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# Assessment of Knowledge, Attitude, Practice and Associated Factors on Oral Rehydration Salt (ORS) for Diarrhea Treatment Among Mothers of Under Five Children in Serbo Town, South West Ethiopia, 2015: A Community- Based Cross-Sectional Study

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**Abstract**
**Background: -** All children in the world suffer from diarrheal disease at some time in their life. Recently using oral rehydration salt (ORS) and Zink supplementation are the advances in managing diarrheal disease which can drastically reduce the number of child deaths. In accordance with WHO guidelines, the Ethiopian government promotes oral rehydration therapy (ORT) as a component of the top priority activities for ensuring child survival during diarrhea. Therefore, the main aim of this study is to determine mothers'/care takers' knowledge, attitude and practice (KAP) of ORS for treatment of diarrhea in under five children in Serbo town, southwest Ethiopia, 2015.**Methods**: Community based cross-sectional study was conducted from March 05-20/2015. A total of 233 mothers living in Serbo town having under five children during the study period were interviewed face to face. Data was analyzed manually by using master sheet and scientific calculator. The result was described using text and frequency tables and chi-square test was used to identify factors associated with mothers/care takers knowledge, attitude and practice on home management of diarrhea by ORS. P-value of less than 0.05 was declared as statistically significant association.**Result**: The study revealed that majority of mothers 224 (96.1%) knew about ORS, and 214 (91.9%) know how to prepare ORS solution for their child during diarrheal attack. Only 41(17.6%) of the mothers know danger signs of diarrhea and very few 21(9.0%) know sign of severe dehydration. Concerning their attitude 220(94.4%) have positive attitude on the importance of ORS in treatment of diarrhea and 214 (91.85%) give ORS when their child get diarrhea. Educational level, occupation and monthly income of the mothers show association with the knowledge and practice whereas occupation and income level influence attitude of mothers towards ORS with p-value less than 0.05.**Conclusion:** The finding of the study indicated the overall level of knowledge; attitude and practice of mothers/care givers of under five children towards ORS in treatment of diarrheal disease are good. Certain socio-demographic characteristics of mothers/care givers influence the KAP of ORS utilization for diarrhea treatment in under five children. **Recommendation**: Health education regarding the danger signs of diarrhea and severe dehydration should be given for the community/mothers to alert them to give child more fluid during diarrheas attacks.
**Keywords:** ORS, Diarrhea, knowledge, attitude, practice, mothers of under five children, Ethiopia

## Background

Diarrhea is the major cause of morbidity and mortality among children worldwide, where an estimated 3-5 billion diarrheal illness and 5-10 million diarrhea related disease occur annually in Africa, Asia and Latin America. Children under five years of age are most vulnerable, where 745 million episodes and 3-4 million deaths occur each year, approximately 12,000 deaths per day

In Africa about 800,000 children die each year from diarrhea related dehydration and of the estimated 10.6 million deaths among under five children worldwide 42% occur in Africa. In about 955 of episodes of watery diarrhea dehydration can be prevented or decreased by using ORS. A successful treatment for acute diarrhea is early action at home, which account for more than 90% successful treatment for acute diarrhea [1-4]

All children in the world suffer from diarrheal disease at some time in their life, even though majority may have spontaneous complete recovery many other children get repeated attack some of which are serious enough to result in death [5]. Currently, two available treatments for diarrheal disease are oral rehydration salt (ORS) and Zink supplementation which can drastically reduce child mortality by preventing and treating dehydration to reduce duration and severity of diarrheal episodes [6].

In accordance with WHO guidelines government of Ethiopia promotes ORT as component of the top priority activities for insuring child survival during diarrhea. This program is aimed to educating mothers and communities about causes, symptoms and treatment of diarrhea. Use of ORS is mostly depend on the level of mothers' knowledge and their attitude towards its use [7].

