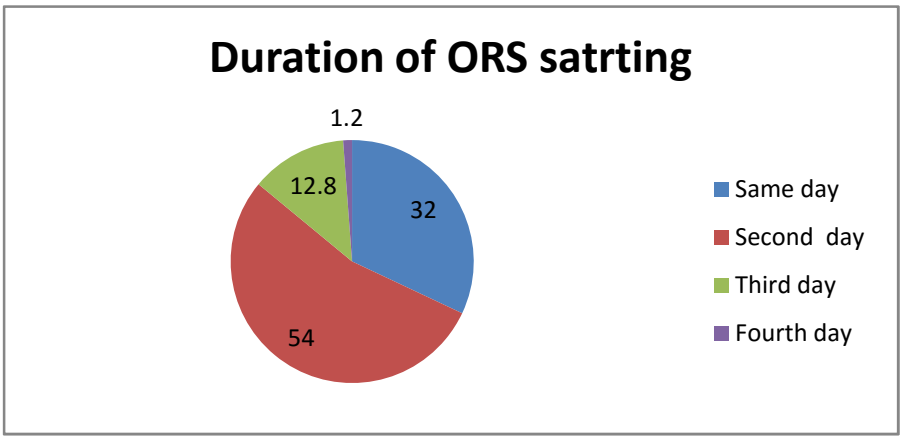
Table 4: Attitude of mothers (care givers) on diarrheal disease and its management for under- five children in Ginchi town, West Shawa zone, Oromiya regional state Western Ethiopia, 2017

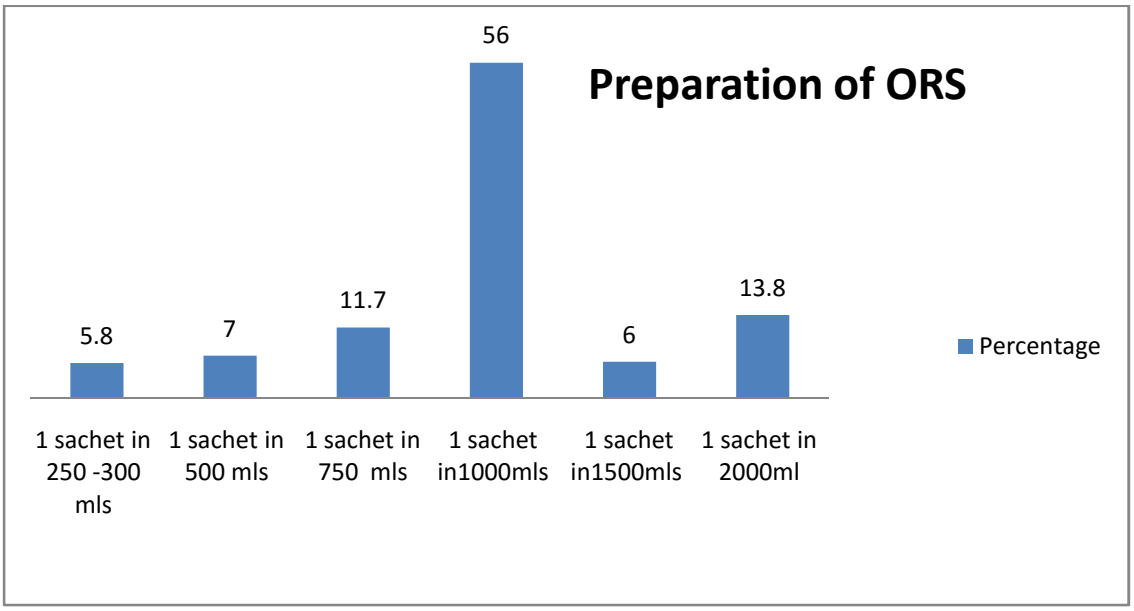
Statements (phrases)	Strongly disagree 1	Disagree 2	Neutral 3
Vaccination can prevent diarrheal disease.	22(6.7%)	76(23%)	91(27.9%)
ORS is better than traditional medicine to mange diarrhoea.	14(4.3%)	19(5.8%)	58(18%)
Tooth eruption causes diarrhoea.	20(6%)	31(9.5%)	59(18%)
Liquid food aggravates diarrhoea.	74(23%)	111(34%)	84(25.8%)
Exclusive breast feeding can prevent diarrhea.	13(4%)	4(1%)	15(4.2%)
ORS and other fluid replace fluid loss and electrolyte for your child.	10(3%)	15(4.6%)	23(7%)
ORS is culturally not acceptable in this community.	85(26%)	141(43%)	79(24%)
ORS has significance for management of diarrhoea.	3(0.9%)	13(4%)	25(7.7%)
Children are not comfortable with ORS due to its test.	8(2.4%)	21(6.4%)	48(14.7%)
Regular food is preferable during diarrhoea episode.	54(16%)	114(35%)	92(28%)
Giving more additional fluid when child has diarrhoea is important.	13(4%)	32(9.8%)	53(16%)
Wrong preparation of ORS aggravates diarrhoea.	12(3.7%)	29(9%)	77(23.6%)

Out of twelve practice questions asked to caregivers of under-five children about diarrhea management from the total of 326 care givers 193(59%) of them had good practice while, others 133 (40%) had poor practice based on mean value of 6. Majority of mothers /care givers 305(93.6%) continues feeding during diarrheal disease. About 168(46.4%) mothers give normal family diet while 20(5.5%) give coffee powder. 278(85%) give fluid more than usual while 29(9%) give less than usual. About 227(44%) use salt with water while those who use juice 55(10.7%). About 181(56%) of them know correct preparation of ORS while 145(44%) do not know correct preparation of ORS. On frequency of giving ORS123 (38%) of respondents said after passing of every loose stool while 81(24.8%) said 4-5 times a day (Tab.5)

Table 5: Practice of mothers (care givers) on diarrheal disease management for under- five children in Ginchi town, West Shawa zone, Oromiya regional state Western Ethiopia, 2017

Variables	Category	Frequency	Percentage (%)
What should be given when your child has diarrhea? (N=362)	Normal family diet	168	46.4
	Dry food like bread	174	48.1
	Coffee powder	20	5.5
What water do you use to mix ORS solution? (N=561)	Previously boiled and cooled water	214	38.1
	Any available water	183	32.6
	Highland water	164	29.2
Homemade fluid(N=516)	Salt with water	227	44
	Rice water	190	36.8
	Soup	44	8.5
	Juice	55	10.7
If your child started diarrhea what you will do? (n=326)	Stop feeding	21	6.4
	Continues feeding	305	93.6
How often do you give fluid to your child during diarrhea? (n= 326)	About the same	19	6
	More than usual	278	85
	Much less	29	9
Receive ORS solution (n=326)	Yes	245	75
	No	81	25
Frequency of giving ORS (n= 326)	Once a day	13	4
	2 – 3 times a day	62	19
	4 – 5 times a day	81	24.8
	6 & above times a day	47	14
	After the passing of every loose stool	123	38
Amount of ORS during diarrheal episode(n= 326)	As much as the child can drink	220	67
	Coffee cup of 100ml	106	32.5
Prepared ORS duration of stay	24 hrs (1 day)	204	62.6
	48 hrs (2 days)	97	29.8
	72 hrs (3 days)	18	5.5
	96 hrs (4 days)	7	2.1
Washing hands with soap before preparing ORS(n= 326)	Yes	192	58.8
	No	134	41


