

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

HOME MANAGEMENT PRACTICE AND FACTORS ASSOCIATED WITH
MOTHER'S MODERN HEALTHCARE SEEKING BEHAVIOR FOR
CHILDHOOD DIARRHEAL DISEASES IN GINIR DISTRICT, BALE ZONE.

BY:
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LIST OF ACRONYMS

AAU	Addis Ababa University
AIDS	Acquired Immune-deficiency syndrome
CDC	Centers for disease control
EDHS	Ethiopian Demographic and Health Survey
IMCI	Integrated Management of Childhood Illnesses
MDG	Millennium development Goal
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
RHF	Recommended Home Fluid
SPSS	Statistical Package for Social Science
SSA	Sub-Sahara Africa
SSS	Sugar-salt solution
UNICEF	United Nation Population Fund
WHO	World Health Organization

ABSTRACTS

Background: Diarrheal disease still remains among the leading causes of childhood morbidity and mortality. Despite diarrhea being a disease that is easy to prevent and treat, it causes about 1.5 million under-five deaths every year. The poor outcome of diarrheal episode is mainly the result of improper mother's treatment of diarrhea diseases at home and the types of treatment she seeks.

Objectives: To assess mother's home management practice, prevalence of modern health care seeking behavior and its determinant factors for childhood diarrheal illnesses in Ginir District, Bale Zone, Oromia Regional states.

Methods: A cross sectional study was conducted from January to February 2013 in Ginir District. The study participants were 664 mothers/caretakers who have under-five children with diarrhea. Data was collected using both structured and semi-structured open ended questionnaire. A descriptive statistics, bivariate and multivariate analyses were done using cross tabulation and binary logistic regression. Qualitative data was analyzed using content analysis after exported to open code software.

Results: the study showed that, majority of the mothers 291(43.8%) provide less than usual or gave nothing to drink and only 169(25.2%) of them provide more than usual fluids as recommended for their children with diarrhea. More than half of the mothers 373(59.6%) decreased or withhold food, and only 198(31.6%) of the children with diarrhea fed as usual. Even though the use of ORS is widely recommended, only 191(28.8%) of the children with diarrhea were given ORS. The prevalence of mother's modern treatment seeking behavior were found to be low in the district, where only 246(37%) of the mothers sought modern treatment for their children with diarrhea.

Higher level of mother's education (AOR=15.3, 95% CI=5.4, 43.5) and being a model family (AOR=1.9, 95%CI=1.3, 2.8) were factors positively associated with modern treatment seeking behavior. Those mothers, who live greater than five kilometers were less likely to seek modern treatment than those who live within five kilometers of health facility (AOR=0.27, 95%CI=0.17, 0.44). Mothers who thought their children had severe diarrhea were 3.4 time more likely to seek modern treatment compared to those who thought mild (AOR=3.43, 95%CI=1.77, 6.63) and mothers who related the causes of diarrhea to some Folk causes were less likely to seek modern treatment than those who respond did not know (AOR=0.26, 95% CI=0.16, 0.42).

Conclusions and recommendations: majority of the mothers practice inappropriate home management for childhood diarrheal diseases and the utilization of modern treatment were low in the area. Mother's educational status, model family, distance from health facility, perceived severity and perceived causes of the illness were found to be statistically significant predictors of mother's modern healthcare-seeking behavior for childhood diarrhea. Effort should be made to improve mother's home management practice and mother's modern healthcare seeking behavior for childhood diarrhea diseases.

1. INTRODUCTION

1.1. Background of the study.

Diarrheal disease is one of the leading causes of childhood morbidity and mortality. Globally, children aged less than five years experience, on average, 3.2 episodes of diarrhea every year and consequently millions of children are dying under the age of five due to dehydration associated with diarrheal diseases(1). Most episodes of childhood diarrhea, last 1-7 days, and are characterized by frequent loose or watery stool. It is common to have between 3 and 11 episodes of diarrhea per year per child in developing countries. Incidence is highest among age group of 6-11 months, when weaning often introduced (2).

Despite diarrhea being a disease that is easy to prevent and treat, it causes about 1.5 million under-five deaths every year and it is said to cause more child deaths than malaria, measles and AIDS combined. Together, pneumonia and diarrhea account for an estimated 40 percent of all child deaths around the world each year (1). About 80% of the deaths due to diarrhea occurred in the first two years of life (3).

Africa and South Asia are home to more than 80 percent of child deaths due to diarrhea. Just 15 countries account for almost three quarters of all deaths from diarrhea among children under-five years of age annually(1). Ethiopia is also one of the countries mentioned in this lists and have got the fifth rank.

According to 2011 EDHS, the two weeks prevalence of diarrheal disease among under- five children is 13%. It is more common among rural children (14%) than urban children (11%) (4).

This shows, diarrheal disease is still the major health problems in Ethiopia. Another study done in Ethiopia also shows that, the 2-week prevalence of diarrhea among children age 0-23 month was 22%. Diarrhea prevalence appeared the lowest in Tigray at 17% and the highest in SNNPR at 31% respectively (5).

Mother's knowledge of how to manage diarrhea at home with fluids and food and recognizing of when children need treatment is the crucial factors determining the outcome of diarrheal diseases. The main cause of death from acute diarrhea is dehydration, which results from the loss of fluid and electrolytes in diarrhea stools(6). Many of the millions of children who die every year in developing countries from diarrhea could be saved if mothers knew how to give ORT promptly. In developing countries, only 39 percent of children under-five with diarrhea receive the recommended treatment (providing of ORT with continued feeding) (1).The 2011 Ethiopia DHS report also showed that, only 10 percent of children with diarrhea were given increased liquids and continued feeding as recommended, while 25 percent of children with diarrhea continued to feed and were given ORT or increased fluids (4).

Appropriate healthcare-seeking practice is one of the ways that many of the child deaths that occur due to diarrhea can be prevented. However, the utilization of modern health service is low in Ethiopia, resulting in a number of child deaths occurring at home. According to 2011 Ethiopians demographic Health survey only 29 percent of rural children with diarrhea were taken for advice or treatment to a health facility (4). Other study done in Ethiopia also revealed that 37% of children aged between 0- 23 months with diarrhea were taken to health facilities for treatment (5).

Maternal literacy and health education, socioeconomic status, culture, beliefs, practices, and access to health care are among the factors contributing to the high mortality rates caused by diarrhea (7). Even though care seeking intervention have the potential to substantially reduce child mortality, in developing countries large number of children die without ever reaching a health facility and due to delay in seeking care(8). Therefore families need to be able to respond appropriately when their children are sick, seek a timely assistance when children need additional care and give the recommended treatments.

1.2. Rationale of the study

Since most of the studies on healthcare-seeking behavior are not focused on specific illnesses, and the few that focus on a specific illness have mainly looked at malaria and HIV, there is a need to focus on specific illnesses like diarrhea, given the evidence that the type of healthcare-seeking practice is symptom specific.

Timely and appropriate healthcare-seeking practice is one of the ways that many of the child deaths that occur due to diarrhea can be prevented. But in Ethiopia modern healthcare seeking behavior for childhood diarrhea disease still remains low in rural areas (29%) (4), and there is scarce information on the determinant factors of healthcare seeking behavior for this prevalent illness.

Assessing the determinant factors, perceptions, beliefs and practice in childhood diarrheal disease management of the community and seeking modern treatment therefore provides a clue for further intervention such as preparing educational messages based on existing beliefs. This will help in addressing the improper childhood diarrheal disease home management and modern health care seeking behavior, which will enhance the country's achievement of the MDG 4 on reduction of child mortality.

2. LITERATURE REVIEW

2.1 Mothers home management practice for childhood diarrhea diseases.

The global communication efforts have concentrated on assisting national program to promote the three rules of case management of diarrheal diseases at home, which is increasing fluid intake, continue feeding and seek medical care when needed (9).

Study done in Kosovo regarding management of diarrhea, home care practices of mothers showed that, 62.6% gave less fluids or not at all, 19.6% as usually and only 17.8% more than usually. Almost half of mothers (43.9%) reduced or stopped usual food or breast feeding, 48.6% gave usual amount of food or breast feeding and only 7.5% of them increased amount of food or breast feed to children with diarrhea (10). The Centers for Disease Control and Prevention (CDC) and WHO recommended the use of ORS as center of treatment in the management of diarrhea (11).

Other Study done in north-east Brazil showed that during the episode of diarrhea, feeding was reduced or stopped for nearly half of the children. About 16% of breast-fed children reduced their intake of breast milk during the episode of diarrhea. Twenty three percent of the children had an increased intake of liquids and 19% a reduced intake. ORT was administered to 24.3% of the children. ORS were given to 6.8% of the children and SSS to 14.7% (12).

In developing countries, only 39 per cent of children under five with diarrhea receive the recommended treatment; providing of ORT with continued feeding, to prevent dehydration and worsening nutritional status. Africa has the lowest levels of treatment coverage 35%, followed by South Asia 37% and the Middle East & North Africa 39%. East Asia and the Pacific (excluding China) have the highest treatment coverage levels, at 55% (1).

Study in Nepal have found that there are different traditional beliefs, barriers and practices about childhood illnesses and their management at local level as perceived by different communities. (13). Other Study done in India showed that, only 69% of the mothers continued breastfeeding, while the remaining 31% either withheld or interrupted breastfeeding.

Concerning ORS, less than half of the mothers (46.5%) knew about oral rehydration salt solution and only 29.8% of those knew the correct method of preparation and study in Iran found that about 51% of children with diarrhea were given ORS (14, 15).

Study conducted in two villages in a coastal area of Java shows that , mothers prefer to use traditional herbs to treat their children's diarrhea and they will seek modern medical treatment only if the traditional herbs do not work after one or two days (16).

Regarding substances used by mothers for their children during diarrheal episode, study in Nigeria found that antibiotics by 17.2%, packet ORS by 33.1%, Herbal medicine by 2.6%, salt and sugar solution by 21.9% and general self medication to stop diarrhea by 31.1%. Two percent (2%) said they use nothing to stop or reduce the episode of diarrhea (17). Other study in Uganda also demonstrated that 43% of the children were treated with ORS during diarrheal episode (18).

According to EDHS 2011, mothers were asked about their child feeding practice during diarrheal illness and only 16 percent of children with diarrhea were given more fluids than usual, as recommended. Thirty five percent were given the same amount of fluids as usual, 49 percent were offered less fluid than usual or were given no fluids at all (4).

Concerning the food given to the children with diarrhea, 48% of them were offered less food than usual or no food at all. Only 10 percent of children with diarrhea were given increased liquids and continued feeding as recommended, while 25 percent of children with diarrhea continued to feed and were given ORT or increased fluids. Twenty-six percent of children with diarrhea were treated with ORS packets and 8 percent were treated with RHF (4).