The discovery of ORT to treat dehydration caused by acute watery diarrhea was described in the Journal, the "Lancet" as potentially the most medical advance in 20th century. ORT alone is an effective treatment for 90-95% of patients suffering from acute watery diarrhea. This include use of extra fluid at home such as tea, soups, rice water and fruits juice. The mixed solution of ORT can be used safely within 24 hours of its preparation at home or heath care setting [8].

 

Since the early 1980, ORT has been promoted in developing countries for treating dehydration by WHO and UNICEF. Since then millions of lives has been saved worldwide and hospital admission rate for diarrhea had also been reduced by 50% [9].

Many children's lives can be saved with correct management of childhood diarrhea. Too many children are not receiving adequate care for diarrhea in high-burden sub-Saharan African countries, even among those seen in health facilities. Prevalence of good diarrhea management is low in 11 of the 12 analyzed surveys, varying from 17 % in Cote d'Ivoire to 38 % in Niger. The exception is Sierra Leone, where prevalence of good practice is 67% [10].

The 2 week period prevalence of diarrhea among less than five children was 26.7%. Factors independently associated with diarrheal diseases occurrence were: children whose mothers/caretakers had never attended school and attended primary compared to those who attended tertiary level of education; children who had not vaccinated for Rota virus; mothers/caretakers who reported presence of feces around their houses and children living in earthen floor houses compared to those living in a cement floors [11].

More mothers in the project area received information regarding ORS than in the control area (63% versus 59%). The majority of mothers in both project and control areas recognized ORS packets (97% versus 95%). A significantly higher proportion of mothers in the project area knew how to prepare ORS correctly (64% versus 55%). Mothers' skill of using ORS was significantly associated with having seen a packet of ORS and mothers' education. The ORS use rate was lower in the project area compared with the control area (74% versus 84%). No significant differences in feeding practices during diarrhea were detected [12].

Care was given at home (50.4%; as recommended), at the health center (27%), and at the local drug store (19.1%). Main reasons for care sought were health education (31.9%), treatment cost (18%), and experiences (16.6%). Caregivers living in the mainly urban area of Calabar Municipality and the mainly rural area of Obanliku, were more likely to give home treatment. Choice of treatment was only associated with area of residence [13].

In the 2 surveys, zinc was used in 36.5% and 59.8% and oral rehydration salts in 34.8% and 59.2% of diarrheal episodes occurring in the 4 weeks preceding interviews in the intervention areas. In control areas, oral rehydration salts were used in 7.8% and 9.8% of episodes. In the intervention communities, care seeking for diarrhea reduced by 34% (survey 3), as did the prescription of drugs of unknown identity (survey 3) and antibiotics (survey 3) for diarrhea [14].

Prevalence of diarrheal morbidity over a period of two weeks preceding the study was about 28.9%. In the Bivariate analysis, a number of risk factors including distance from drinking water sources (time taken to-and-from the sources), availability & ownership of the latrine, refuse disposal, the presence of feces around the pit-hole ($P<0.001$) and presence or absence of pit-hole cover & feces seen in the compound ($P<0.05$) appeared to be significantly associated with under-five childhood diarrheal morbidity [15].

The prevalence of diarrhea among mothers and under-five children was 8.2% and 18.0%, respectively. Maternal education, maternal history of recent diarrhea, availability of latrine facility, duration of breast feeding, and age of the child had a significant association [16].

The mean of maternal knowledge (K), attitude (A), practice (P), and knowledge–attitude–practice sum (KAP) scores were 14.4, 6.3, 13.2, and 33.9, respectively. The mean of knowledge scores were significantly higher in mothers who responded positively for germs (13.4 versus 12.6) and dirty hands (13.7 versus 13.0) as causes of diarrhea. Mothers with education had significantly higher knowledge (14.7 versus 14.2) and attitude scores (6.6 versus 6.1) in management of diarrhea. However, the study found a low use rate (4%) of oral rehydration solution in practice. Multiple linear regression analysis revealed that maternal age was positively associated with practice and KAP scores. The number of children in the family was positively correlated with attitude scores. Socioeconomic status was positively associated with attitude, practice, and KAP scores [17].