Duration of ORS satrting
1.2
12.8
32
54
Same day
Second day
Third day
Fourth day


Preparation of ORS
56
11.7
13.8
5.8
7
6
1 sachet in 250 -300 mls
1 sachet in 500 mls
1 sachet in 750 mls
1 sachet in1000mls
1 sachet in1500mls
1 sachet in 2000ml
Percentage

5.4. Factors Associated with Knowledge, attitude and practice of mothers/care givers towards management of diarrhea for under five children

To identify factors associated with knowledge, attitude and practice of diarrheal management logistic regression was used with 95% CI and p- value < 5%. All variables those have association by binary logistic regression were entered to multiple-logistic regression and final independent predictors identified .Age, relation of care givers, marital status, and family size had no significant association with knowledge of mothers/care givers toward management of diarrhea by binary and multiple regression analysis. Occupation and income had only significant association with knowledge of mothers/care givers on diarrheal management. Educational status of mothers/care givers had significant association with knowledge of mothers/care givers at both bivariate and multivariate withtoward management of diarrhea. Mothers/care givers who had no formal education were 0.06 times less likely to have good knowledge of diarrheal management as compared to above high school [AOR (95%CI) 0.06[0.02,0.22]. Elementary educated mothers/care givers had 0.13 times less likely to have good knowledge on diarrhea management as compared to above high school [AOR (95%CI) 0.13[0.04,0.43].(Tab 6)

Table 6: Association of the socio demographic variables with knowledge of diarrheal disease and its management in Ginchi town, West Shawa zone, Oromiya region Western Ethiopia, 2017

Variables	Diarrhea management Knowledge		COR(95% CI)	AOR(95%CI)	Pvalue
	Good	Poor			
Educational status No formal education	28(35%)	52(65%)	0.04[0.14,0.108]	0.06[0.02,0.22]	0.000**
Elementary school	56(54.4%)	47(45.6%)	0.09[0.03,0.23]	0.13[0.04,0.43]	0.001**
High school	55(79%)	14(20%)	0.29[0.01,0.84]	0.42[0.12, 1.39]	0.560
Abovehigh school	69(93%)	5(7%)	1		---
Occupation Gov'tal employee	43(93.5%)	3(6.5%)	1		---
Private employee	31(79.5%)	8(20.5%)	0.27[0.07,1.10]	0.70[0.15,3.35]	0.652
House wife	102(53%)	91(47%)	0.08[0.02,0.26]	0.37[0.09,1.52]	0.168
Merchant	32(67%)	16(33%)	0.14[0.04,0.52]	0.63[0.14,2.87]	0.548
Monthly income Lowest income	68(51%)	66(49%)	1		---
Second income	47(64%)	27(23%)	1.69[0.94,3.02]	1.15[0.59,2.21]	0.684
Middle income	49(75%)	16(25%)	2.97[1.54,5.74]	1.16[0.54,2.49]	0.709
Fourth income	28(84.8%)	5(15.2%)	5.44[1.98,14.92]	1.00[0.03,3.32]	0.999
Highest income	16(80%)	4(20%)	3.88[1.23,12.22]	1.02[0.27,3.84]	0.977

According to this study, occupation, mothers/care givers relation of to the child, marital status, monthly income were found to have significant association with attitude of mothers/care givers toward management of diarrhea at binary regression analysis. However, only educational status and marital status of mothers/care givers had significant association at both bivariete and multivariate analysis. Mothers/care givers who had no formal education were 0.03 times less likely to have favorauble attitude towards management of diarrhea as compared to those who attend above high school [AOR(95%CI) 0.03[0.01,0.13] . Mothers/care givers who attended elementary and high school had 0.10 and 0.12 times less likely to favourable attitude towards management of diarrhea as compared to those who attended above high school with [AOR(95%CI) 0.10[0.03,0.36] and [AOR(95%CI) 0.12[0.04,0.42] respectively.

Regarding marital status married mothers/care givers had 6.33times more likely to have favarorable attitude toward management of diarrhea as compared to widowed with [AOR (95%CI) 6.33[1.06, 37.83]. Divorced mothers/care givers were 7.00 times more likely to have favourable attitude towards management of diarrhea as compared widowed AOR (95%CI) 7.00[1.02, 48.10]

(Tab.7).

Table 7: Association of the socio demographic variables with attitude mothers/care givers towards diarrheal disease and its management in Ginchi town, West Shawa zone, Oromiya region Western Ethiopia, 2017

Variables	Diarrhea management Attitude		COR(95% CI)	AOR(95%CI)	P value
	Favorable	Unfavorable			
Educational status					
No-formal education	26(32.5%)	54(67.5%)	0.04[0.09,0.13]	0.03[0.01,0.13]	0.000**
Elementary school	64(62%)	39(38%)	0.12[0.32,0.04]	0.10[0.03,0.36]	0.000**
High school	45(65%)	24(35%)	0.14[0.05,0.38]	0.12[0.04,0.42]	0.001**
Above high school	69(93%)	5(7%)	1		---
Occupation					
Gov'tal employee	41(81%)	5(11%)	1		---
Private employee	27(69%)	12(31%)	0.27[0.08,0.90]	1.13[0.28,4.62]	0.865
House wife	104(54%)	89(46%)	0.14[0.05,0.38]	0.91[0.26,3.19]	0.881
Merchant	32(67%)	16(33%)	0.24[0.08,0.74]	1.99[0.49,8.12]	0.337
Relation					
Mother	176(64%)	98(36%)	3.59[1.62,7.98]	1.75[0.68,4.53]	0.250
Sibling	18(82%)	4(18%)	9.00[2.39,33.78]	6.06[0.94,38.97]	0.058
Grand mother	10(33%)	20(67%)	1		---
Marital status					
Single	8(72.7%)	3(27.3%)	7.11[1.09,46.44]	1.05[0.06,17.2]	0.970
Married	173(63%)	102(37%)	4.52[1.11,17.43]	6.33[1.06,37.83]	0.03**
Divorced	20(69%)	9(31%)	5.93[1.27,27.71]	7.00[1.02,48.10]	0.048**
Widowed	3(27%)	8(73%)	1		---
Monthly income					
Lowest income	66(49%)	68(51%)	1		---
Second income	46(62%)	28(38%)	1.69[0.94,3.02]	1.01[0.52,1.97]	0.972
Middle income	50(77%)	15(23%)	3.43[1.76,6.70]	1.29[0.59,2.83]	0.522
Fourth income	25(76%)	8(24%)	3.22[1.36,7.65]	0.72[0.23,2.21]	0.562
Highest income	17(85%)	3(15%)	5.84[1.63,20.85]	1.44[0.35,5.93]	0.613

Mothers/care givers who have no formal education were 0.04 times less likely to have good practice of diarrheal management as compared those who had above high school educational status [AOR (95%CI) 0.04[0.013,0.126]. Mothers/care givers who attended elementary school were 0.17 times less likely to have good practice of diarrhea management as compared to those above high school [AOR (95%CI) 0.17[0.06,0.47]. Mothers/care givers who were in second income were 0.19 times less likely to have good practice on diarrheal management as compared to those who are classified under highest income [AOR(95%CI) 0.19[0.04,0.94] (Tab.8).