The survey done in Ethiopia asked mothers regarding the use of ORS, RHF and the administration of increased fluid for children sick with diarrhea in the two weeks prior to the survey. The response showed that, 24%, 21%, 39% and 8% of the children suffering from diarrhea received, ORS, RHF, ORS or RHF and increased fluid, respectively. The use of ORT in general appeared relatively high in Tigray (57%), followed by Oromiya (48% ORT: 26% ORS & 24% RHF) (5).

Many of the deaths caused by diarrheal diseases could be saved if mothers knew how to give ORT promptly. Researchers asked mothers regarding knowledge of ORS, 42% of the mothers had knowledge that could be summarized as ORS does not stop diarrhea but adds the lost water to the child's body, 24.1% said that ORS helps the child recover the physical strength lost due to the diarrhea, 16.4% said that ORS is the cure for diarrhea, and 17.5% did not know any details of ORS or had never heard of it (19).

2.2 The prevalence of mother's modern treatment seeking behavior.

Improving mother's care-seeking behavior has great contribution in reducing a large number of child morbidity and mortality in developing countries. Study done in Nicaragua found that, majority of the target mothers utilizes public health facilities first when they face a childhood illness more than 75%. They attribute this surprisingly high utilization rate to the low consultation cost of public health service, and partly attributable to the regular community visits by government health staff members at least once a year during immunization campaign weeks(20).

According to the study done in Brazil, the caretakers were asked where they had taken their children for treatment during the episode of diarrhea. Government health services had been used by 14%, private practitioners by 1%, and traditional healers by 24%. Only 3% had gone directly to a pharmacy for advice, while 65% of the children had not been taken nowhere for treatment (12).

Another study carried out in Nepal found that 292 children who had childhood illness, 88.4% received some kind of care outside the home. No care was sought for 2.7% children, 8.9% children received traditional/ home remedies, Pharmacy was sought in 46.2% episodes of illness and care was sought from qualified allopathic medical practitioners in only 26.4% episodes (13). Other Study done in Iran also showed that 69.1% rural mothers sought treatment for their child who had diarrhea form health facility (15).

The study done in two informal settlements – Korogocho and Viwandani in Nairobi, Kenya showed high prevalence of inappropriate healthcare-seeking and not seeking care at all especially for childhood illnesses. Results from this study shows that only 44.81% of the mothers/caretakers sought appropriate healthcare, while fifty five percent of caregivers practiced inappropriate healthcare-seeking, with about 35% taking no action for the child illness, 10% buying medicine from a chemist and about 9% giving the children leftover medicine from home (21).

The study done in a rural western Kenya community revealed that, only 30.4% of the mothers taken to hospital/health facility and about 12.7% of them did nothing to their ill children. The rest of them were, purchased drugs by 32.4%, used traditional medicine by 13.7% and consulted traditional healer by 10.8% and other study in the Niger also showed that, Of those reporting diarrhea during the recall period, 70.4% (95% CI: 66.6-74.1) reported seeking care at a health structure (22, 23).

The EDHS 2011 report showed that overall, 32 percent of the children with diarrhea were taken for advice or treatment to a health facility or provider; 54 percent of them were urban, while 29 percent of them were rural (4). Study in southern Ethiopia found that of those who sought treatment, 54.9% of respondent in rural district have taken their children within two days period and 45.1% after 3 or more days' of diarrhea (24).

2.3. Factors affecting modern health care seeking behavior of mothers

The improvement in children's survival and health envisioned in Integrated Management of Childhood Illnesses require comprehensive understanding of how families make choices about seeking health care. Most of the studies however offer varying results regarding the determinants of healthcare-seeking behavior. Some of the studies have reported that age, family size, education, physical accessibility, childhood disease symptoms, duration of illness, perceived severity of illness as well as recognition of certain signs by the caregivers are the key determinants of health care-seeking behavior (25).

Mothers' health beliefs about the causes of the child's illness affect the likelihood of seeking a provider, particularly doctors and traditional healers. Study done in Guatemala revealed that children with illnesses for which mothers beliefs are related to hygiene are more likely to see a doctor, while children with illnesses which mothers think are due to folk causes are more likely to see a traditional healers, as compared with their counterparts holding different beliefs (25).

The choice of modern or traditional healer depended on the way in which the family perceived and described a diarrheal illness. Children with blood in the stools or who passed many stools were more likely to be taken to a modern health facility. Those with fever were more likely to be taken to a traditional healer. Cultural beliefs and attitudes also affect how a family perceives a child's illness, the health care and treatment options available to them, and what they decide about where and when to seek help. Many societies have their own classification systems for illnesses. Diarrhea, for example, may not always be described as a single disease. Different types of diarrhea can have local names and there may be local beliefs about symptoms, causes and treatments of the illness and treatment may sought for some types and not for others (26).

Study done in Vietnam indicated mothers who had completed junior high school were 37% more likely to seek advice or treatment compared to those who had not. Mothers of children with severe diarrheal disease were 27% more likely to seek advice or treatment compared to mothers of mild ill children. Mothers who reported using ORS during the diarrhea episode were 29% more likely to have consulted a health care provider and Similarly study in western Nepal showed that mothers were more likely to seek appropriate care for their children when the child

had more than one symptom, mothers had secondary level or higher education, and higher family income(27, 28) . Another study in Indonesia also identified mothers' age, highest level of education, knowledge of ORT, children's age, duration of illness and symptoms and signs as statistically significant determinant factors affecting mothers' choice of care (6).

Study in Burkina Faso found that Care was sought and treatment provided more frequently for children with diarrhea when the illness was accompanied by fever, vomiting, or anorexia, when the episode was of longer duration and among families who resided closer to the health center; and care was sought more frequently for male children (29). The other study done in Niger also found that the main reasons for non-consultation were spontaneous recovery and self-medication, mostly sought from roadside vendors. Financial problems were cited in approximately 10% of respondents (23).

The study done in Uganda showed that, the seriousness of signs and symptoms of disease is an important determinant of care-seeking pattern for a sick child. Accordingly, 39.0% of the mothers, said they would seek care when a child developed a dry mouth, sunken eyes, and decreased urine output, 20.7% said they would seek care for prolonged diarrhea, 11.5% said they would seek care if a child had vomiting, 16.7% said they would seek care if a child had fever, 26.6% said they would seek care if a child failed to drink or breastfeed and 24.7% said they would seek care if a child felt weak (18).

Study done in slum area in Kenya also Found that, the odds of seeking appropriate healthcare for children of age 12-24 months is 23% higher than that of children of 0-11 years, for caregivers' education, those who had secondary education and above were even more likely to seek appropriate care than those with either no education or incomplete primary education and Caregivers from the rich households were significantly more likely to seek appropriate care compared to the poor (21).

The 2011 Ethiopian demographic health survey showed that children age 24-35 months were more likely than children in other age groups to be taken to a health facility or provider for treatment (39 percent). The differences in percentages of children taken for treatment were small between male and female children and by type of diarrhea. Urban children were considerably more likely to have been taken for advice or treatment for diarrhea than rural children (54 percent versus 29 percent). Children of highly educated mothers and those in the highest wealth quintile are more likely than other children to be taken to a health facility or provider for treatment when they have diarrhea (4).

Study done in derra district, north shoa zone, oromia regional state showed that perceived severity of illness was found to be strong predictors of place of treatment. Mothers sought modern treatment more likely for those childhood diarrhea that is perceived to be severe than those perceived mild (8), and other study done in west Arsi zone also shows that mothers educational status, income and distance from health facility were found to be factors affecting modern treatment seeking behavior (30).

In conclusion, diarrhea is a public health problem in many countries, particularly in developing countries. Delay in seeking health care or not seeking care at all, and ineffective treatment choices can compromise the outcome of a child's health status. The EDHS 2011 indicated that health service utilization for childhood diarrhea is low, resulting in a number of deaths occurring at home. The main cause of death from acute diarrhea is dehydration.

Maternal practices regarding health care have been recognized as an important social and anthropological factor behind the high mortality rates among children aged less than five years. The main determinant of modern healthcare seeking behavior are mother's age, religion, educational status, knowledge of ORT, family size, physical accessibility, duration of illness, economic status, children's age and sex, perceived severity of illness as well as recognition of certain signs by the mothers/caregivers.

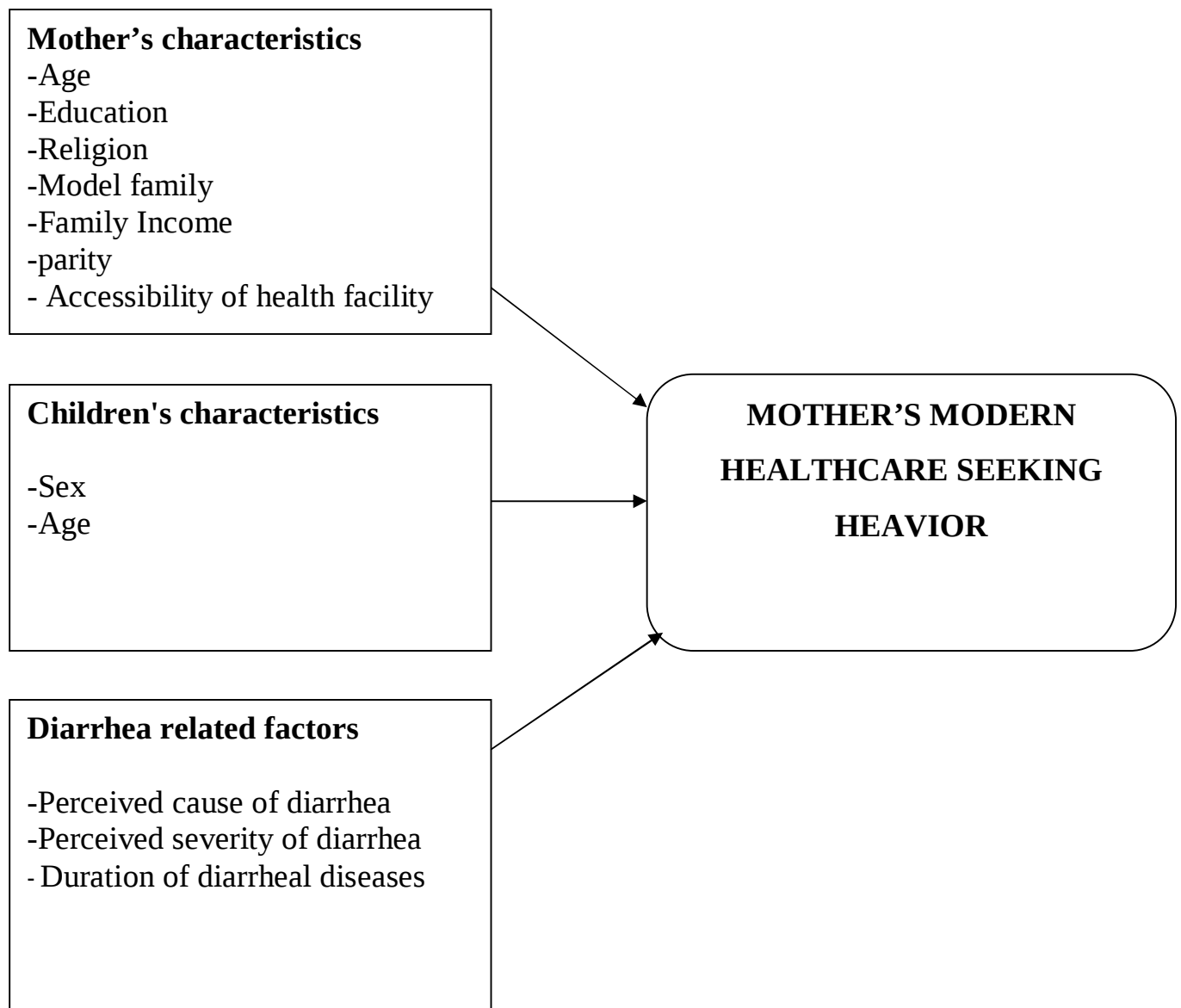


Figure1.A conceptual framework for factors associated with mother's modern health care seeking behavior for treatment of childhood diarrheal disease

3. OBJECTIVES OF THE STUDY.

3.1. General objective

- Ø To assess mothers/caregiver's home management practices of diarrhea, the prevalence of modern health care seeking behavior and its determinant factors for childhood diarrheal illnesses.