A worrisome observation of public health relevance is that many of the caregivers used incorrect amount of water to reconstitute the fluids. Access to ORT fluids was high with 73.1% of all children with diarrhoea being offered an ORT fluid at home. However, the method of preparation and administration of fluids was quite unsatisfactory [18].

Globally, continued priority was given to training in program management, supervisor's skills and correct management of diarrheal cases in health facilities and at home. By the beginning of 1990 the global use rate of ORS was 36% and increase of 4% in 1998 [19, 20].

In Ethiopia mothers are primarily responsible to take care of children especially at young age. Knowledge, attitude and practice (KAP) about ORS in management of diarrhea are important determinants for an intervention program and diarrhea case management [21]. Currently, many diarrhea associated deaths could be prevented by timely treatment with ORS [22].

Millions of young lives could be saved if only mothers/care takers knew how to give their children ORS and appropriate home care. What mothers/care takers do when their child develops diarrhea is influenced by their knowledge and attitudes, the availability, access, accessibility of treatment option and associated direct or

 

indirect costs [23, 24].

The study done in rural Bangladesh showed that significantly higher proportion of mothers in project area know how to prepare ORS correctly (64%Vs55%) and mothers' skill of using ORS was significantly associated with having seen packets of ORS and mothers education. The ORS use rate was lower in project area compared with the control area (74% Vs 84%) [25].

The study conducted in Sudan indicates the second most common cause of death among children is diarrheal illness [26].

Study conducted in Pakistan showed that awareness of ORS was high 91% (81.4% in Baluchistan and 97% in AJK) of mothers responded that they heard of ORS. Education, income and urban residence were all positively associated with awareness of ORS, 56% of mothers identified ORT while 39.7% stated that drug were best treatment for diarrhea [27].

A study indicated that only 34.7% of mothers gave ORS for their infants during the last episode of diarrhea. Another 22.9% responded that their infants were treated in the hospital; other responses included antibiotics (11%), syrups (9.2%) and home remedies (6.8%) [28].

In Ethiopia diarrheal disease are among the leading causes of morbidity and mortality in children under five years of age. It accounts over 300,000 deaths per year [15].

Survey conducted in rural Ethiopia showed that diarrhea associated mortality rate was 11.4/1000 children and over 50% of mothers restricted the child's fluid intake while 70% stopped or decrease food intake; only 20% used ORS or cereal based ORT. Only 26.8% of mothers had sufficient knowledge about the cause of diarrhea. Half of the mothers did not seek professional treatment; 20% went to traditional healer and only 7.3% took the child to health institution [29].

A study conducted in Adamitulu, Ethiopia found that regarding attitude toward ORS use 134 (72.8%) parents agreed that it is very much helpful, whereas 6(3.3%) said it was not helpful, 36(19.6%) said it was somewhat helpful and 8(4.3%) said I don't know. The treatment practices of parents among under five children with diarrhea were 83(71.6%) were on breast milk alone or along with other weaning foods and breast feeding was discontinued only by 3.6% of the children. Food and fluid were withheld in 3.4% and 5.7% of these children respectively [30].

A survey conducted at Asendabo town showed that one-third of mothers knew ORS and 17.7% knew how to prepare. The main reason for not using ORS were related to accessibility (54.3%), availability (15.7%), lack of effect and cost of ORS (12%) [31].

## Methods

### Study area and participants

The community based cross-sectional study was conducted in Serbo town kersa wereda, Jimma zone, south west of Ethiopia which is located 321 kms from Addis Ababa, capital city of Ethiopia and 22 kms from Jimma town. The woreda has total population of 6,091, and 1,218 households and 1,103 under five children. The climatic condition of Serbo town is woynadega. The town has one health center, four private clinics and two drug venders. The study was conducted from March 05-20/2015.

### Sample size determinations and Sampling techniques

The sample required for the study was calculated by using single population proportion formula by considering the assumptions of 95% confidence level, 5% margin of error to be tolerated, and 26% proportion of ORS use among community. Finally, after using population correction formula, 233 sample of mothers/care givers of under five children were interviewed. After sample determination convenient sampling method was used to select mothers/care givers of under five children (by going home to home) until we get the required sample size because there is no formal registration of households with under five children in the town. Mothers/care givers of under five children who are aged eighteen year and above were interviewed.