Table 8: Factors Associated with diarrhea management practice among mothers/care givers in Ginchi town, West Shawa zone, Oromiya region Western Ethiopia, 2017

Variables	Diarrhea management practice		COR(95% CI)	AOR(95%CI)	Pvalue
	Good	Poor			
Educational status					
No formal education	20(25%)	60(75%)	0.05[0.02,0.12]	0.04[0.01,0.12]	0.000**
Elementary school	59(57.3%)	44(42.7%)	0.21 [0.09, 0.45]	0.17[0.06,0.47]	0.001**
High school	50(72.5%)	19(27.5%)	0.41[0.18,0.96]	0.36[0.13,1.00]	0.050
Above high school	64(86.5%)	10(13.5%)	1.00		---
Occupation					
Gov'tal employee	37(80%)	9(20%)	1		---
Private employee	23(59%)	16(41%)	0.35[0.13,0.92]	0.92[0.28,2.97]	0.883
House wife	103(53%)	90(47%)	0.28[0.13,0.61]	1.69[0.57,4.98]	0.341
Merchant	30(62%)	18(38%)	0.41[0.16,1.03]	2.59[0.77,8.76]	0.125
Relation to child					
Mother	167(61%)	107(39%)	2.69 [1.23,5.88]	1.27[0.51,3.20]	0.611
Sibling	15(68%)	7(32%)	3.701[1.15,11.8]	1.36[0.33,5.51]	0.669
Grand mother	11(37%)	19((63%)	1.00	1.00	---
Monthly income					
Lowest income	69((52%)	65(48%)	0.12[0.26,0.53]	0.32[0.06,1.59]	0.164
Second income	36(49%)	38(51%)	0.11[0.02,0.49]	0.19[0.04,0.94]	0.042**
Middle income	42(65%)	23(35%)	0.20[0.43,0.95]	0.23[0.05,1.16]	0.075
Fourth income	28(85%)	5(15%)	0.62[0.11,3.56]	0.49[0.08,3.10]	0.453
Highest income	18(90%)	2(10%)	1.00		---

6. DISCUSSIONS

Knowledge, attitude and appropriate practice of mothers/caregivers are crucial for management of diarrhoea, especially for under five children to prevent impact on their life.

This study indicated that majority of participants 212 (65.0%) defined diarrhea as frequent passing of watery stool. It is nearly similar with the study done in Karachi which indicates 72% of the mothers knew the correct definition of diarrhea as frequent passing of watery stool(1). However it is lower than study conducted in Bangladesh which stated 88% of mothers knew the correct definition of diarrhea(30). This discrepancy might be due to different socio-economic among study participants. Similar study done in Ethiopia also indicated that 284 (72.8%) of mothers/care givers defined diarrhea as occurring when the stools were watery or loose three or more times a day which is similar with this study finding(23).

Regarding cause of diarrhea about 234(71.8%) mothers/care givers were answered intestinal parasites as cause of diarrhea for under five children which is followed by poor hygiene and contaminated water which accounts 204(62.6) and 207(36.5%) respectively. On the other hand about 202(62%) mothers said tooth eruption can cause diarrhea. Similar study conducted in Pakistani indicated 94(47%) of mothers said diarrhea can caused by evil eyes and 34(17%) considered contaminated water for diarrheal cause(37). The possible reason for this difference might be the difference between cultural beliefs of the study participants.

Another study done in Ethiopia is similar with this study finding that most of 316 (81%) mothers/care givers had awareness about different causes of acute diarrhea like poor hygiene 102(26.2%), contaminated food 76(19.5%), teething74(19%) and unclean water 70(17.9%) (23).

This study also revealed that above half 189(58%) of participants responded that hand washing as diarrheal prevention method followed by safe disposal of stool of young children which accounts 187(57.4%). It is similar with study conducted in Karanchi which indicated that 62% mothers knew various preventive methods like washing hands, keeping the environment and clean the child (1). Study done in Ethiopia in 2014 also indicated that majority of mothers (75%) know different types of diarrhea prevention like hand washing, keeping personal hygiene and using clean water(22).

According to this study, 208(63.8%) of mothers/care givers had good knowledge on diarrhea and its management while 118 (36.2%) had poor knowledge. It is in lined with study conducted in Iran in which (68%) mothers had good knowledge while 32% had poor

knowledge on diarrhoea management (27). But it is lower than study conducted in Nigeria which indicated 78.5% mothers/ care givers had good knowledge on diarrhea management (28). This difference might be due to different study period and study area. The finding of study done in Ethiopia is similar with this study that 63.6% of mothers had good knowledge towards management diarrhoea (22)

Based on the mean value, 202(62%) of the mothers had favourable attitude while 123(37.7%) had unfavourable attitude towards management of diarrhea. This study is nearly similar with the study done at Johan Heyns community health center which indicated 71% of mothers had favourable attitude toward management of diarrhea (32). However study conducted in Ethiopia, Fenote Selam town showed 416(50.1%) of mothers had favourable attitude and 49.1% had unfavourable attitude towards management of diarrhea (22). This discrepancy might be due to sample size of the study.

This study also showed that from the total of 326 mothers/care givers 193(59.2%) of them had good practice on management of diarrhea and 133 (40.8%) had poor practice. It is consistent with the study conducted in Iran which indicated (56%) mothers had good practicing of diarrhoea management and diet while 44% had a poor practice (27). However, it is lower when compared with the study conducted in Karanchi which indicated majority of mothers (75.5%) had good practice on diarrhea management and ORS preparation(1). This difference might be due to different socio-economic life of study populations. Similar study conducted in Ethiopia revealed that 381(45.9%) of the mothers had good practice towards management of diarrhea which is lower than this study finding. This discrepancy might be because of different setting or study period(22).

According to this study educational status had significant association with knowledge of mothers/care givers on diarrhea management. It similar with the study done in India which indicated significant association between educational status and their knowledge of diarrhoea management(8). Another study done in Ethiopia also indicated that illiterate mothers had poor knowledge towards diarrhoea management as compared to educated mothers (22). The fact is that highly educated mothers have higher access of information than that of mothers who had illiterate and lower educational status.