3.2. Specific objectives

- Ø To identify mothers/caregiver's home management practice for childhood diarrheal diseases.
- Ø To measure the magnitude of mothers/caregiver's modern healthcare seeking behavior for childhood diarrheal diseases.
- Ø To assess factors associated with mother's modern healthcare-seeking behavior for childhood diarrheal diseases.

4. METHODOLOGY

4.1. Study area and period

The study was conducted in Ginir District, Bale Zone, Oromia Regional state, south eastern Ethiopia from January 2013 to February 2013. Bale zone is the second largest Zones in Oromia Regional state with an area of 67,329.6 km² and located 430 km from the capital, Addis Ababa. Ginir woreda is one of the 20 woredas in Bale zone having both rural and urban population. The District has four town and twenty-eight rural kebeles. Ginir town is the capital of Ginir District, located 534 km south east of Addis Ababa. The district has one hospital, eight functioning health centers and twenty-eight health posts. According to Ginir District Health Office, the estimated total population of the District in 2012/13 was 157,630 and a total of 24,666 under five Children of which 6,853 and 17,813 are urban and rural dwellers respectively.

4.2. Study Design

A community based cross-sectional study was conducted to assess mother's home management practice for diarrhea and factors associated with modern healthcare seeking behavior. The study was supplemented by qualitative methods with the aims of exploring more information on the factors influencing modern treatment seeking behavior.

4.3. Source population

The sources of the population are all mothers/caretakers with under-five children living in rural area of Ginir District.

4.4. Study population

The study populations are mothers/caretakers living in rural area of the district and who have under-five child with diarrhea in the four weeks before the study period.

Exclusion criteria: Mothers/caretakers who are unable to participate due to illness and other causes.

4.5. Sample size determination

The sample size was calculated using single population proportion formula by taking the following assumptions.

P = the proportion of rural mothers who sought modern treatment for childhood diarrheal diseases, 29% (EDHS 2011).

$Z_{\alpha/2}$ = the standard scale of 95% level of confidence = 1.96

d = margin of error = 5%

Design effect = 2

Non response rate = 10%

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

$$n = \frac{(1.96)^2 \times 0.29(0.71)}{(0.05)^2} \times 2 + 10\% \text{ non response rate}$$

$$n = 316 \times 2 + 32 = 664$$

The final total sample size calculated was 664.

4.6 Sampling procedure

The study participants were selected using cluster sampling method. First, from the twenty-eight rural kebeles (clusters) in the district, twelve kebeles (clusters) were selected by lottery method. Then, those mothers/caregivers who had under-five children with diarrhea in the four weeks preceding the survey and residing in the selected kebeles were interviewed.

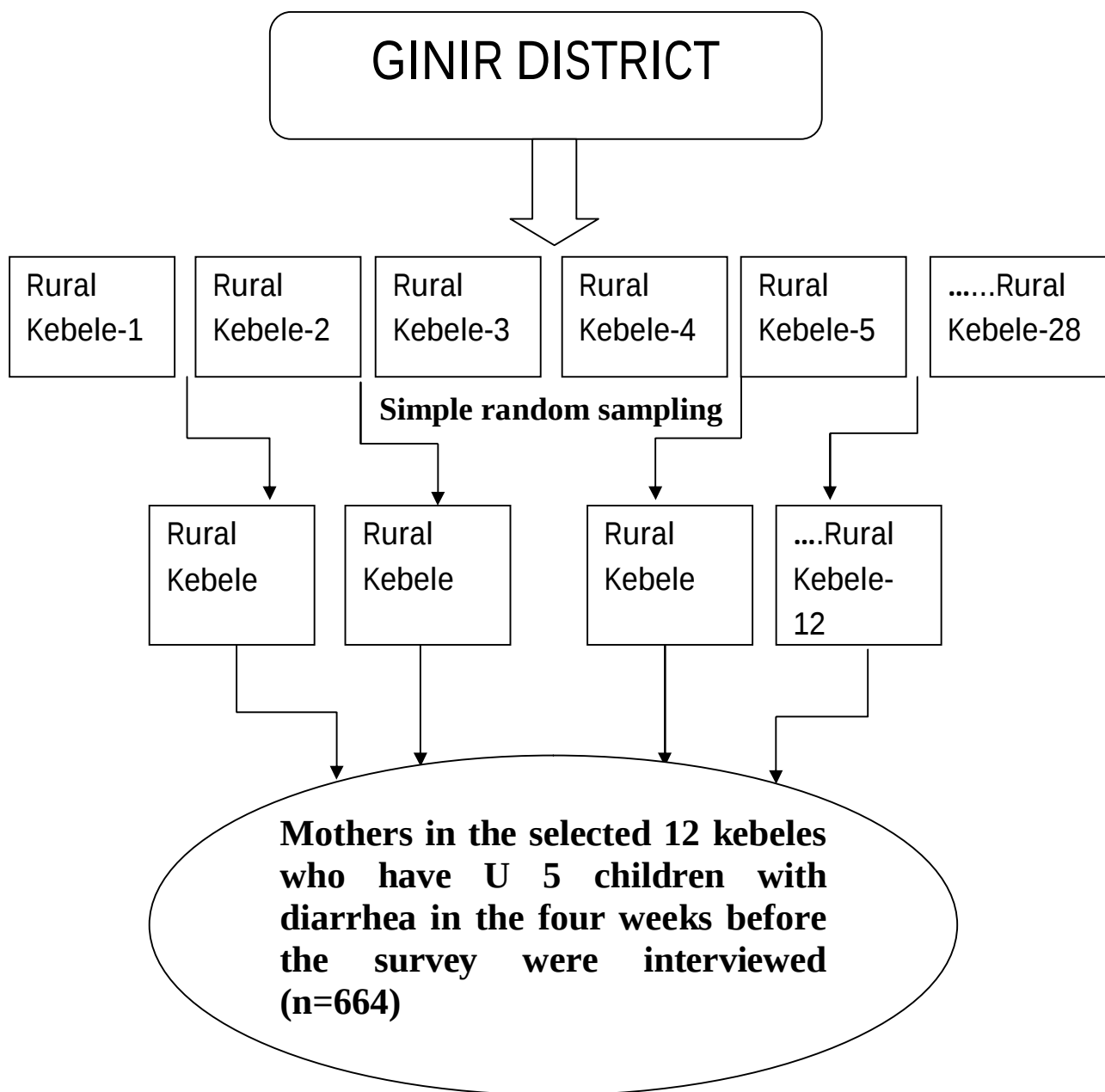


Figure 2, Schematic presentation of the sampling procedure.

For the qualitative part, four in-depth interviews were conducted with mothers who had under-five children and those who can give more information about the situation. The informants were selected using non-probabilistic purposive sampling technique from the selected kebeles.

4.7. Variables

3.7.1 Dependent Variables

Mother's modern healthcare-seeking behavior

3.7.2 Independent variables

Mother's age

Mother's educational status

Parity

Religion

Mother's model family status

Perceived causes of diarrhea,

Perceived severity of diarrhea

Child age

Child sex

Duration of illness

Family income

Distance from health facility

4.8. Data collection tools and procedures.

For quantitative, a face- to- face interview was conducted by using structured questionnaire. The questionnaire was prepared in English and translated to Afan Oromo. Then the questionnaire was back translated to English by another person to ensure the consistency. Pre- test was conducted in 5% of the sample before actual data collection in similar settings which was not included in the actual study. The necessary adjustment was made after the pre-test was done. Data was collected by trained data collectors (five 12th grades complete) and two diploma nurses were supervising the data collection activity on the site.

To support the quantitative results, a total of four in-depth interviews were conducted using semi-structured open ended questionnaire to explore the reasons for not seeking modern treatments. The interviews were conducted by the principal investigator and all interviews were tape-recorded. The data were then transcribed to Afan Oromo and translated to English.

4.9. Operational definitions

- ü **Diarrhea** – Diarrhea is the passage of three or more loose or watery stools with or without blood per day, or more frequently than is normal for the child.
- ü **Oral rehydration salt (ORS)** - refers to the UNICEF package for treatment of diarrhea.
- ü **RHF (homemade cereal based oral rehydration therapy)** - cereal flour with water and salt made at home for the treatment of diarrhea.
- ü **Modern treatment** – the treatment schedules given in health institutions (hospital, health center, health post and private clinic), and include use of ORS packages or homemade cereals based ORT.
- ü **Traditional treatment** the treatment given by religious healers, wogeshas, herbalists and magicians.
- ü **Healthcare seeking behavior**- The act of seeking treatment/remedy from any sources for a child with diarrhea.
- ü **Model family** –a family who attended the training given by HEWs for about three months and implemented 75% of the program’s activities.

4.10 Data processing and analysis

Quantitative data was coded and entered to Epi Info version 3.5.1 and exported for analysis to SPSS statistical packages version 16 for windows. The descriptive analysis, such frequency distribution were computed. Bivariate analysis was done to examine the relationship between independent variables and the dependent variables. Multivariate analysis was carried out to identify the relationship between the selected explanatory variables and the outcome variables by controlling for confounders. Odds ratio was calculated to measure the strength of association between the independent and dependent variables and the significance of the association was checked using p-value and 95% confidence interval.