### Data collection Instruments and methods

The questionnaire was developed after review of several studies. The questionnaire assessed mainly socio - demographic factors like age, educational status, occupation, marital status, income level etc.; knowledge about ORS, attitude towards ORS and practice of using ORS in treating diarrheal diseases among under five children. Data were collected by using Afan Oromo and Amharic versions of questionnaire by two fourth year regular BSc Nursing students for 15 days through face to face interview. The principal investigator was closely supervising the data collection process.

### Data quality assurance

The questionnaire was pre-tested on 5% of the sample in Jimma town, one week before the actual data collection and necessary amendments were made accordingly. The questionnaire was first prepared in English and the translated to local languages (Amharic and Afan Oromo) by language experts and then back translated to English by other language experts to make sure its consistency.

The data collectors were trained on data collection tool and procedure for half day and the principal investigator

 

was supervising the data collection procedure from beginning to end.
The collected data were checked for consistency and completeness every day at the end of data collection.

**Data Processing and analysis**

Before processing on master sheet, questionnaires were checked for completeness. The descriptive analysis like frequency and percentage were calculated by using scientific calculator. Chi-square test was used to identify associations between variables. The variables that had P-value ≤0.05 at 95% confidence interval were considered as significant. Finally, the findings were presented in the form of narratives texts and tables.

## Result

### Socio-Demographic Characteristics

A total of 233 mothers were interviewed giving response rate of 100%. From the total 233 sampled mothers, more than half 124 (53.2%) were in the age group 20-29 and the least were in the age group 15-19 which was 17(7.3%). Regarding ethnic group 107 (45.9%) were Oromo and the dominant religion in the area of study was Muslim was which accounts for 133 (57.1%). More than one third of the mothers 86 (36%) were illiterate and only 14(6.0%) mothers completed $12^{th}$ grade. With regard to occupational status, 163 (70%) were housewives and only 14 (6%) were government workers. near to half 104(44.6%) had monthly income between 101-300 Ethiopian birr [Table 1].

Table 7: Socio-demographic characteristics of mothers/care takers of under five children at Serbo town, south west Ethiopia, 2015, (n = 233)

| **Characteristics of respondents** | | **Number (n)** | **Percent (%)** |
|---|---|---|---|
| Age group | 15 – 19 | 17 | 7.3 |
| | 20 – 29 | 124 | 53.2 |
| | 30 – 39 | 72 | 30.9 |
| | 40 – 49 | 20 | 8.6 |
| | Total | 233 | 100.0 |
| Ethnicity | Oromo | 107 | 45.9 |
| | Amhara | 46 | 19.7 |
| | Gurage | 57 | 24.5 |
| | *Others | 23 | 9.9 |
| | Total | 233 | 100.0 |
| Religion | Muslim | 133 | 57.1 |
| | Orthodox | 96 | 41.2 |
| | Protestant | 4 | 1.7 |
| | Total | 233 | 100.0 |
| Educational level | Illiterate | 86 | 36.9 |
| | 1 – 8 grade | 81 | 34.8 |
| | 9 -12 grade | 52 | 22.3 |
| | $12^{+}$ grade | 14 | 6.0 |
| | Total | 233 | 100.0 |
| Income (in Ethiopian Birr) | ≤ 100 | 53 | 22.8 |
| | 100-300 | 104 | 44.6 |
| | 301-500 | 54 | 23.4 |
| | $500^{+}$ | 22 | 9.4 |
| | Total | 233 | 100.0 |
| Occupational status | House wife | 163 | 70.0 |
| | Gov. employee | 14 | 6.0 |
| | Self-employee | 51 | 21.9 |
| | **Others | 5 | 2.1 |
| | Total | 233 | 100.0 |

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### Knowledge about ORS

The result of this study revealed that 224 (96.1%) of the mothers/care givers had good awareness of about ORS, 211(90.6%) had good knowledge on how to use ORS and 209(89.7%) had good knowledge of how to prepare it. Of those mothers who know about ORS 194 (83.3%) told that the purpose of ORS use is to replace body fluid lost by diarrhea and the rest said it is to stop diarrhea, to stop vomiting and fever and don't know the purpose.