Educational status of mothers/care givers has significant association with attitudes of mothers/care givers at both bivariete and multivariate analysis in this study. Mothers/care givers who had no formal education were 0.03 times less likely to have favourable attitude towards management of diarrhea as compared to those who attend above high school [AOR(95%CI) 0.03[0.01,0.13] . Mothers/care givers who attended elementary and high

school had 0.10 and 0.12 times less likely to favourable attitude towards management of diarrhea as compared to those who attended above high school with [AOR(95%CI) 0.10[0.03,0.36] and [AOR(95%CI) 0.12[0.04,0.42] respectively.

It was similar with study conducted at Johan Heyns community health center which indicates educational level of respondents had significant association with attitude of mothers/care givers toward management diarrhea (32). Another study done in Ethiopia also in lined with this study finding that educational status of mothers were independently associated with unfavourable attitude (cannot read and write and elementary education which were AOR=2.979, 95% CI (1.135, 7.816) and AOR=2.681, 95% CI (1.019, 7.049)), respectively (22)

Educational status and income had significance association with diarrheal management practice of mothers/care givers. Mothers/care givers who have no formal education and attended elementary school were 0.04 and 0.17 times less likely to have good practice towards management of diarrhea as compared to those who had above high school educational status [AOR (95%CI) 0.04[0.013,0.126] and [AOR (95%CI) 0.17[0.06,0.47] respectively. Mothers/care givers who were in second income were 0.19 times less likely to have good practice on diarrheal management as compared to those who are classified under highest income [AOR(95%CI) 0.19[0.04,0.94]. It is in lined with study conducted in India in which there is significance association between educational status and monthly income of mothers/care givers towards diarrheal management practice (31). However, sstudy conducted in Ethiopia, Fenote Selam town also indicates that educational status and occupation had significant association with mothers/care givers diarrheal management practice (22). This discrepancy might be due to different sample size of study population.

7. Strength and limitation of the study

7.1. Strength

- The questioner was pretested on excluded cases and a necessary modification was made to minimize difficulty during the data collection.
- Being community based study

Limitation

- ✓ The study was based on performance self-report rather than observed practices towards diarrheal management. Therefore, there was a risk that respondents may report what was expected of them but, their actual practices may be different on some areas.
- ✓ Lack of universal cut off point on definition of good knowledge or poor knowledge, favourable or unfavourable attitude and good or poor practices posed a challenge in the study. But different authors suggested to use mean as cut off point.
- ✓ It is possible that some caregivers could not remember (recall bias) the details information

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusion:

- Majority of respondents had good knowledge, favourable attitude and good practice toward management of diarrhea.
- However, there were misunderstandings on different cause of diarrhea, signs of dehydration, prevention and management of diarrhea at home among study participants
- However, there were misunderstandings on different cause of diarr8hea, signs of dehydration, prevention and management of diarrhea at home among study participants.
- Majority of mothers/care givers do not know appropriate use of ORS; preparation, when to start, duration of stay and frequency of giving ORS.
- Educational status of mothers/care givers had significant association with knowledge and practice of mothers/care givers towards management diarrhea for under five children.
- Educational status marital status of mothers/care givers had significant association with attitudes of mothers/care givers towards management of diarrhea.

8.2. Recommendations:

Based on the study findings, the following recommendations were forwarded for the community, health professionals and managers, nursing education and practice, future research**:**

To the study community

- The community should follow health education given from health professional and follow different media to prevent diarrhea and appropriate management of it.

To woreda and kebele leaders

- Facilitates health education program with health professionals and supply important material.
- Encourage mothers/care givers to involve in health promotion and prevention of illness by incorporating with health professionals.

To health professionals

- Strength health education and awareness creation for the mothers/care givers on management of diarrhea, and appropriate use of ORS, home based fluid preparation, prevention of diarrhoea and sign of dehydration.
- Health promotion efforts should target to improve diarrheal management practice of mothers/care givers for under- five children to minimize mortality and morbidity cases, after all to achieve millennium development goal.

Health extension worker

- Local health extension worker should undergo continues home visiting to encourage mothers on knowledge, attitude and practice of diarrheal management.

Future research

- Finally, Future research also needs to explore the effects of additional variables that were not measured in the current study, which can also directly or indirectly influence mothers/care givers knowledge, attitude and practice towards management of diarrhea.

References

1. Mumtaz Y, Zafar M, Mumtaz Z. Knowledge Attitude and Practices of Mothers about Diarrhea in Children under 5 years. Journal of Dow University of Health Sciences. 2014;8(1).

2. Vasco G, Trueba G, Atherton R, Calvopiña M, Cevallos W, Andrade T, Identifying etiological agents causing diarrhea in low income Ecuadorian communities. The American journal of tropical medicine and hygiene. 2014;91(3):563-9.
3. Child WHODo, Health A. Handbook IMCI: integrated management of childhood illness: World Health Organization; 2005.
4. Ogunrinde OG, Raji T, Owolabi OA, Anigo KM. Knowledge, attitude and practice of home management of childhood diarrhoea among caregivers of under-5 children with diarrhoeal disease in Northwestern Nigeria. Journal of tropical pediatrics. 2011:fmr048.
5. Oshikoya K, Njokanma O, Bello J, Ayorinde E. Family self-medication for children in an urban area of Nigeria. Paediatric and Perinatal Drug Therapy. 2007;8(3):124.
6. Berisha M, Hoxha-Gashi S, Gashi M, Ramadani N. Maternal practice on management of acute diarrhea among children under five years old in Kosova. TAF Preventive Medicine Bulletin. 2009;8(5):369-72.
7. Hassan M. Knowledge, Attitude and Practice Survey of Oral Rehydration Therapy at the Level of Health Centers in Karari Locality: u; 2015.
8. Mahor G. Knowledge and attitudes of mothers regarding use of Oral Rehydration Solution in management of diarrhea. Asian Journal of Biomedical and Pharmaceutical Sciences. 2013;3(22):6.
9. Walker CLF, Friberg IK, Binkin N, Young M, Walker N, Fontaine O, et al. Scaling up diarrhea prevention and treatment interventions: a Lives Saved Tool analysis. PLoS Med. 2011;8(3):e1000428.
10. Santosham M, Chandran A, Fitzwater S, Fischer-Walker C, Baqui AH, Black R. Progress and barriers for the control of diarrhoeal disease. The Lancet. 2010;376(9734):63-7.
11. Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. The Lancet. 2012;379(9832):2151-61.
12. Pickering H, Hayes R, Tomkins A, Carson D, Dunn D. Alternative measures of diarrhoeal morbidity and their association with social and environmental factors in urban children in The Gambia. Transactions of the Royal Society of Tropical Medicine and Hygiene. 1987;81(5):853-9.
13. Levine MM, Kotloff KL, Nataro JP, Muhsen K. The global enteric multicenter study (GEMS): impetus, rationale, and genesis. Clinical infectious diseases. 2012;55(suppl 4):S215-S24.
14. Mwambete K, Joseph R. Knowledge and perception of mothers and caregivers on childhood diarrhoea and its management in Temeke municipality, Tanzania. Tanzania journal of health research. 2010;12(1):47-54.
15. Deshmukh PR, Dongre AR, Sinha N, Garg BS. Acute childhood morbidities in rural Wardha: some epidemiological correlates and health care seeking. 2010.
16. Horwood C, Butler LM, Vermaak K, Rollins N, Haskins L, Nkosi P, et al. Disease profile of children under 5 years attending primary health care clinics in a high HIV prevalence setting in South Africa. Tropical Medicine & International Health. 2011;16(1):42-52.
17. Woldu W, Bitew BD, Gizaw Z. Socioeconomic factors associated with diarrheal diseases among under-five children of the nomadic population in northeast Ethiopia. Tropical Medicine and Health. 2016;44(1):40.
18. Ene-Obong HN, Iroegbu CU, Uwaegbute AC. Perceived causes and management of diarrhoea in young children by market women in Enugu State, Nigeria. Journal of Health, Population and Nutrition. 2000:97-102.