The transcribed text document was exported to Open Code software and analyzed by using content analysis. Analyses were started by coding. Various codes were compared based on similarities and differences and sorted into categories. Finally the underlying meaning; the latent content of the categories was formulated into theme. Quotes that best describe the various

categories and express what was said frequently by different participant were chosen. Finally the findings were triangulated with the qualitative result during write up.

4.11. Data quality management

To maintain the quality of the data, structured questionnaire was used to collect the quantitative data. The questionnaire was prepared in English and translated to Afan Oromo. The questionnaire was Pre- tested in the same setting and necessary changes were made.

One day training was given to data collectors and supervisors according to training manual. The completeness of the information was frequently checked by supervisors at the field. The overall supervision was made by the principal investigator. Every night the questioner was checked for completeness by the supervisors and principal investigator and feedback was given for the data collectors. After entry data was cleaned by running frequencies, sorting and listing variables using Epi Info 3.5.1 software program.

4.12 Ethical Considerations

The ethical approval and clearance was obtained from Addis Ababa University College of health sciences, Institute of review board. The officials at all level, in the study area, were contacted and permission was obtained. The verbal consent was obtained from the study participants after important explanation about the objective of the study, how long it will take and confidentiality of the information was done. They also informed the fact that they have the right to decide not to participate or discontinue the interview at any time. Health education about proper case management was given for those mothers/caretakers who have child with diarrhea during data collections.

4.13 Dissemination of Study Results

Findings of the study will be communicated to School of Public Health as partial fulfillment of master's degree in public health and Ginir woreda health office, where the study was conducted. The finding will also communicate in scientific conferences and will be sent for publication to a relevant scientific journal.

5. RESULT

5.1 Socio-demographic characteristics of the study participants

A total of 664 mothers who have under-five children with diarrhea in the four weeks before the survey were interviewed, making the response rate of 100%. The socio-demographic characteristics of the study population include the characteristics of the mothers/caregivers whose children had diarrhea in the four weeks preceding the study and some demographic characteristics of the children as shown in table 1.

Majority of the mothers/caregivers 292(44%) were between ages 20-29, and Only 53(8%) of the caregivers were adolescents. About two-thirds of the mothers/caregivers 428(64.5%) were illiterate, 105(15.8%) attained primary education and 82(12.3%) have attended their secondary school or higher.

Regarding the child sex, more than half of the children 348(52.4%) who were found to have a diarrhea were males. Majority of the children with diarrhea were in the groups of 24-59 months 247(37.2%). Forty five percent 298(45%) of the mothers/caregivers had a parity of either three or four children followed by 200(30.1%) five and above.

The dominant religion of the study participants is Islam 480(72.3%). According to the mothers/caregivers response, 314(47.3%) of the households in the kebeles were a model family. Sixty nine percent 461(69%) of the dwellers of the kebeles were living within five kilometers to the nearest health facility.

Table 1 Socio-demographic characteristics of the study participants, Ginir District, 2013.

Socio-demographic characteristics (N=664)		Frequency	Percent
Mother's age	≤ 20	53	8.0
	20-29	292	44.0
	30-39	208	31.3
	≥40	111	16.7
Mother's education status			
	Illiterate	428	64.5
	Read and write	49	7.4
	Grade 1-6	105	15.8
	Grade 7-8	44	6.6
	Grade 9-12 or above	38	5.7
Child sex	Male	348	52.4
	Female	316	47.6
Child age (m)	< 6	31	4.7
	6-11	160	24.1
	12-23	226	34.0
	24-59	247	37.2
Parity	1-2	166	25.0
	3-4	298	44.9
	5 & above	200	30.1
Religion	Muslim	480	72.3
	Christian	184	27.7
Model family	Yes	314	47.3
	No	350	52.7
Distance H.F	≤ 5km	461	69.4
	>5km	203	30.6

5.2 Mother's home management practice for childhood diarrhea diseases.

Mothers were asked about the action they took to manage their child's diarrhea. Half of the mothers/caregivers 332(50%) did not take any actions and 32.1% of them provided traditional treatments. About 117(35.2%) of the mothers/caretakers have taken this actions based on the perceived causes of diarrhea.

Regarding mother's home management of child with diarrheal disease, majority of them 291(43.8%) provided less than usual or gave nothing to drink and only 169(25.2%) of them provide more than usual fluids. More than half of the mothers 373(59.6%) decreased or withhold food, while 55(8.8%) of them fed more than usual. Of those children who were on breast feeding 419, and have diarrhea, about 168(40.1 %) of them breast fed as usual during diarrheal episode.

Mothers/caregivers were asked whether they know about ORS, most of them 502(75.6%) at least heard of ORS and regarding the composition of fluid given; 191(28.8%) ORS, and 90(13.6%) RHF was offered for the children. The remaining 331(49.8%) of the mothers gave others types of fluids like tea, coffee, milk, soft drink, and plain water (Table 2).

Table2, Mother's home management practice for childhood diarrheal illness; Ginir District, 2013.

Variables	Frequency	percent
Action taken at home during diarrhea (N=664)		
No action was taken	332	50.0
Gave drug bought from private pharmacy	55	8.3
Gave home remedies	64	9.6
Traditional treatment	213	32.1
Based on what does mothers taken action (N=332)		
Identified type	60	18.1
Perceived Cause	117	35.2
Perceived Severity	36	11.0
Loose stool	119	35.7
Fluid intake (N=664)		
Less than usual/not at all	291	43.8
About the same amount	204	30.7
More than usual	169	25.5
Breastfed (N=419)		
Less than usual	150	35.8
About the same	168	40.1
More than usual to feed	101	24.1
Food intake (N=626)		
Less than usual/not at all	373	59.6
About the same as usual	198	31.6
More than usual	55	8.8
Heard of ORS (N=664)		
Yes	502	75.6
No	162	24.4
Composition of fluid given during diarrhea (N= 612)		
RHF	90	13.6
ORS	191	28.8
Others	331	49.8

5.3 Healthcare seeking practice of mothers/caregivers for childhood diarrhea diseases.

Figure1 showed, the different healthcare seeking practices of mothers for childhood diarrheal illness. About mothers 462(37%) sought the treatment from health institution while 28% of them did not take any actions for the treatment of their child's diarrhea.

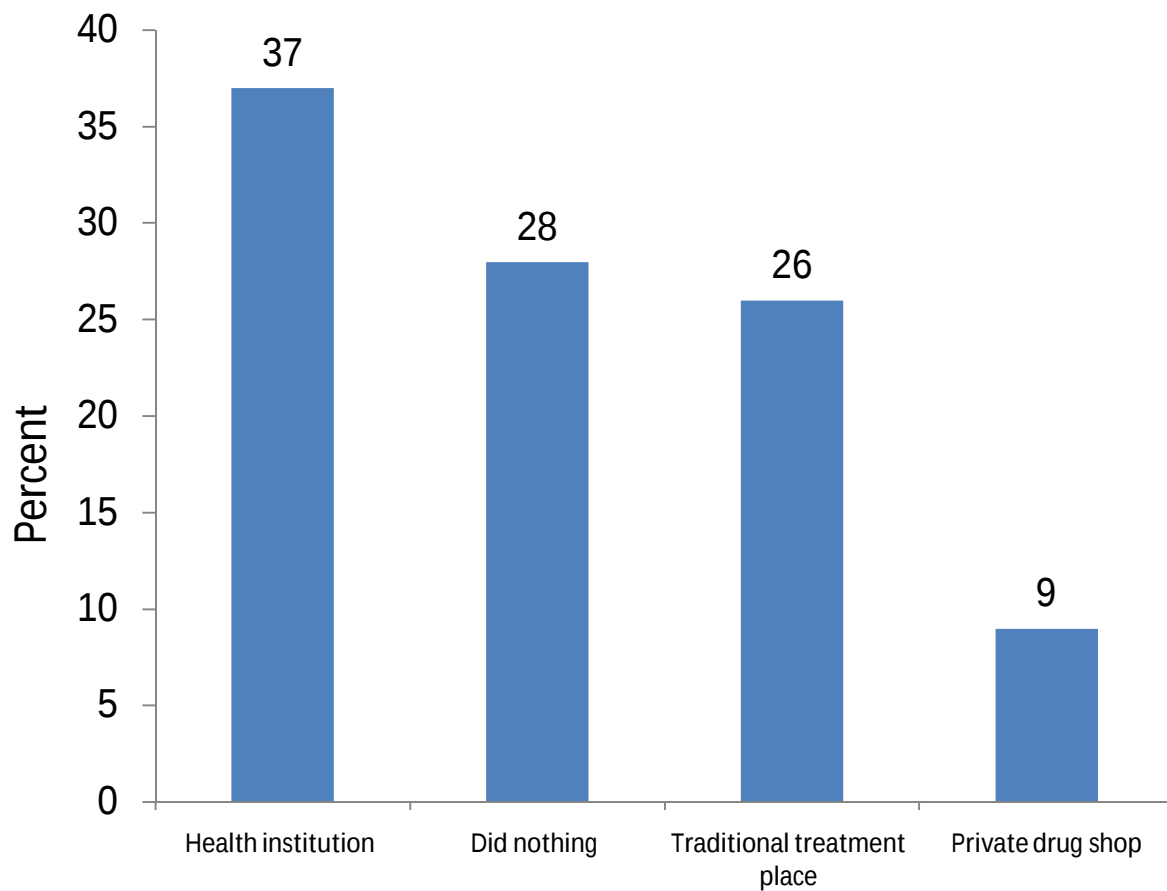


Figure 3, Healthcare seeking practice of mothers in Ginir District, 2013

Healthcare seeking practice was classified in to: Modern treatment; for those who sought treatment/care from health institutions for the child with diarrhea and non modern treatment; for those who sought care from traditional treatment place, and those who treated with medicine bought from private pharmacy and those who did nothing about the illness. Based on this classification of healthcare-seeking practices, the result showed that, only 246(37%) of mothers/caregivers sought modern treatments for their children with diarrheal illness. This result is showed in Figure 2