Majority of the mothers, 186(79.8%) know that ORS should be used within 24 hours of its preparation whereas 9.2% said it should be used until it is finished even after 24 hours of its preparation and the rest of the mothers do not know for how long to use it after preparation.

 

The study showed that about 172(73.8%) of mothers explained the cause of diarrhea as lack of personal and environmental hygiene, 29(12.5%) don't know the cause, whereas others relate diarrhea with teething and evil eyes. Only 41(17.6%) of mothers correctly explained clinical manifestations/ danger sign / of diarrhea as excessive thirst, sunken eye, restlessness, lack of tearing, failure to feed and vomiting and said the child needs to be seen by trained health worker if not get better in two days, and the rest of the respondents said I don't know. From the total of 233 mothers only 21(9%) correctly explained dry mouth, sunken eyes and poor skin turgor as sign of dehydration and 196(84.1%) of the mothers give fluid if their child need it [Table 2].

**Table 8: Knowledge of Mothers'/care takers' of under five children about ORS at Serbo town, south west Ethiopia, 2015 (n = 233)**

| Response | Yes | | No | |
|---|---|---|---|---|
| | Frequency (n) | Percent (%) | Frequency (n) | Percent (%) |
| Do you know about ORS? | 224 | 96.1 | 9 | 3.9 |
| You know the purpose of using ORS? | 211 | 90.6 | 22 | 9.4 |
| Do you know how to prepare ORS? | 209 | 89.7 | 24 | 10.3 |
| Do you preserve the solution for more than 24 hours? | 47 | 20.2 | 186 | 79.8 |
| If your child wants more fluid do you give him/her? | 196 | 84.1 | 37 | 15.9 |
| Do you know danger signs of diarrhea? | 41 | 17.6 | 192 | 82.4 |
| Do you know the common cause of diarrhea? | 172 | 73.8 | 61 | 26.2 |
| Do you know the danger sign of dehydration? | 21 | 9.0 | 212 | 91.0 |

**Practice about ORS**

The practice of mothers were assessed and result revealed that majority of the mothers 214(91.9%) give ORS (homemade fluid) to their child during diarrheal episodes while the rest stop giving food and decrease fluid during diarrheal attack. All of the mothers replied that they take their child to health institution during diarrheal attack and majority of them 203(87.1%) said there is no particular medicine they give to their child at home except homemade ORS which is given four times, three time, five times within 24 hours or until finished the prepared ORS. Majority of the respondents 223(95.7%) respond that diarrhea can be prevented. They replied that diarrhea can be prevented through hand washing before preparing food, hand washing after cleaning a child who had defecated and hand washing before feeding a child 146(62.7%), 56(24.1%) and 30(13.2%) respectively. Majority 205(88%) of the mothers/care takers reported that they can identify weather their child is on diarrhea when the child has frequent watery stool [Table 3].

**Table 9: Practice of ORS usage for diarrhea treatment among mothers'/care takers' of under five children at Serbo town, south west Ethiopia, 2015 (233)**

| Response for practice questions | | Frequency (n) | Percent (%) |
|---|---|---|---|
| Do you take your child whenever he/she sets diarrhea to health institution? | Yes | 233 | 100 |
| Do you give ORS or homemade fluids to your child during diarrhea episode? | Yes | 214 | 91.9 |
| | No | 19 | 8.2 |
| | Total | 233 | 100 |
| Whenever your child gets diarrhea should feed on fluid be restricted? | Yes | 202 | 86.7 |
| | No | 31 | 13.3 |
| | Total | 233 | 100 |
| Do you think diarrhea is preventable? | Yes | 223 | 95.7 |
| | No | 10 | 4.3 |
| | Total | 233 | 100 |
| Means of diarrhea prevention | Hand washing before preparing food | 146 | 62.7 |
| | Hand washing after cleaning a child who had defecated | 56 | 24.1 |
| | Hand washing before feeding a child | 30 | 13.2 |
| | Total | 233 | 100 |
| Can you identify if a child is on diarrhea? | Yes | 205 | 88.0 |
| | No | 28 | 22.0 |
| | Total | 233 | 100 |