19. Oshiro MdL, Castro LLCd. Evaluating the potential of an intervention aimed at promoting oral rehydration therapy (ORT) by educating pharmacy employees. Cadernos de saude publica. 2002;18(1):287-97.
20. Ahmed F, Farheen A, Ali I, Thakur M, Muzaffar A, Samina M. Management of diarrhea in under-fives at home and health facilities in Kashmir. International journal of health sciences. 2009;3(2):171.
21. Carter E, Bryce J, Perin J, Newby H. Harmful practices in the management of childhood diarrhea in low-and middle-income countries: a systematic review. BMC public health. 2015;15(1):788.
22. Amare D, Dereje B, Kassie B, Tessema M, Mullu G, Alene B, et al. Maternal Knowledge and Practice Towards Diarrhoea Management in Under Five Children in Fenote Selam Town, West Gojjam Zone, Amhara Regional State, Northwest Ethiopia, 2014. Journal of Infectious Diseases and Therapy. 2014.
23. ADANECH E. ASSESSMENT OF KNOWLEDGE, PRACTICE AND UTILAIZATION OF ORAL REHAYDERATION THERAPY FOR ACUTE WATERY DIARRHOEAL DISEASE CASE MANAGEMENT AMONG MOTHERS (CAREGIVERS') OF UNDER-FIVE CHILDREN IN ASSELA TOWN, ETHIOPIA: AAU; 2015.
24. Balassiano I, Yates E, Domingues R, Ferreira E. Journal of Medical Microbiology. J Med Microbiol. 2012;61:169-79.
25. Perinatal R. Child Health Research Project Special Report. 2012.
26. WHO U. Diarrhoea: why children are still dying and what can be done. Geneva: UNICEF/WHO. 2009.
27. Khalili M, Mirshahi M, Zarghami A, Rajabnia M, Farahmand F. Maternal knowledge and practice regarding childhood diarrhea and diet in Zahedan, Iran. Health Scope. 2013;2(1):19-24.
28. Adimora G, Ikefuna A, Ilechukwu G. Home management of childhood diarrhoea: need to intensify campaign. Nigerian journal of clinical practice. 2011;14(2):237-41.
29. Rehan HS, Gautam K, Gurung K. Mothers needs to know more regarding management of childhood acute diarrhea. Indian J Prev Soc Med. 2003;34(1):40-5.
30. Abdinia B. Knowledge and Practice of Mothers in the Management of Children's Diarrhea, in Northwest, Iran. Archives of Pediatric Infectious Diseases. 2014;2(4).
31. Manna B, Nasrin D, Kanungo S, Roy S, Ramamurthy T, Kotloff KL, et al. Determinants of health care seeking for diarrheal illness in young children in urban slums of Kolkata, India. The American journal of tropical medicine and hygiene. 2013;89(1 Suppl):56-61.
32. Onwukwe SC. Knowledge, attitudes and practices of mothers/caregivers regarding oral rehydration therapy at Johan Heyns Community Health Center, Sedibeng District 2014.
33. Merga N, Alemayehu T. Knowledge, perception, and management skills of mothers with under-five children about diarrhoeal disease in indigenous and resettlement communities in assosa district, western ethiopia. Journal of health, population, and nutrition. 2015;33(1):20.
34. Bachrach LR, Gardner JM. Caregiver knowledge, attitudes, and practices regarding childhood diarrhea and dehydration in Kingston, Jamaica. Revista Panamericana de Salud Pública. 2002;12(1):37-44.
35. Olakunle J, Valentine U, Kamaldeen A, Buhari A. Assessment of mothers' knowledge of home management of childhood diarrhea in a Nigerian setting. Int J Pharmaceut Res Bio Sci. 2012;1(4):168-84.
36. Mukiira CK. Healthcare-seeking practices of caregivers of under-five children with diarrheal diseases in two informal settlements in Nairobi, Kenya: UNIVERSITY OF WITWATERSRAND, JOHANNESBURG; 2012.
37. Masiha SA, Khalid A, Malik B, Shah SMA. Oral Rehydration Therapy-Knowledge, Attitude and Practice (KAP) Survey of Pakistani Mothers. J Rawal Med Coll. 2015;19(1):51-4.

Annexes

Annex I- Information sheet in English

Hello! Good morning! My name is_____, I came from_____

Today I am here to collect data on the research undergoing by Gadisa Bekele (paediatrics and child health Nursing Msc candidate at AAU) with the objective of assessment of knowledge, attitude and practice of mothers towards diarrhea management for under five children and associated factors at Ginchi town, West Shawa zone. I would like to assure you that the study is confidential. I will not keep record of your name and address. Your participation in the study will be totally based on your willingness .You have the right to skip any question that you do not want to answer. But, your correct answer to each question can make the study valuable. For your participation**,** the process of the study has no payment, or special benefit. I can assure that the study also have no any physical or psychological trauma as well as political problem, but participation in the study by giving your correct answer can play great role in the successfulness of the study and also it will provide great input to bring change in quality of health. Therefore, you are kindly requested to respond genuinely and voluntary with patience. To fill these questions, it may take 30 minutes.

Informed consent: I will be explained all information that are part of this research study. I understand that the research will be imposes no risk on my life and therefore no compensation would be provided. I hereby agree to participate in this research study and give my voluntary consent. I hereby also give rights to the researcher for collecting the data that are required for the study.

Signature _____Date of data collection _____Time _____

Data collector: I confirm that I have explained to the participant all relevant information about the study as indicated above.