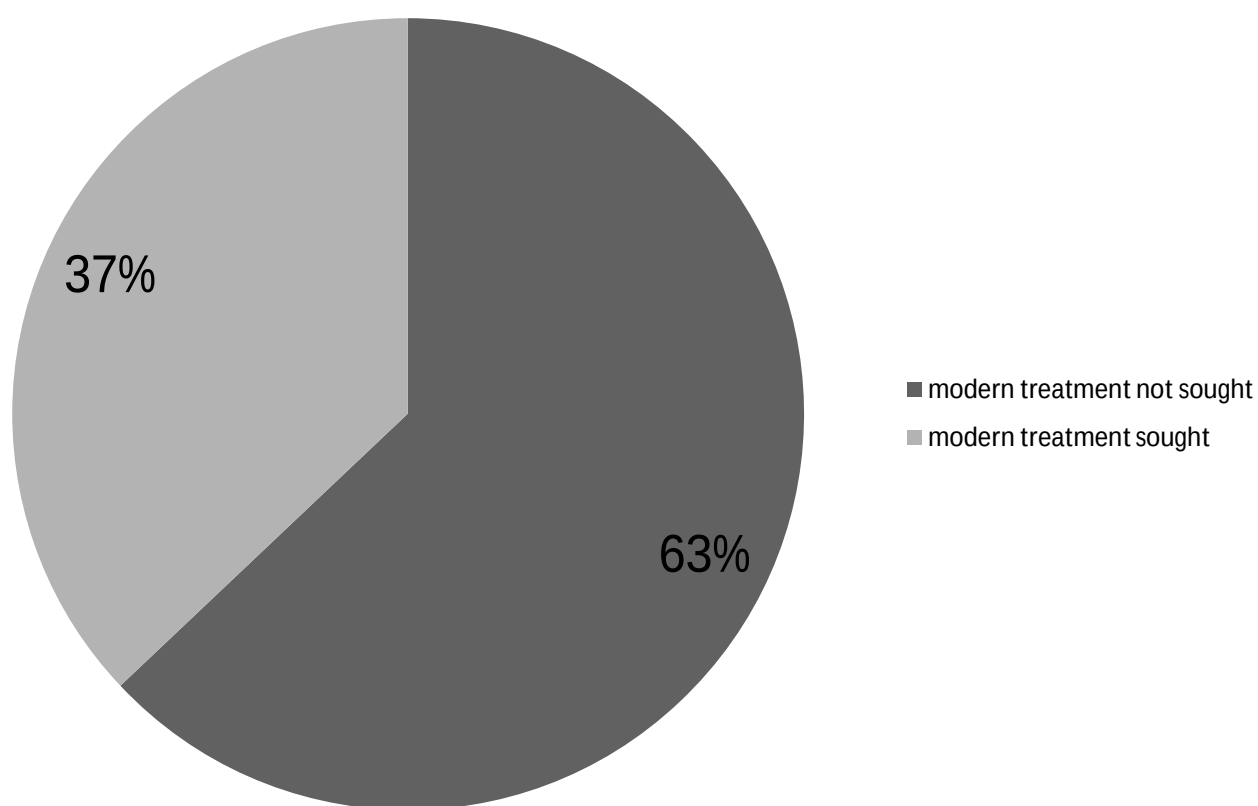


Figure 4, the prevalence of mother's modern healthcare seeking behavior for childhood diarrhea illness in Ginir District, 2013.

5.4 Mother's treatment seeking behavior and their perceptions on the childhood diarrheal illness.

Majority of the mothers 477(71.8%) sought some sorts of treatment for their children with diarrhea. Of these, more than half of the mothers/caregivers 271(56.8%) took their child within the first two days of the illness for treatments. Mothers /caregivers were asked about treatment options they wants, most of them 617(92.9%), preferred injection or tablets and only one percent of them were selected ORT as the treatment option for the childhood diarrheal illness.

Ninety three percent 618(93.1%) of mothers/caregivers thought that health professionals are the most successful persons for the treatment of childhood diarrhea.

This study also showed that, the management option for the diarrheal child was determined by the perceived causes of childhood diarrhea. Two hundred forty (36.1%) of mothers reported that there was a childhood diarrhea that was not treated by modern treatment (Table 3).

Table 3, Mother's treatment seeking behavior and their perceptions on the childhood diarrheal illness, Ginir District, 2013.

Variables	Frequency	Percent
Did you seek any treatment (n=664)		
Yes	477	71.8
No	187	28.2
Where did you seek (N=477)		
Modern treatment	246	51.6
Private drug shop	58	12.1
Traditional treatment place	173	36.3
After how many days (N=477)		
Within two days	271	56.8
After three or more days	206	43.2
Which treatment did you prefer (N=664)		
Injection or tablet	617	92.9
Traditional treatment	40	6.1
ORS/ORT	7	1.0
Which person you choose (N=664)		
Health workers	618	93.1
Traditional healers	32	4.9
Private drug shop owner	14	2.0
Diarrhea cannot be treated by modern medicine (N=664)		
Yes	240	36.1
No	424	63.9
Which one (N=240)		
Teething diarrhea	160	24.1
Evil eye diarrhea	100	15.1
Dropping Abdominal vein diarrhea	147	22.1

5.5 Factors associated with mother's modern healthcare seeking behavior for childhood diarrheal diseases.

Bivariate analysis

In bivariate analysis, the odd of seeking modern healthcare for the mothers of age 20-29 years were 60% higher than that of age less than 20 years. But the odd of seeking modern healthcare for the mothers of age above 40 years were 50% lower than that for of age less than 20 years. These differences based on mother's age are, however not statistically significant at the 5% level.

Concerning mother's education, those who had attained primary education were more likely to seek modern healthcare than those who were illiterate and mothers who were grade 9-12 and above were about fifty times more likely to seek modern healthcare than those who were illiterate (OR =15.2, 95% CI = 6.2, 37.4).

Mothers sought modern treatment, less likely for children of age 24-59 months compared to children aged less than 11 months and for parity, the results indicated that, those mothers with parity of five and above were less likely to seek modern care than those of parity one and two (Table 4).

Table 4. Socio-demographic factors associated with mother's modern healthcare seeking behavior; Ginir District, 2013.

Variables	Sought modern treatment		COR (95%CI)
	Yes N, (%)	No N, (%)	
Mother's age			
<20years	17(32.1)	36(67.9)	1.0
20-29 years	126(43.2)	166(56.8)	1.6(0.9, 3.0)
30-39 years	82(39.4)	126(60.6)	1.4(0.7, 2.6)
40 years and above	21(18.9)	90(81.1)	0.5(0.2, 1.0)
Education status			
Illiterate	111(25.9)	317(74.1)	1.0
Read and write	14(28.6)	35(71.4)	1.1(0.6, 2.2)
Grade 1-6	57(54.3)	48(45.7)	3.4(2.2, 5.3) ***
Grade 7-8	32(72.7)	12(27.3)	7.6(3.8, 15.3) ***
Grade 9-12 ⁺	32(84.2)	6(15.8)	15.2(6.2, 37.4) ***
Child sex			
Male	134(38.5)	214(61.5)	1.1(0.8, 1.6)
Female	112(35.4)	204(64.6)	1.0
Child age			
0-11 month	81(42.4)	110(57.6)	1.0
12-23 month	82(36.3)	144(63.7)	0.8(0.5, 1.2)
24-59 month	83(33.6)	164(66.4)	0.7(0.5, 1.0)
Number of life children (Parity)			
1-2	76(45.8)	90(54.2)	1.0
3-4	122(40.9)	176(59.1)	0.8(0.6, 1.2)
5 & above	48(24.0)	152(76.0)	0.4(0.2, 0.6) *
Religion			
Muslim	168(35.0)	312(65.0)	1.0
Orthodox	78(42.4)	106(57.6)	1.4(1.0, 1.9)

Being a model family was important factor associated with mother's modern healthcare seeking behavior. Model families were more likely to seek modern treatment than non model families (OR=2.2, 95% C I=1.6, 3.0) and a high income family were more likely to seek modern treatment than those who had low income for their children with diarrhea (OR=1.6, 95%CI=1.1, 2.4).

Distance form health facility (COR=0.3, 95%CI=0.2, 0.4) and the longer duration of illness (COR=0.5 95%CI=0.4, 0.7) were factors negatively associated with modern treatment seeking behavior.

Mothers who perceived diarrhea was severe were 5.5 times more likely to seek modern treatment compared to those perceived mild (OR=5.5, 95% CI 3.1, 9.5).

The information obtained from in-depth interviews revealed that, modern treatment seeking behavior is determined by perceived severity of the childhood diarrhea diseases. Mothers sought modern treatment if they perceived the diarrhea was severe one. Most respondents mentioned that health facility was visited if the diarrhea get worsen or they fear that it will causes damage to the child and it is combined with others signs/symptoms.

A 43 years respondent said, "Most of the time diarrhea recovers by itself. Ee...so many people will not take to health facility. But if the diarrhea is severe, ii...Like when it weakens the children, unable to eat, and associated with vomiting then they will take to health facility."

The data obtained from in-depth interviews also showed that, all respondents share the idea that the childhood diarrhea is a normal and self-limiting illness that did not need modern treatment. They listed that diarrhea is a common illness that happens recurrently among children and will be recovered spontaneously.

Accordingly a 37 years participant mentioned, "If the child develops diarrhea most of the time it will recover spontaneously. It is common among children. Ee...it affects the children recurrently but subside by itself without any treatment."

Mothers who related the causes of childhood diarrhea illness to some folk causes (non-biological causes) were 70% less likely to seek modern treatment than those who respond did not know the causes of diarrhea (OR=0.3, 95% CI=0.2, 0.5) (Table 5).

According to qualitative informants, the choices of treatment options were affected by mother's misperception about the causes of childhood diarrheal diseases. Mothers thought that there were causes of childhood diarrhea that was not treated by modern treatments. Mothers mentioned that, childhood diarrhea that was caused by evil-eye, teething and dropping abdominal vein (due to falling or picking up heavy thing) were causes of childhood diarrhea that could not be treated by modern medicine.

A 25 years respondent said, "...especially if the diarrhea is as a result of an evil-eye it is not taken to health facility. Ee...if you take there even it may worsen. ...rather it is better to treat at home with traditional treatments. Ee... modern treatment is not good for such things or not useful."

A 43 years respondent also mentioned, "...If the diarrhea is due to dropping of abdominal vein most people treat it by massaging of the abdomen or taken to wogesh because if taken to health facility it will not recovered but if taken to wogesha the wogesha will massage the abdomen and the abdominal vein will come back to normal and the diarrhea will subside spontaneously."

Finally, another important finding from in-depth interviews was that, the utilization of health service was hampered by the preference of traditional or home treatments. Mothers respond that most of the time childhood diarrhea was first treated by traditional treatment or home remedies and only after that if not recovered the mothers will visits health facility.

A 29 years participant said, "First we treat it with home remedy and see if it recovers, most of the time it will recovers, if not resolved then we will take to health facility."

Table 5. Results of bivariate analysis for factors associated with mother's modern healthcare seeking behavior; Ginir District, 2013.