**Attitude of mothers about ORS in diarrhea management**

The attitude of mothers towards ORS was assessed and the result revealed that majority of the respondents 220(94.6%) agree that it is helpful in treatment of diarrhea while 13(5.6%) mothers kept neutral. Majority of the

 

mothers 200(85.8%) agree that diarrhea can be treated with solution of salt and sugar.
More than two third of the mothers 180(77.3%) agree that additional food and fluid would be given when a child gets diarrhea [Table 4].

**Table 10: Attitude of Mothers'/care takers' of under five children on ORS as treatment of diarrhea at Serbo town, south west Ethiopia, 2015 (n=233)**

| Attitude of mothers about ORS | Response | Frequency (n) | Percent (%) |
|---|---|---|---|
| ORS can help in treatment of diarrhea | Agree | 220 | 94.4 |
| | Neutral | 13 | 5.6 |
| | Total | 233 | 100 |
| Not feeding the child with diarrhea will aggravate the disease | Agree | 202 | 86.7 |
| | Disagree | 31 | 13.3 |
| | Total | 233 | 100 |
| ORS and other homemade fluids treat diarrhea | Agree | 213 | 91.4 |
| | Disagree | 7 | 3.0 |
| | Neutral | 13 | 5.6 |
| | Total | 233 | 100 |
| Diarrhea can be treated at home with solution of salt and sugar | Agree | 200 | 85.8 |
| | Disagree | 20 | 8.6 |
| | Neutral | 13 | 5.6 |
| | Total | 233 | 100 |
| Whenever your child gets diarrhea additional food and fluid should be given | Agree | 180 | 77.3 |
| | Disagree | 53 | 22.7 |
| | Total | 233 | 100 |

**Association between selected socio-demographic characteristics and level of knowledge**

We performed chi-square test to see the existence of association between knowledge and socio-demographic characteristics. Knowledge about ORS for the treatment of diarrhea in under five is significantly associated with educational status, occupational status and monthly income of mothers/care takers of under five children with p value (0.00), (0.00), and (0.01) respectively [Table 5].

**Table 11: Association between selected socio-demographic characteristics and level of knowledge of respondents about ORS at Serbo town, south west Ethiopia, 2015 (n=233)**

| Socio-demographic Characteristics | | Total response | Level of knowledge: Good knowledge | Fair knowledge | Poor knowledge | $X^2$, df p-value |
|---|---|---|---|---|---|---|
| **Educational status** | Illiterate | 86 | 52 | 10 | 24 | |
| | 1-8 grade | 81 | 62 | 16 | 3 | $X^2 = 30.047$ |
| | 9-12 grade | 52 | 36 | 13 | 3 | Df = 6 |
| | $12^+$ | 14 | 10 | 4 | 0 | Pv = 0.00 |
| | Total | 233 | 160 | 43 | 30 | |
| **Occupational status** | House wife | 163 | 128 | 28 | 7 | $X^2 = 45.260$ |
| | Gov't employee | 14 | 7 | 2 | 5 | Df = 6 |
| | Self-employee | 51 | 22 | 11 | 18 | Pv = 0.00 |
| | *Others | 5 | 3 | 2 | 0 | |
| | Total | 233 | 160 | 43 | 30 | |
| **Monthly income in Ethiopian birr** | $\leq 100$ | 53 | 28 | 14 | 11 | |
| | 100-300 | 104 | 78 | 17 | 9 | $X^2=17.62$ |
| | 301-500 | 54 | 33 | 12 | 9 | Df =6 |
| | $500^+$ | 22 | 21 | 0 | 1 | Pv =0.007 |
| | Total | 233 | 160 | 43 | 30 | |