Name: _____ Signature _____

Principal investigator address: phone=09 36 72 80 52,email:gaaddisaab@gmail.com

Result of the administered questionnaire:1. Completed 2. Refused 3. Partially completed

Checked by: Supervisor Name _____ Signature _____ Date_____

Annex II -Questionnaires in English version

Questionnaire on knowledge, attitude and practices of mothers towards management of diarrhoea and associated factors in children under five years in Ginchi town -2017

Part I: Socio-demographic characteristic of mothers/Care givers in Ginchi town-2017

S. No	Socio-demographic characteristics		
101	Age	…….	
102	Religion	1. Orthodox 2. Muslim 3. Catholic 4. Protestant 5. Other (specify)…….	
103	Ethnicity	1. Oromo 2. Amhara 3. Guragae 4. Tigray 5. Others…….	
104	Educational status	1. Illiterate 2. Elementary school 3. High school 4. Preparatory school 5. College 6. University	
105	Occupation	1. Governmental employee 2. Private employee 3. House wife 4. Merchant 5. Other	
106	Relation of caregiver to child	1. Mother 2. Sibling 3. Grand mother 4. Other, specify ……..	
107	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
108	Monthly income	……..	
109	Family size	1. Less than or equal to four 2. Above for	

Part II: Knowledge of mothers on management of diarrhea for under their five children in Ginchi town-2017

201	What do you understand by acute diarrhea?	1. Frequent passing of watery stool(3 or more times) 2. Frequent passing of non watery stool 3. Blood in stools 4. Mucus in stool 5. Other, specify…….	
202	Is diarrhea a serious child illness?	1. Yes 2. No	
203	Do you know what a cause for diarrhea is? You can choose more than one answers.	1. Poor hygiene 2. Food poisoning/ contaminated food 3. Contaminated water 4. Teething 5. Intestinal parasite 6. Flies 7. Other, specify….	
204	What is impact of diarrhea disease on under five children	1. Mortality and morbidity 2. Growth and retardation 3. Have no knowledge	
205	Diarrhoea can be prevented through?	1. Proper breast-feeding 2. Proper hand-washing 3. Safe disposal of the stools of young children 4. Measles Immunization	
206	Hand washing by soap prevents diarrhea.	1. Yes 2. No	
207	Do you know sign of dehydration?	1. Yes 2. No	
208	What are the sign and symptoms your child had when she had diarrhea? You can choose more than one answers).	1. Becoming weak or lethargic 2. Fever and blood in stool 3. Marked thirst of water 4. Poor feeding Repeated vomiting / vomiting every where 5. Reduced urine output 6. Other, specify…….	
209	During the diarrhea illness, did your child eat food?	1. About the same 2. More than usual 3. Much less	
210	Did you hear about ORS fluid?	1. Yes 2. No	
211	From where do you heard about ORS?	1. Health post 2. Health center 3. Hospital 4. TV 5. Radio 6. Friends	

212	Do you know the importance of giving ORS to your child?	1. To increase the diarrhea 2. To decrease the diarrhea 3. To prevent dehydration 4. No idea	
213	Do you know when to start ORT?	1. Yes 2. No	
214	Do you know when to stop giving ORT?	1. Yes 2. No	
215	Do you know how to prepare ORT at home?	1. Yes 2. No	

Part III: Attitude of mothers towards diarrhoea management for their under five children in Ginchi town, 2017.

For the following attitude questions encircle the response of the participant with respected number.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

No	Statements (phrases)	1	2	3	4	5
301	Vaccination can prevent diarrheal disease.					
302	ORS is better than traditional medicine to mange diarrhoea.					
303	Tooth eruption causes diarrhoea.					
304	Liquid food aggravates diarrhoea.					
305	Exclusive breast feeding is used to prevent diarrhea.					
306	ORS and other fluid replace fluid loss and electrolyte for your child.					
307	ORS is culturally not acceptable in this community.					
308	ORS has significance for management of diarrhoea.					
309	Children are not comfortable with ORS due to its test.					
310	Regular food is preferable during diarrhoea episode.					
311	Giving more additional fluid when child has diarrhoea is important.					
312	Wrong preparation of ORS aggravates diarrhoea.					

Part IV: Practice of mothers towards diarrhoea management for their under five children in Ginchi town, 2017

401	If your child started diarrhea what you will do?	1. Stop feeding 2. Continues feeding 3. Don't know	
402	What diet normally you give to your child, when she/ he has diarrhoea?	1. Normal family diet 2. Dry food (Kita, bread, etc) 3. Coffee powder	
403	During the diarrhea illness did the child drink water?	1. About the same 2. More than usual 3. Much less	
404	What available recommended home-made fluid / home base oral rehydration fluid can be given to a child with diarrhea? (Tick as many as possible)	1. Salt with water 2. Rice water 3. Soup 4. Juice 5. Other, specify……	
405	Did your child receive ORS solution during diarrhea episode?	1. Yes 2. No	
406	After how long the diarrhea started, have you given ORS to the child?	1. Same day 2. Second day 3. Third day 4. Fourth day 5. I don't know	
407	How do you prepare WHO ORS?	1. 1 sachet of ORS -250-300 mls (1glasses) of water 2. 1 sachet of ORS -500 mls (2 glasses) of water 3. 1 sachet of ORS -750 mls (3 glass) of water 4. 1 sachet of ORS -1000mls (1 liter or 4 glasses) of water 5. 1 sachet of ORS -1500mls (1.5 liters or6 glasses) of water 6. 1 sachet of ORS -2000mls (2 liter) of water	
408	How often have you given ORS to your child?	1. Once a day 2. 2 – 3 times a day 3. 4 – 5 times a day 4. 6 & above times a day 5. After the passing of every loose stool 6. No idea	
409	How much ORS solution have you been given to the child each time the child has loose stool?	1. As much as the child can drink 2. Coffee cup of 100ml 3. Don't know / can't answer 4. Other (specify)	
410	For how long do you keep the prepared ORS?	1. 24 hrs (1 day) 2. 48 hrs (2 days) 3. 72 hrs (3 days) 4. 96 hrs (4 days)	

		5. Other, specify…..	
411	What water do you use to prepare ORS solution?	1. Previously boiled and cooled water 2. Drinking water 3. Highland water	
412	Do you wash your hands with soap and water before preparing ORS?	1. Yes 2. No	

This is all what I want to ask you. Thank you for spending your time and Valuable information you gave me. Do you have any question that I can address for you!