Variables	Sought modern treatment		COR (95%CI)
	Yes N, (%)	No N, (%)	
Model family			
Yes	146(46.5)	168(53.5)	2.2(1.6, 3.0) ***
No	100(28.6)	250(71.4)	1.0
Income			
Low income	64(33.9)	125(66.1)	1.0
Middle income	79(32.0)	168(68.0)	0.9(0.6, 1.4)
High income	103(45.2)	125(54.8)	1.6(1.1, 2.4) *
Distance from health facility			
≤5km	210(45.6)	251(54.4)	1.0
>5km	36(17.7)	167(82.3)	0.3(0.2, 0.4) ***
Duration of illness			
1-3days	151(43.6)	195(56.4)	1.0
4-5 days	85(29.1)	207(70.9)	0.5(0.4, 0.7) *
>= 6days	10(38.5)	16(61.5)	0.8(0.4, 1.8)
Perceived severity			
Mild	45(25.9)	129(74.1)	1.0
Moderate	144(35.7)	259(64.3)	1.6(1.2, 2.4) ***
Severe	57(65.5)	30(34.5)	5.5(3.1, 9.5) ***
Perceived causes			
Don't know	140(41.8)	195(58.2)	1.0
Hygiene/microbe	64(60.4)	42(39.6)	2.1(1.4, 3.3)
Folk causes	42(18.8)	181(81.2)	0.3(0.2, 0.5) ***

NB: P-value * < 0.05, **<0.01 and *** <0.001

Multivariate analysis

Mother's educational status remained an important determinant factor for modern treatment seeking behavior after controlling for others variable. Mothers who attained grade 9-12 and above were 15.3 time more likely to seek modern treatment than illiterate (AOR=15.3, 95% CI=5.4, 43.5). Those mothers who were a model family were more likely to seek modern treatment than those were non model one (AOR=1.9, 95%CI=1.3, 2.8).

Distance from the nearest health facility was become significant factor for modern healthcare seeking behavior after adjusted for other variables. Those who live greater than five kilometers were less likely to seek modern treatment than those who live within five kilometers (AOR=0.3, 95%CI=0.2, 0.4).

Mother's perception of severity of the diarrhea was found to be another determinant factor for mother's healthcare seeking behavior. Mothers who thought her child had a severe diarrhea were 3.43 times more likely to seek modern treatment compared to those who thought mild (AOR=3.4, 95%CI=1.8, 6.6) and mothers who related the causes of diarrhea to some Folk causes (non-biological causes) were less likely to seek modern treatment than those who respond did not know the causes of diarrhea (AOR=0.3, 95% CI=0.2, 0.4).

The other variables like parity, family income and duration of illness were turned out insignificant after controlling for others variables (Table 6).

Table 6. Results of multivariate analysis for selected factors associated with mother's modern healthcare seeking behavior; Ginir District, 2013.

Variables	<u>Sought modern treatment</u>		COR	AOR
	Yes N, (%)	No N, (%)	(95%CI)	(95%CI)
Mother’s age				
<20 years	17(32.1)	36(67.9)	1.0	1.0
20-29 years	126(43.2)	166(56.8)	1.6(0.9, 3.0)	1.1(0.5, 2.5)
30-39 years	82(39.4)	126(60.6)	1.4(0.7, 2.6)	1.2(0.5, 2.9)
≥40 years	21(18.9)	90(81.1)	0.49(0.2, 1.0)	0.9(0.3, 2.5)
Education status				
Illiterate	111(25.9)	317(74.1)	1.0	1.0
Read and write	14(28.6)	35(71.4)	1.1(0.6, 2.2)	1.1(0.5, 2.4)
Grade 1-6	57(54.3)	48(45.7)	3.4(2.2, 5.3) ***	2.7(1.6, 4.4) ***
Grade 7-8	32(72.7)	12(27.3)	7.6(3.8, 15.3) ***	9.3(3.9, 22.3) ***
Grade 9-12 ⁺	32(84.2)	6(15.8)	15.2(6.2, 37.4) ***	15.3(5.4, 43.5) ***
Child age				
0-11 month	81(42.4)	110(57.6)	1.0	1.0
12-23 month	82(36.3)	144(63.7)	0.8(0.5, 1.2)	1.0(0.6, 1.7)
24-59 month	83(33.6)	164(66.4)	0.7(0.5, 1.0)	1.0(0.6, 1.6)
Number of life children (Parity)				
1-2	76(45.8)	90(54.2)	1.0	1.0
3-4	122(40.9)	176(59.1)	0.8(0.6, 1.2)	1.1(0.7, 2.0)
5 & above	48(24.0)	152(76.0)	0.4(0.2,0.6) ***	0.7(0.4, 1.4)
Religion				
Muslim	168(35.0)	312(65.0)	1.0	1.0
Orthodox	78(42.4)	106(57.6)	1.4(1.0, 1.9)	0.9(0.5, 1.4)

Cont...				
Variables	Sought modern treatment		COR	AOR
	Yes N, (%)	No N, (%)	(95%CI	(95%CI)
Model family				
Yes	146(46.5)	168(53.5)	2.1(1.6, 3.0) ***	1.9(1.3, 2.8) **
No	100(28.6)	250(71.4)	1.0	1.0
Income				
Low income	64(33.9)	125(66.1)	1.0	1.0
Middle income	79(32.0)	168(68.0)	0.9(0.6, 1.4)	0.6(0.4, 1.0)
High income	103(45.2)	125(54.8)	1.6(1.1, 2.4) **	1.1(0.7, 1.8)
Distance from health facility				
≤5km	210(45.6)	251(54.4)	1.0	1.0
>5km	36(17.7)	167(82.3)	0.3(0.2, 0.4) ***	0.3(0.2, 0.4) ***
Duration of illness				
1-3days	151(43.6)	195(56.4)	1.0	1.0
4-5 days	85(29.1)	207(70.9)	0.5(0.4, 0.7) *	0.6(0.4, 1.1)
≥ 6days	10(38.5)	16(61.5)	0.81(0.4, 1.8)	0.6(0.2, 1.6)
Perceived severity				
Mild	45(25.9)	129(74.1)	1.0	1.0
Moderate	144(35.7)	259(64.3)	1.6(1.1, 2.4) **	1.4(0.8, 2.1)
Severe	57(65.5)	30(34.5)	5.5(3.1, 9.5) ***	3.4(1.8, 6.6) ***
Perceived causes				
Don't know	140(41.8)	195(58.2)	1.0	1.0
Hygiene/microbe	64(60.4)	42(39.6)	2.1(1.4, 3.3)	1.4(0.8, 2.4)
Folk causes	42(18.8)	181(81.2)	0.3(0.2, 0.5) ***	0.3(0.2, 0.4) ***

NB: P-value * < 0.05, **<0.01 and *** <0.001

Table 7. The theme, categories and codes as identified from the qualitative data Ginir District, 2013.

Theme: mother's modern healthcare-seeking behavior is hindered by mother's misperception about causes of diarrhea, perceived severity and first trying of traditional/home treatments.				
Categories:	Misperception about causes of diarrhea	Perceiving diarrhea as a normal illness	Perceiving diarrheal episode a self-limiting illness	First trying of traditional/home treatments
Codes:	• Relating the causes to non biological causes • Not treated by modern medicine • Modern treatment may worsen the diarrheal episode • Prefers traditional healers over health professional	• Not harmful • Common illness • Occurs repeatedly • Child thing	• Recovers Spontaneously • Not resulted in severe consequences • No need of treatments • Diarrheal episode lasts for a short period of time	• Preference of traditional treatments • Preference of home remedies • Home treatment is enough • No need of modern treatment

6. DISCUSSION

Maternal knowledge and appropriate diarrheal management at home have a great importance in the reduction of child mortality and morbidity due to complication of dehydration and malnutrition caused by diarrhea. But there are different traditional beliefs, barriers and practices about childhood diarrheal illnesses and their management. This study identified Practices such as reduction in breast feeding, restriction of foods and fluids, use of traditional medicine and magical procedures among mothers. Our finding also showed low prevalence of mother's modern healthcare seeking behavior for childhood diarrhea diseases in the district. Mother's educational status, being a model family, distance from health facility, perceived severity and mother's perceived causes of the illness were found to be important determinant factors of mother's modern healthcare seeking behavior for childhood diarrheal diseases.

Regarding home management of fluid, 169(25.2%) of mothers provided more than usual fluids which is consistent with study in west Arsi zone(30) and north-east Brazil (12). But higher than that found in 2011 EDHS report(16%) and study in Kosovo(17.8%) (4, 10). Result from this study indicated that majority of the mothers 291(43.8%) decreased the amount of fluids or gave nothing to drinks for the child with diarrhea, which is similar with 2011 EDHS report (4). About 204 (32%) of the mothers gave fluid as usual, which is slightly lower than 2011 EDHS report where about 35% of the mothers provided fluid as usual(4). Although fluid management is critical in the prevention of dehydration, this result showed that, most mothers practiced improper fluid management for childhood diarrhea diseases. This might be due to low awareness of rural mothers on home management of fluid for childhood diarrhea diseases and the other explanation might be the misperception they have that, the provision of fluids may even increase the frequency of diarrhea.

Of those children who were breast feeding and have diarrhea, 150(35.8%) of them decreased breast feeding, which is higher than study in Brazil where 16% of the mothers withhold/interrupted breast feeding (12) and study in India where 31%of the children breast fed less than usual(14). About 168 (40%) of the children with diarrhea were breast fed as usual which is lower than study in India where 69% of children were continued breast feeding as

usual(14). Our study revealed that only 101(24.1%) of the children breast fed more than usual during diarrheal episode. This showed that, only less than a third of children were continued breast feeding during diarrheal episode. This could be due to poor knowledge of rural mothers on the importance of breast feeding for children with diarrhea.

Concerning the amount of food provided to the children who had diarrhea, more than half of the mothers 373(59.6%) decreased or withhold food which is higher than 2011 EDHS report and other studies (4, 14, 27). About 198(32.6%) of the mothers fed usual amount of food which is lower than study in west Arsi where 42.1% (30) and study in Kosovo where 48.6% of them fed usual amount of food(10). Only 55(8.8%) of the children were fed more than usual which is comparable with the finding of 2011 EDHS report and study in Kosovo (4, 10). This could be due to the cultural belief of the mothers that, the provision of food may worsen or prolonged the episode of diarrhea and should be decreased or even interrupted during diarrheal illness.

Centers for disease control (CDC) and WHO recommended the use of ORS as the center of treatment in the prevention of dehydration (11). But our study shows low utilization of ORS in the district. Accordingly, only 191(28.8%) of the children with diarrhea were treated with ORS which are similar with the 2011 EDHS report and other study in Oromia region (4, 5). This finding, however, found to be lower than the study done in Iran where (51%) and study in Nigeria where (31.1%) of the children were treated with ORS respectively (15, 17). This discrepancy could be due to the difference in the level of awareness/knowledge of mother's on the importance of ORS in the management of diarrhea among the study areas.