*Daily Laborer, Housewife

**Association between selected socio-demographic characteristics and level of attitude**

As shown in the table below attitude of mothers/care takers of under five children towards ORS as diarrhea treatment is significantly associated with educational status (p =0.00) and income level (p =0.01). [Table 6]

 

**Table 12: Association of level of attitude of respondents by selected socio demographic characteristics at Serbo town 2015**

| Socio-demographic Characteristics | | Total response | Attitude | | $X^2$ df P-value |
|---|---|---|---|---|---|
| | | | Negative | Positive | |
| **Educational Status** | Illiterate | 86 | 13 | 73 | |
| | 1-8 grade | 81 | 20 | 61 | $X^2$=18.34 |
| | 9-12 grade | 52 | 0 | 52 | Df =3 |
| | $12^+$ | 14 | 0 | 14 | Pv =0.00 |
| | Total | 233 | 33 | 200 | |
| **Income/month in Ethiopian birr** | ≤100 | 53 | 15 | 38 | |
| | 101-300 | 104 | 10 | 94 | $X^2$=11.4 |
| | 301-500 | 54 | 6 | 48 | Df =3 |
| | $500^+$ | 22 | 2 | 20 | Pv 0.010 |
| | Total | 233 | 33 | 200 | |

**Association between selected socio-demographic characteristics and level of attitude**

The result of chi-square test shows that three socio-demographic variables are associated with practice of mothers/care givers in home treatment of diarrhea with ORS. These variables are educational status (p =0.01), occupation (p =0.00) and income level (p = 0.02) [7].

**Table 13: Association of practice of respondents with selected socio-demographic characteristics at serbo town, south west Ethiopia, 2015, (n = 233)**

| Socio-demographic characteristics | | Total response | Practice | | | $X^2$ DF P VALUE |
|---|---|---|---|---|---|---|
| | | | Good practice | Fair practice | Poor practice | |
| **Educational status** | Illiterate | 86 | 46 | 15 | 25 | |
| | 1-8 grade | 81 | 58 | 15 | 8 | $X^2$=17.26 |
| | 9-12 grade | 52 | 40 | 6 | 6 | Df=6 |
| | $12^+$ grade | 14 | 12 | 1 | 1 | Pv=0.008 |
| | Total | 233 | 156 | 37 | 40 | |
| **Occupational status** | House wife | 163 | 125 | 23 | 15 | $X^2$=38.554 |
| | Gov't employee | 14 | 6 | 3 | 5 | Df =6 |
| | Self- employee | 51 | 23 | 8 | 20 | Pv = 0.000 |
| | *Others | 5 | 2 | 3 | 0 | |
| | Total | 233 | 156 | 37 | 40 | |
| **Income/month Ethiopian Birr** | ≤ 100 | 53 | 29 | 6 | 18 | |
| | 101-300 | 104 | 72 | 19 | 13 | $X^2$=15.133 |
| | 301-500 | 54 | 38 | 8 | 8 | Df=6 |
| | $500^+$ | 22 | 17 | 4 | 1 | Pv=0.019 |
| | Total | 233 | 156 | 37 | 40 | |

**Discussion**

Diarrhea continues to be a major cause of childhood morbidity and mortality especially in developing countries. Good management of diarrhea before dehydration occurs is vital. Millions of young lives could be saved if only mothers know how to give their children ORS and appropriate home care.

The result of this study revealed that 220(94.6%) of mothers know that ORS is helpful in treatment of diarrhea. This is better with the study conducted by Fikru T. which showed that 72.8% said ORS is very much helpful whereas (19.6%) said it was somewhat helpful and (4.3%) said don't know (29). This increment in awareness may be because of the time gap and increased access to health information as Serbo town is very close to Jimma town where different health facilities are available.