_____

Name of data collector---------- signatures---------

Name of supervisors---------- signature----------

Annex-III Information sheet in Afan Oromo

Heloo! Akkam bultan? Maqaan koo ----------, Kanan dhufe----------

Har'a kanan dhufe qorannoo Gaaddisaa Baqqalaa barataanYunibarsiitii Finfinnee digirii lammaffaa kan ta'e waa'ee beekkumsa, ilaalchaa fi shaakala haadholiin magaalaa Giincii daa'imman waggaa shanii gadi jiran yeroo garaa kaasaan qabaman yaala isaan godhan qorachuuf qophaayerratti gaaffileewwan isin gaafachuufi. Hicciitiin keessan qaama biraatti dabarfamee kan hin himamne ta'uu akka beektan durseen sin hubachiisa. Qorannoo kana irratti maqaa keessan heeruun hin barbaachisu. Hirmaannaan keessanis fedha keessanirratti kan hundaayedha. Gaaffii deebisuu hin barbaannee irra darbuu ni dandeessu. Garuu deebiin isin laattan qorannoo kanaaf murteessaadha. Waan qorannoo kanarratti hirmaattaniif kanfaltii yookaan faayidaa addaaan argattan hin jiru. Qorannichi dhiibbaa qaamaa yookaan dhimma siyaasaarraa bilisaa fi yaadni keessan garuu rakkoowwan qorannoon kun furuuf godhamu irratti jijjiirama fiduuf murteessaadha. Kanaaf fedha keessaniin daqiiqaa 30 keessatti yaada keessan nuuf gumaachuu dandeessu.

Heeyyama Hirmaattuu: Odeeffannoon barbaachisoon waayee qorannoo kanaa naaf ibsameera. Qorannoon kun dhiibbaa kamiyyuu jireenyakoorratti kan hin uumne ta'uu fi beenyaan/kaasaan naaf kanfalamu akka hin jirres hubadheera. Qorannoo kanatti hirmaachuuf fedhii qabaachuu koo fi odeeffannoo barbaachisu akka narraa fudhataniif eeyyamamaa ta'uukoo ibseera.

Mallattoo koo_____

Guyyaa _____ Sa'aa _____

Odeeffannoo fuunaanaa: Odeeffannoon armaan olii akka laatameef mallattookootiinan mirkaneessa.

Maqaa:_____Mallattoo_____

Teessoo qorataa: Lakk. Bil.=09 36 72 80 52,email:gaaddisaab@gmail.com

Walii galtee xumuura gaaffichaa:1. Xumuurame 2. Ni didame 3. Gartokkee deebisan

Maqaa qajeelchaa_____Mallattoo_____Guyyaa_____

Annex-II: IV Questionnaires in Afan Oromo Version

Part I. Haala odeeffaannoo walii gala kunuunsaa daa'imaa

Tartiba Lakk.	Odeeffannoo bu'uuraa	Deebii fi Koodii gaaffilee	Irra darbi
101	Umurii	.....	
102	Amantaa	1. Ortoodooxii 2. Musiliila 3. Kaatoolikii 4. Piroteestaantii 5. Kan biro(yoo jiraate ibsi)_____	
103	Saba	1. Amaara 2. Oromoo 3. Guraagaee 4. Tigree 5. Kan biroo_____	
104	Sadarkaan barnoota keetii hammam?(Hanga meeqatti barate)	1. Hin baranne 2. Sadarkaa 1ffaa 3. Sadarkaa 2faa 4. Qophaayina 5. Koollejjii 6. Yunibarsiitii	
105	Dalagaan kee maali?	1. Hojjataa mootummaa 2. Hojii dhuunfaa 3. Haadha manaa 4. Daldalaa 5. Kan biroo_____	
106	Walitti dhufeenyi keetiif daa'imaa maali? (Firoomni)	1. Haadha 2. Obboleettii 3. Akkawoo 4. Kan biro(ibsi)_____	
107	Gaa'ila qabdaa?	1. Hin qabu 2. Eeyyee nan qaba 3. Wal hiiknee jirra 4. Najalaa du,e	
108	Ji'aan qershi meqa argatta?	……	
109	Baay'inni maatii keessanii meeqa?	1. Afurii fi isaa ol 2. Shanii ol	

Kutaa II : Haala waliigala beekkumsa haadha/kunsituu daa'imaa

201	Garaa kaasaa/baasaa/ haala kamiin hubatta?	1. Hamma baay'ina bobbaa dhangala'oo garaa baasuutiin (yeroo sadii oli) 2. Hamma baay'ina bobbaa dhangala'oo hin taaneetiin 3. Bobbaan dhiiga qabaachuu isaatiin 4. Waan akka furrii fakkaatu bobaa keessa jiraachuu isaatiin 5. Kan biroo yoo jiraate ibsi_____	
202	Garaa kaasan/baasaan dhukkuba cimaa daa'imman miidhudhaa?	1. Eeyyee 2. Lakki/miti	
203	Sababni dhukkuba garaa kaasa/baasa maal jettee yaadda? (kan ni ta'a jettu itti mari)	1. Qulqullina dhabuu 2. Nyaata summaa'ee/faalame 3. Bishaan faalame 4. Biqiluu ilkaan /irga daa'imaa 5. Raammolee garaa keessaa 6. Tisiisa/Titiisa 7. Kan biroo yoo jiraate ibsi___	
204	Miidhaan garaa kaasaan daa'ima waggaa shanii gadii irratti geessisuu malu kami?	1. Dhukkubbii cimaa fi du'a 2. Guddina daa'immanii quucarsa 3. Hubannaasaa hin qabu	
205	Kamtu karaalee garaa kaasaa ittiin ittisani jettee yaadda?	1. Haala gaariin harma hoosisuu 2. Harka seeraan dhiqachuu 3. Bobbaa daa'immanii haalaan gatuu 4. Talaallii gifira fudhachuu	
206	Harka saamunaan dhiqachuun garaa kaasaa ittisuuf ni gargaara.	1. Eeyyee 2. Lakki	
207	Mallattoolee dhangala'oon da'imman keessaa dhumuu agarsiisan beektaa?	1. Eeyyee 2. Lakki	
208	Isaan kamtu mallattoolee a	1. Of dadhabuu yookaan of wollaaluu hamma	

	garaa kaasa/baasaa wajjin walqbata? (kan ni ta'a jettu jala muri)	garaa kaasaa bahu wajjiin. 2. Ho'a qaamaa fi bobbaa dhiiga qabu bobba'uu 3. Dheebuu cimaa qabaachuu 4. Fedha nyaaata dhabuu fi Irra deddeebi'anii haqqisuufi iddoo hundattuu haqqisuu 5. Fincaan hir'achuu/ diduu 6. Kan biroo yoo jiraate ibsi_____	
209	Yeroo daa'imni garaa kaasaan/baasaan qabame/te soorata ni nyaataa/ttii?	1. Ammuma dura nyaatutti nyaata 2. Hanga duraa caala nyaata 3. Baay'ee xinnoo hanga duraa gadi nyaata	
210	Dhangala'aa ORS jedhamu dhageessee beektaa?	1. Eeyyee 2. Lakki/Hin beeku	
211	Waa'ee ORS eessaa dhageesse?	1. Keellaa fayyaa	
		2. Buufata fayyaa	
		3. Hospitaala	
		4. TV	
		5. Radio	
		6. Hiriyaa	
212	Faayidaa ORSn daa'ima garaa kaasaan qabeef kennamuuf beektaa?	1. Garaa kaasaa dabaluuf 2. Garaa kaasaa hir'isa 3. Dhangalo'oon akka hin bane godha 4. Hubannoosaa hin qabu	
2013	ORS yeroo akkam akka jalqabsiiftu beektaa yeroo daa'imni garaa kaasaan qabamtu?	1. Eeyyee 2. Lakki/Hin beeku	
2014	Yeroo ORS itti dhaabanoo beektaa?	1. Eeyyee 2. Lakki/Hin beeku	
215	Mana keetti akkaataa ORT itti qopheessan beektaa?	1. Eeyyee 2. Lakki	