Appropriate and timely care seeking practices is important to prevent many deaths and complication attributed to not seeking care and delays of treatments. However, this study showed the low prevalence of mother's modern treatment seeking behavior, where only 246(37%) of the mothers sought modern treatment to their children with diarrhea. This result was higher than 2011 EDHS report, study in Nepal and study in a rural western Kenya (4, 13, 22). But lower than studies in Iran where 69.1% and Niger where 70.4% of caregivers were took their children to health facility respectively (15, 23). This shows that, most of the mothers still did not sought modern treatment for their child with diarrheal diseases, and they sought different types of

inappropriate treatment practice. This variation could be explained by difference in socio-demographic and/or cultural belief and knowledge of mothers on modern healthcare seeking behavior.

This study indicated that, 477(71.8%) of the mothers sought some sort of the treatment from different sources, while 187(28.2%) even not taking any action for their child's diarrheal illness. Among those who sought any treatment, 271(56.8%) of them took their child within two days to treatment place and 206(43.2%) of mothers went after three or more days of diarrheal illness. This is comparable with the study in southern Ethiopia where 54.9% of respondent in rural district where taken their child within two days period and 45.1% after three or more days' of diarrhea (24). This shows that, still rural mothers don't understand the potentially serious consequences of diarrhea until it is too late.

The result of this study was found strong association between maternal education and modern care seeking behavior, where higher education of mothers has been associated with higher utilization of modern treatments which is consistent with other studies (21, 27, 28).

Being a model family was emerged as one of the important factor influencing mother's care seeking behavior. Model family mothers were about two times more likely to seek modern treatment than non model family (AOR; 1.9, 95%CI: 1.3, 2.8). This change might be due to the frequent contact and discussions of them with health extension worker.

This study also showed that, mothers who live at a distance of greater than five kilometers from the nearest health facility were less likely to seek modern treatment than those who live within five kilometers which supports the finding of other studies (29, 30).

Our finding demonstrated that, the perceived severity of the illness by the mothers/caregivers was found to be an important predictor of modern health care seeking behavior. Mothers/caregivers who perceived the child's diarrhea as severe were more likely to seek modern treatment than those who perceived mild, which is similar with the finding of other studies (8, 27, 28). This might be due to the cultural belief and attitudes of the mothers, on how to perceive the child's diarrheal illness. Many societies have their own classification systems for childhood diarrheal illnesses and mothers may seek treatment for some types of childhood diarrhea and not for others, depending on how serious they think the illness is.

The finding from in-depth interviews also revealed that, mothers were not concerned if the child had watery diarrhea, but they worried, if the child is listlessness or loss appetite, if the stools were more frequent and/or if there were other signs such as vomiting.

A 43 years respondent said, “Most of the time diarrhea recovers by itself. Ee...so many people will not take to health facility. But if the diarrhea is severe, Ee...Like when it weaken the children, unable to eat and/or associated with vomiting then they will take to health facility.”

Finally our study also showed that, mothers who related the causes of her child’s diarrheal illness to some folk causes were 74% less likely to seek modern treatment than those who respond did not know the causes. This is also in agreement with other literatures that, children with illnesses which mothers think are due to folk causes are more likely to see a traditional healers (25, 26). This finding implies that, mother’s belief about the underlying causes of childhood diarrheal illness is important predictor of mother’s choice of treatment options. This can be explained by the Mother’s misperception about the causes of diarrheal illness that, they relate the causes to some non-biological causes and prefer to such condition traditional treatments over modern treatment. The qualitative finding also showed that, mothers believe that, traditional healers are able to diagnose such causes of illness and provided appropriate treatments than health professionals.

A 25 years respondent said, “...especially if it is as a result of an evil-eye, it is not taken to health facility. Ee...if you take there even it may worsen. ...rather it is better to treat at home with traditional treatments. Ee...modern treatment is not good for such things or not useful.”

Also the data obtained from in-depth interviews revealed that, most of the time childhood diarrhea was first treated at home by traditional healers or home remedies and taken to health facility only if it is not recovered.

A 29 years participant said, “First we treat it with home remedy and see if it recovers, most of the time it will recovers, if not resolved then we will take to health facility.”

7. STRENGTHS AND LIMITATIONS OF THE STUDY.

7.1 Strengths of the study

- ü Since the respondents were all mothers, it can increase the quality of the information.
- ü Both quantitative and qualitative methods were used to triangulate the information.

7.2 Limitations of the study

- ü This study used a long recall period for four weeks, thus susceptible to recall bias.
- ü The study did not take into account other factors that could affect mother's modern healthcare-seeking behavior such as perception on quality of health services, the influence of parents and peers.
- ü Cause and effect relationship was difficult to establish for the factors dealt in the study since it is cross-sectional study design.

8. CONCLUSIONS

- v Home management practice of mothers for childhood diarrhea disease are not satisfactory in this study, since majority of them offered less than recommended amount of fluids or even withholds any types of fluids and practicing improper feeding practices during childhood diarrheal illness.
- v Although, providing ORS was an important measure in the prevention of dehydration, the utilization rate is very low in the district.
- v Modern healthcare-seeking behavior for childhood diarrhea diseases remains a great challenge among rural mothers where majority of them were not seeking modern treatments.
- v Mother's educational status, perceived causes of illness, being model family, distance from health facility, and perceived severity of the illness were found to be statistically significant determinant factors of modern healthcare seeking behavior for childhood diarrheal illness.

9. RECOMMENDATIONS

- Ø Health education should be given to the mothers/caregivers on how to treat diarrhea disease at her home and where to take their child if the diarrhea gets worse. This might be accomplished by health extension workers.
- Ø A program promoting targeted message on the importance of ORS, in the management of childhood diarrhea should be put in place.
- Ø The health extension worker's (HEWs') health promotion, should give due attention to the promotion of modern healthcare seeking behavior for childhood diarrheal illness in the rural communities.
- Ø The wereda health office should strengthen the already established system of training/graduating a model family household in the community.
- Ø A comprehensive and larger scale studies should be done to explore in-depth factors influencing mother's modern healthcare seeking behavior for childhood diarrheal illness.

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11. ANNEXES

I. Information sheet

My name is _____, I am working in research team, which is conducted by the Addis Ababa University. We are interviewing mothers who have under-five child with diarrhea in the past four weeks. The aim of this study is to assess mother's home management practice and mother's modern healthcare seeking behavior for childhood diarrheal diseases. We believe that the result of this study will help in designing appropriate intervention for childhood diarrhea disease management in your community.

II. Consent form

To conduct our study, I would like to ask you some questions which may take about 30 minutes. As your participation is very important to the outcome of the study, I kindly request you to give us your sincere and truthful answer. There is no any harm to participate in this interview. Your name will not be written on this questioner, and will never be used in connection with any of the information you tell me. You are selected for this survey merely by chance, not done intentionally. You don't have to answer any questions that you don't want to answer. You have full right not to participate or if you feel discomfort with the interview, please feel free to drop at any time you want.

Are you willing to participate in the interview?

Yes, _____ (continue the interview). No, _____ (Thank and stop)

Collectors (name and signature) _____ date _____

Principal investigator address

Name Hussein Mohammed

Tell- 0913997937

Email-hmg.iftooma@gmail.com

III. English version questionnaire

Section 1:- General information

No.	Question	Coding categories	Skip to
01	Age of the mother/caregiver	<20 years 1 20 - 29 years 2 30 -39 years 3 40and above 4	
02	Sex of the child	Male 1 Female 2	
03	Age of the child	<6months 1 6 -11 months 2 12 -23 months 3 24 -59 months 4	
04	Number of live children (parity)	One 1 Two 2 Three 3 Four 4 Five and above 5	
05	Educational status of mothers	Illiterate 1 Read and write 2 Grade 1 to 6 3 Grade 7 to 8 4 Grade 9 to 12 5 Above grade 12 6	
06	Religion of households	Muslim 1 Orthodox 2 Protestant 3 Other 4	
07	Average monthly income of your family	EBR	
08	Distance of the house from nearest health Facility	KM	
09	Is your household is a model family	Yes 1 No 2	
10	If yes, since when	years.	

Section 2; - Diarrheal disease and action taken by mother

No.	Question	Coding categories	Skip to
01	Is diarrheal disease health problem of your community	Yes 1 No 2	
02	Has your child had diarrhea in the last four weeks?	Yes 1 No 2	
03	Was there any blood in the stools	Yes 1 No 2	
04	What action was taken by you for the treatment of diarrhea?	Gave drug bought from private pharmacy 1 Massage of the abdomen 2 Gave herbal medicine 3 Magic procedure (holy water...) 4 Gave ORS/RHF 5 Others 6	
05	How you can decide on action you take for managing your child with diarrhea?	Depending on types of diarrhea 1 Depending on causes of diarrhea 2 By its signs and symptoms of severity 3 By wording of the loose stool 4 Others 5	
06	How much was given to drink during diarrhea.	Less than usual 1 About the same amount 2 More than usual 3 Nothing to drink 4 Don't know 5	
07	How frequent was given the breast during diarrhea.	Already weaned 1 Less than usual 2 About the same 3 More than usual to feed 4 Don't know 5	

08	How much was given to eat during diarrhea.	Not yet weaned	1	
		Less than usual	2	
		About the same to eat	3	
		More than usual	4	
		Stopped food	5	
		Don't know	6	
09	For how long was diarrhea lasts with children	For one day	1	
		For two days	2	
		For three days	3	
		For four days	4	
		For five days	5	
		For six days and above	6	
10	Does diarrhea causes loss of fluid	Yes	1	
		No	2	
11	Have you ever heard of a fluid made from an ORS packet for the treatment of diarrhea?	Yes	1	
		No	2	
12	If not stopped giving fluid, what was the composition of fluid given to the diarrheal child	RHF	1	
		ORS	2	
		Other type	3	
13	Did you seek advice or treatment for the diarrhea from any source?	Yes	1	
		No	2	
14	Where did you seek advice or treatment for your child with diarrhea	Herbalist	1	
		Magician	2	
		Wogesha	3	
		Private drug shop	4	
		Health center	5	
		Health post	6	
		Hospital	7	

		Private clinic	8	
15	After how many days of diarrhea did you seek someone's help	On the same day of diarrhea	1	
		After one day of diarrhea	2	
		After two day of diarrhea	3	
		After three day of diarrhea	4	
		After four day of diarrhea	5	
		Fife and above day of diarrhea	6	
16	If you had the choice, which treatment would you like most for your diarrheal child	Injection or tablets	1	
		Massage of abdomen	2	
		Herbal medicine	3	
		Magic procedure (holy water...)	4	
		ORS/RHF	5	
		Others	6	
17	Which person do you think is the most successful in the treating diarrhea	Herbalist	1	
		Magician	2	
		Wogesha	3	
		Private drug shop owner	4	
		Community or institution health worker	5	
18	According to the respondents perception, what was the causes of diarrhea	Evil-eye	1	
		Teething	2	
		Dropped abdominal vein	3	
		Contaminated food/water	4	
		Microbes/IP	5	
		Soil eating	6	
		Don't know	7	
		Others specify	8	
19	Is there childhood diarrhea that cannot be treated by modern medicine?	Yes	1	
		No	2	

20	If the answer on question is 'yes' which one?	Teething Evil eye Abdominal belly Others	1 2 3 4	
21	According to the respondents perception, how sever was the diarrhea	Mild Moderate Severe	1 2 3	
22	How severity of childhood diarrhea Identified	Increased frequency and duration of diarrhea By combined symptoms of the disease (vomiting, fever) If the child refused to eat Sunken eye ball If blood found in the stool Others	1 2 3 4 5 6	
23	What was the outcome of the diarrhea at time of interviews	Death worse Improved no change	1 2 3 4	

The guiding questions for in-depth interview

1, what are the reasons for not visiting health facility for childhood diarrheal diseases?