This study revealed that 209 (89.7%) of mothers of under five children know how to prepare ORS during diarrheal episodes. When we compare this with the study conducted in Assendabo town it is higher where about 17.7% know how to prepare ORS (33). This high knowledge among the study participants could be due to the health education given, increased quality of maternal and child health care service or it could be explained by higher wide gap in study period between the two studies.

Though the study group had high knowledge on ORS there are still people not practicing it, and this is in consistent to other studies that show knowledge alone could not change attitude of individuals.

Majority of the mothers, 186(79.8%) know that ORS should be used within 24 hours of its preparation whereas 9.2% said it should be used until it is finished even after 24 hours of its preparation and the rest of the

 

mothers do not know for how long to use it after preparation. A study published in lancet indicate that a mixed solution of ORT can be used safely within 24 hours of its preparation at home or heath care setting (8).

About 172(73.8%) of mothers explained the cause of diarrhea to be lack of personal and environmental hygiene whereas many of mothers attributed diarrhea to teething, and evil eyes. This is comparable with the study done in rural Ethiopia where many of mothers believed that teething causes diarrhea (31).

Tests for possible association between knowledge, attitude and practice of ORS use for the treatment of diarrhea and selected socio-demographic characteristics were done and statistical association showed that educational status, income and occupational status had statistically significant association ($P \leq 0.05$) with knowledge and attitude of mothers about ORS for treatment of diarrhea. The study showed that educational status and income had statistically strong association ($p < 0.05$) with practice of mothers which indicates that as educational status and income increases practice of ORS by mothers also increases.

This showed that as illiteracy status increases the knowledge of mothers decrease towards ORS home management, on other hand as educational status of mothers increases their knowledge about ORS increases.

## Conclusion

As it was already discussed the majority of mothers found to have poor knowledge about the danger sign of diarrhea and manifestations of severe dehydration that indicates the child needs to be seen by trained health worker and the child needs more fluid(ORS). Most of the mothers know the appropriate time within which ORS solution should be used and discarded and some of the mothers use the solution after 24 hours till it is finished. Majority of mothers give ORS or homemade fluid to their child during diarrheal attacks whereas few others stop food and decrease fluid for their children during diarrheal episodes. Majority of mothers explained common cause of diarrhea in children under-five age as lack of personal and environmental hygiene and others attributed diarrhea to teething and evil eye.

## Strengths and limitations

The mothers/care givers were interviewed in their own home setting and no discomforts were resulted related to their privacy during data collection and this can decrease the social desirability bias and fear of information leakage. Since we used convenient sapling technique, generalizing of these findings for entire population may be questionable. We used codes on the doors of the interviewed mothers/caregivers to prevent revisiting the house during data collection. We used only quantitative data collection method, but we thing it could have been good if we included qualitative methods like observation. Therefore, in future, it is better if mixed methods of data collections be considered while conducting similar study.

## Abbreviation

DF: Degree of freedom
KAP: Knowledge, Attitude and Practice
kms: kilometers
ORS: Oral Rehydration Salt
ORT: Oral Rehydration Therapy
UNICEF: United Nation International Children Emergency Fund
WHO: World Health Organization
$X^2$: Chi-square

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## Authors' contributions

AA and EA conceived and designed the study. Both AA and EA discussed and decided on the design of the study. EA analysed the data and interpreted the results. AA prepared and critically reviewed the manuscript.

 

Both authors have read and approved the manuscript.

**Ethics approval and consent to participate**
Before the data collection, Ethical clearance and approval to conduct this study was obtained from the Ethical review board of College of Medical and Health Sciences, Jimma University. Permission was obtained from Serbo town administration to implement the study. Prior to interviewing the mothers, the aims and objectives of the study were clearly explained and oral informed consent was obtained. Confidentiality and anonymity were ensured throughout the execution of this study. The personal identifications were not included on the questionnaire not to disclose their information, and instead we used code numbers of the questionnaires. Participants have been informed that their participation was voluntary and that they can withdraw from the study at any time if they wish to do so. Finally they were assured that they have full right to decide whether to participate or refuse.

**Competing interests**
None of the authors have any competing interests.

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