Kutaa III: Ilaalcha haawwan garaa kaasaa yaalurratti qaban

Gaaffiiwwan armaan gadiif deebiisaa jechoota armaan gadii keessaa lakkoofsa wal simatu filadhaa.

1. Guutumaan guutuutti itti walii hin galu
2. Itti walii hin galu
3. Hin mormus hin deeggarus
4. Ittan walii gala
5. Guutumaan guutuutti ittan walii gala

T.Lak.	Statements (phrases)	1	2	3	4	5
301	Talaalliin garaa kaasaa ittisuuf ni gargaara.					
302	ORSn qoricha aadaa caala garaa kaasaa fayyisuuf gargaara.					
303	Ilkaan magarsuun garaa nama qabsiisa					
304	Nyaanni lallaafaan garaa kaasaa namatti fooyyessa.					
305	Ji'a ja'aa asitti daa'imman harma qofa hoosisuun garaa kaasaarraa ni ittisa.					
306	ORS fi dhangalo'oon biroon dhangala'oo qaamaa bakka buusuuf ni gargaaru.					
307	ORSn akka aadaa naannoo kanaatti fudhatama hin qabu.					
308	ORSn garaa kaasaa fayyisuuf ni gargaara.					
309	Daa'imman dhamdhama ORS tti hin gammadan.					
310	Nyaanni idileen daa'imman garaa kaasaan qabeef filatamaadha.					
311	Dhangala'oo dabalataan daa'imman garaa kaasaan qabeef kennuun barbaachisaadha.					
312	Haala qulqullina hin qabneen ORS qopheessun garaa kaasaaf ittuu cimsa.					

Kutaa IV: Kutaa Haala muuxannoo ilaalchisee

Tart. Lakk.	Gaaffiiwwan	Deebii fi koodii deebiiwwanii	Irra darbi
401	Yeroo garaa kaasaan qabu soorata soorata daa'ima keetii maali goota?	1. Nyaatan irraa dhaba 2. Nyaata ittan fufsiisa 3. Hin beeku	
402	Yeroo daa'imni kee garaa kaasaan qabamtu maal kennitaaf?	1. Nyaata maatiin nyaatu 2. Daabboo 3. Daakuu bunaa	
403	Yeroo daa'imni garaa kaassan/baasaan dhukkubsate dhugaatii ni dhugaa?	1. Ammuma dura dhugutti dhuga 2. Hanga duraa caala dhuga 3. Baay'ee xinnoo hanga duraa gadi dhuga	
404	Daa'ima garaa kaasaan /baasaan qabeef dhangala'oo manatti qopheessitani kennitaniif jiraa?	1. Bulbulaa Sukkaar fi Soogiddaa 2. Bishaan ruuza 3. Shoorbaa 4. Cuunfaa muduraa 5. Kan biro yoo jiraate ibsii_____	
405	Yoo eeyyee jette,daa'imni kee garaa kaasaan dhukkubsatee kanaan dura ORS fudhatee beekaa?	1. Eeyyee 2. Lakki/Hin beeku	
406	Garaa kaasaan daa'ima kee erga eegaleen booda guyyaa meeqaffaatti ORSn kennameef?	1. Guyyuma sanitti 2. Guyyaa itti aanu/lammaffaa 3. Guyyaa sadiin booda 4. Guyyaa afur booda 5. Hin beeku	
407	ORS haala kamiin qophaa'a/bulbulama?	1. ORS saakkeettii 1-bishaan 250-300mls) 2. ORS saakkeettii 1-bishaan 500mls 3. ORS saakkeettii 1-bishaan 750mls 4. ORS saakketii 1-bishaan 1000mls (bishaan litira 1) 5. ORS saakketii 1-bishaan 1500mls 6. ORS saakketii 1-bishaan 2000mls	
408	Guyyaatti yeroo meeqaaf kennamaa?	1. Al tokko qofa 2. Guyyaatti yeroo 2-3 3. Guyyaatti yeroo4-5 4. Guyyaatti yeroo 6 fi isaa oli 5. Yeroo bobbaan dhangal'aa bobbaaseen booda 6. Hin beeku	
409	Dhangala'oon ORS bobbaan booda hammamtu daa'imaaf kennamaa?	1. Hanga daa'imni dhuguu danda'u 2. Shinii bunaa fi 100 ml 3. Hin beeku 4. Kan biroo yoo jiraate ibsi_____	
410	ORS erga bulbulleen booda sa'aa meeqaaf itti fayyadamnaa?	1. Sa'aa 24 (Guyyaa 1) 2. Sa'aa 48 (Guyyaa 2) 3. Sa'aa 72 (Guyyaa 3)	

		4. Sa’aa 96 (Guyyaa 4) 5. Kan biroo yoo jiraate ibsi_____	
411	ORS bulbuluuf bishaan akkamiitiin fayyadamta?	1. Bishaan hoo’ee qabbanaa’e 2. Bishaan dhugaatiif oolu kamiyyuu 3. Bishaan hayilaandii	
412	ORS qopheessuuf dursitee harkakee saamunaan dhiqattaa?	1. Eeyyee 2. Lakki/Hin beeku	

Wantootnin ani isin gaafachuuf ture isaan kanadha. Yeroo keessan naaf kennitanii odeeffannoo barbaachisaa kana naaf laachuu keessaniif guddaa galatoomaa. Gaaffii yoo qabaattan gaafachuu dandeessu!

Maqaa nama odeeffannoo funaanee _____Mallattoo_____

Maqa hordofaa/to’ataa_____ Mallattoo_____

Annex-V Declaration

I, the undersigned, declare that this thesis is my original work, has not been done for a degree in this or any other university and that all sources of materials used for the proposal have been fully acknowledged.

Principal investigator: Gadisa Bekele

Signature_____Date_____

Name of institution: Addis Ababa University

This thesis has been submitted for examination with my approval as university advisors.

Name of advisors:

1. Mrs Rajalakshim Murugan (Ass. prof) Signiture _____Date_____

2. Mr Tadesse Bedada (BSc, MSc) Signature _____Date_____