IV. Afaan Oromo questionnaire

Uunkaa odeeffannoo.

Maqaan koo_____ A ni yeroo ammaa kana garee qorannoo Universiitiin Addis Ababaa adeemsisu wajjiin hojachaa jira. Nuti haadhoowwan daa'imman waggaa shanii gadii qabanii fi torbaa afran darbe kana keesatti garaa kaasaan qabaman wajjiin gaaffii fi deebi adeemsifna. Kaayyon qorannoo kanas Akkata hadholeen garaa kaasaa da'immanii manati yaalanii fi yeroo fi iddoo isaan yaala irraa barbaadan quachuufiidha. Kunsii, ittisa dhibee kanaati fi rakkoolee dhibichaan umamu danda'an hambisuuf mala yaalaa sirri ta'e karoorsuuf kan gargaaru ta'a jenneeti yaana.

Uunkaa waliigaltee.

Qoorannoo keenya adeemsisudhaf gaafiwwaan muraasa hamma daqiiqaa 30 fudhachuu danda'an isin gaafachuun barbaada. Hirimaannan keesan bu'aa firii qorranoo kanaattif faayidaa baay'ee qaba. Kanaafu, feedhidhan deebii keesan ifaanii fi isa dhugaa ta'ee akka nuf kennitan kabajaan isin gaafanna. Maqaa kee guca kana irrati hin barreefamu akasummas odeeffannoon ati nuf kenitu kamiyyuu si wajjiin wal-hin qabatu. Gaaffii deebisuu hin barbaane kamiyyuu deebisuu dhiisu dandeesa. gaaffii fi deebichi yoo sitti toluu dide, yeroo barbaadeti addaan kutuu ni dandeesa.

Gaafiifi deebii kan irrati hirmaachuufi toolee nu jeetu?

Deebiin Eyyeen yoo ta'e_____ Gaafiifi deebii itti fufi. Lakki yoo jedhe_____Dhaabi.

Maqaa fi mallattoo nama gaafatuu_____ guyyaaa_____

Abbaa qorranichaa

Huseen Mohaamad

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Gaafilee

Kuta 1:- Odeefannoo waliigalaa

Lak.	Gaafii	Deebii	Lak. Irra dabru
01	Umrii haadhaa	Waggaa 20 gadi 1 Waggaa 20 – 29 2 Waggaa 30 -39 3 Waggaa 40 fi oli	
02	Saala daa’imaa	Dhiira 1 Dhalaa 2	
03	Umrii daa’imaa	Ji’a 6 gadi 1 Ji’a 6 -11 2 Ji’a 12 -23 3 Ji’a 24 -59 4	
04	Ijoolee meeqa qabdu?	Tokko 1 Lama 2 Sadii 3 Afurii 4 Shanii Fi isaa oli 5	
05	Sadarkaa barumsa haadhaa	Kan hin baranne 1 Dubisuu fi baressuu 2 Kutaa 1 -6 3 Kutaa 7 -8 4 Kutaa 9 -12 5 Kutaa 12 fi ol 6	
06	Amantaa	Muslima 1 Ortodoksii 2 protestantii 3 kan biroo 4	
07	Galii maatiin Ji’an argatu tilmaaman	EBR	

08	Fageenyi manni, buufataa fayyaa irraa qabu.	Km	
09	Maatiin kee modelfamiliidhaa	Eyyee 1 Miti 2	
10	Deebin eyyee yoo ta'e, Yoomirraa eegalee	irraa eegalee	

Kuta 2; - Dhukuba gaaraa kaasaa fi waldhaansa haadhaa

Lak.	Gaafii	Deebi	Lak. Irra darbu
01	Dhibeen garaa kasaa rakkoo fayyaa ummata keesaniitii?	Eyyee 1 Miti 2	
02	Mucaan kee toorban afurii asi dhibee garaa kaasaan qabame beekaa?	Eyyee 1 Hinqabamne 2	
03	Albaatin/booliin da'ima dhiiga ni qabaa?	Eyyee 1 Hinqabu 2	
04	Gargaarsa akamiitu manati daa'ima garaa kasaan qabameenf godhame?	Dawa/qoricha pharmacy dhunfaatii bitameetu kenameef 1 Garaa sukumsisuu/dhidhiibsisuu 2 Qoricha aadaa kennuufii Yaala amantaan walqabatee (xabala, asmaa,) 4 Dhangala'aa ORS/RHF kennuufi 5 Kan biroo 6	
05	Tarkkanfii waldhaansa daa'ima keesan garaa kaasaan qabamefi akkamit murteesu dandesuu?	Bifa albaati irratti hunda'udhaan 1 Sababii dhibiichaa irratti hunda'udhan 2 Mallaattoolee hubinsa irratti hunda'udhaan 3 Haala furdina fi qallina albatii irratti	

		hund'udhaan 4 Kan biro 5	
06	Dhangala'aa/wanta dhugamu hammamtu kenameef?	Hamma duraanitii gadi 1 Hanguma baramee/duraani 2 Hanga baramee/duraani ol kennuu 3 Homaa hin kennamneef 4 Hinbeeku 5	
07	Harma hosisuu ilaalchisee, hammam kennituf	Harma hinhodhu(gu'eera) 1 Hama duriitii gad hosifna 2 Akkuma duriitti hosifna 3 Hama durii calaa hosifna 4	
08	nyaata/sorata hangamtu kenamaaf?	Nyaata nyaachu hin jalqbne 1 Hamma duraanitii gadi 2 Hammuma duranii 3 Hamma duraani oli 4 Nyaata dhorguu 5 Hin beeku 6	
09	Garaa kaasaan guyyaa meqaaf daa'imarra ture	Guyyaa tokko 1 Guyyaa lamaaf 2 Guyyaa sadii 3 Guyyaa afuriif 4 Guyyaa shaniif 5 Guyyaa jahaa fi oliif 6	
10	Garaa kasaan dhangala'aa qaama daa'ima keesaa ni fixaa	Eyyee 1 Hin fixu 2	
11	Dhangla'aa ORS irraa qophaa'uu kan yaala garaa kaasaatif oluu dhageesanii beektuu?	Eyyee 1 Hindhageenyee 2	
12	Yoo dhangala'aan kennamef ta'e	RHF(ashaboo, shukara fi	

	qabiyyeen/gost dhangala'aa kennameefii maali	bishaan/(SSS), buluqa,.....) Miniraala lubbu bararu/ORS Kan biroo	1 2 3	
13	Daa'iman garaa kaasaan dhukubsateef gargarsa/yaala nama biro barbadanii turtanii	Eyyee Miti	1 2	
14	Deebin eyyee yoo ta'e, eessa irraa gaargarsa yaalaa barbadanii turtan	nama yaala aadaa kennu irra iddo amantaa irra ogeessaa aadaa irraa mana qoricha dhunfaa irraa bufaata fayyaa irraa keelaa fayyaa irraa hospiitaala irraa kilinika dhunfaa irraa	1 2 3 4 5 6 7 8	
15	Gaaraa kasaan jalqabe guyyaa meqaan boddee gargaasra barbaadanii turtan	Guyyuma jalqaba Guyyaa tokkoon boodde Guyyaa lamaan boodde Guyyaa sadii boodde Guyyaa afuuriin boodde Guyyaa shanii fi isa oli boodde	1 2 3 4 5 6	
16	Osoo filanno qabaatte ,waldhaansa yaalii kam daa'ima garaa kaasaan qabameef filattu	Limoo ykn kininii liqimsamu Garaa dhidhibu/sukuumu Dawaa aadaa fayyadamuu Yaalii amantaan wal qabate gochu ORS/RHF Kan biroo	1 2 3 4 5 6	
17	Eenyuun yaalii dhibee garaa kaasaatiif bay'iisee filatamaa jeette yaadda	Hakiima aadaa Abootii amantaa Ogeessaa aadaa Warra mana qoricha dhunfaa Ogeesota fayyaa	1 2 3 4 5	

18	Akkaataa hubatiinsa haadhati sababbin karaa kaasaa mal ture?	Ija-namaa 1 Sababa ikee magarsuutini 2 Bu'aa dha 3 Bishaan/nyaata falameen 4 Germii/raamolee 5 Biyyee nyaachuu 6 Hinbeeku 7 Kan biroo 8	
19	Akaakun garaa kaasaa daa'imani kan haakiman hin fayyan jettanii yaadan jiraa?	Eyyee 1 Hinjiru 2	
20	Yoo deebin eyeen ta'ee isa kami?	Ija-namaan kan dhufu 1 Garaa kasaa yeroo ilkee bahu dhufu 2 Bu'aadhaan kan dhufu 3 Kan birro 4	
21	Akka tilmaama haadhati, haalli garaa kaasaa akam ture.	Bayemiiti 1 Giddu galeesa 2 cimaadha 3	
22	Dhibeen kun kan hubee ta'u isa akkamiti adaan baafachuu dandeesa?	Dadaffiin gadi teesisuu fi yeeroo dheeraf yoo irra ture 1 Mallaattoo makaa ta'anin ((hoqiisiisuu, hoo'a qaamaa) 2 Nyaata didinsa daa'imatiin 3 Yoo ijji keesati dhooqofte 4 Yoo dhiiga teesise 5 Kan birro 6	
23	Yeroo gafiin kuun adamsifamutti miidhaan dhibeen gaaraa kaasaa fide maalidha	Lubbuu mucaa baasee jiira 1 Itti cimee jiira 2 Foya'ee jira 3 Jijirama hin qabu 4	

DECLARATION

I, the undersigned, declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Masters of public health and has not been presented for a degree in this or any other Universities. All source of materials used for this thesis have been duly acknowledged.

Name of the student: Hussein Mohammed (BSc).

Date_____ signature_____

Approval of the primary advisor

This thesis has been submitted for school of public health/AAU with my approval as the university primary advisor.

Name of the primary advisor: Dr. Nugussie Deyessa (MD, MPH, PHD).

Date_____ signature_____