



A Study on Knowledge Attitude and Practice on Oral Rehydration Therapy Among Mothers of Under-Five Years Old Children in Diarrhea

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ABSTRACT

Background: The major health problems encountered in childhood are acute diarrhoeal diseases. Diarrhoea is defined as the passage of three or more loose or liquid stools per day. Treatment options such as oral rehydration solution (ORS)/oral rehydration therapy (ORT) and zinc treatment. Oral Rehydration Therapy is a type of fluid replacement therapy is mainly used to prevent or treat diarrhea.

Aim and objectives: To examine the knowledge, attitude, and practices on oral rehydration therapy among mothers of under-five children. To find the association between the knowledge, attitude and practices with selected demographic variables

Materials and Methods: A descriptive cross-sectional study was conducted among mothers of under-five years age children during the period of March to August 2023. Data were collected using a pre-structured questionnaire and analysed using SPSS version 23.0 software. Descriptive statistics including frequencies, mean, standard deviation and percentages were used to summarize the data.

Results: An effective technique for preventing dehydration in children experiencing diarrheal episodes is the use of oral rehydration therapy. This study reveals that 78.5% of mothers have adequate knowledge on ORT. But only 42% of mothers had good practice on ORT. Though study respondents have adequate knowledge and the better attitude, their practice of oral rehydration therapy were lacking.

Conclusion: Good knowledge and attitude regarding diarrhoea prevention and management among our study population did not translate to good practice. These could also be due to the lower knowledge about management of diarrhoea. The gaps between knowledge, attitude and practices among the mothers need to be addressed.

Keywords: Knowledge, Attitude, Practice, Diarrhoea, Oral Rehydration Therapy, Home Available Fluids.

INTRODUCTION

The national child policy Children are acknowledged as the most valuable resource in the country in 1974. It declares that the provision of sufficient assistance to children during their developmental stage would be the state's policy.¹ Over time, children's health has been prioritized above all else, and numerous health initiatives have been put in place with the goal of lowering child mortality and morbidity.

Studying children's health in light of social values, community, and policy is currently a challenge. Community involvement, particularly from families, is essential. The way they perceive and understand the illness and how it is managed in turn affects their involvement.² In children, acute diarrhea is one of the most common health issues and dehydration from diarrhea has been linked to 16% of deaths in children under five and 3% of deaths in newborns worldwide³. Malnutrition is another illness caused by diarrhea. Children who suffer from diarrhea and severe malnutrition have a high mortality risk.⁴ Research suggests that diarrhea may also result in long-term physical disabilities such stunted growth and diminished cognitive development.⁵

Diarrhea is the cause of one in five pediatric fatalities worldwide. Worldwide, 90% of deaths from diarrheal disease in children under five years old occur in developing nations.⁶ Over 80 percent of diarrhea-related child fatalities occur in South Asia and Africa. Every year, over three-quarters of all diarrheal fatalities in children under five occur in just 15 nations and India is ranked first among them.⁷ Low-resource settings also have a high case fatality rate.⁸ Additionally, it places a significant financial strain on healthcare systems. Diarrhea prevalence varies by location.⁹ There are also differences in the etiology. But if the infant is rehydrated with minimal attention, 90% of diarrheal deaths can be avoided, independent of the agent, age, or location. Diarrheal infections are easily avoidable and curable, and they occur every day like an emergency.¹⁰

Existing life-saving therapies are frequently not well known or easily accessible. Actually, studies show that only around one-third of children in impoverished nations who have diarrheal illness get the necessary therapy.¹¹ In developing nations, diarrheal illness should not be the leading cause of death for kids. There are already proven, life-saving therapies available. These include preventative measures including better access to safe drinking water,



vaccinations, exclusive breastfeeding, enhanced sanitation and hygiene, and the best possible supplemental feeding.

Additionally, when diarrhea strikes, remedies such as treatments with zinc and oral rehydration solution (ORS)/oral rehydration therapy (ORT) expedite healing and extend survival. The morbidity and fatality rates from acute infectious diarrhea have significantly decreased when children with ORS are treated promptly. ORS contains glucose and electrolytes that can be used to treat and prevent dehydration in individuals of all ages who have diarrhea of any cause.

The technology used in oral rehydration therapy is appropriate, it is affordable, culturally acceptable, and it is based on strong science.¹² Because it is easy to use and has the potential to save lives, oral rehydration treatment is one of the major medical advancements of the twentieth century.¹³ ORS is the mainstay of treatment for diarrheal illness in both developed and poor countries. It helps about 90% of people who are dehydrated.¹⁴ According to estimates, ORT has saved 50 million lives since the 1970s. Zinc is a vital new treatment for diarrhea, especially in developing nations.¹⁵

It is a safe and efficient therapeutic option that can significantly lower the need for hospitalization, decrease stool output, and shorten the length and intensity of diarrhea episodes. Additionally, it may stop diarrhea for up to three months. To guarantee complete compliance, it is crucial that the entire course of zinc be taken in addition to ORS/ORT and that caregivers get follow-up and behavior change messages.¹⁶ However, due to competing global health objectives and a drop in research and financing commitments, movement has stalled during the past ten years. The current low level of awareness surrounding the issue may also be attributed to the illness's perceived lack of urgency and taboo character.

Advocacy has also been difficult since organizations have acted independently and haven't taken advantage of chances to work together across sectors. In several nations, this has led to a halt in advancement and even a reduction in the scope of interventions.¹⁷ At the moment, diarrheal disease is the most prevalent illness worldwide, according to a research by the World Health Organization.¹⁸ In addition to being a health concern, diarrheal illness has an economic impact. Treating water-borne illnesses like diarrhea, for instance, costs governments in sub-Saharan Africa at least 12% of their annual health budgets.¹⁹

Thus, in many nations, including India, the use of ORT and ORS has decreased. The decline in ORS utilization may be caused by a lack of access to and information of ORS and ORT. Additionally, more intravenous treatment is being used to treat dehydration. Higher and lower socioeconomic groups consistently have different rates of diarrheal mortality and ORS use. Assessing the caregivers' current understanding of using ORT to treat diarrhea and the many reasons that contribute to its non-use becomes

crucial in this regard.²⁰ So the current study was conducted with the aim of assessing the knowledge, attitude, and practices on oral rehydration therapy among mothers of under-five years old children.

MATERIALS AND METHODS

A community based descriptive cross-sectional study was conducted among mothers of under-five years old for a period of 6 months during March 2023 and August 2023. Using 95% confidence interval and 5% margin of error, the sample was estimated to be 400. Mothers having at least one child under five years and willing to participate were included in this study. Simple random sampling method was used to identify the study subjects.

A pre-designed, semi structured questionnaire was employed as the primary data collection tool. The questionnaire consisting of four sections designed to address socio-demographic characteristics, knowledge, attitude and practice of participants towards ORT among mothers of under five years old children.

There were 13 questions about knowledge, 7 on attitude and 10 about the practice of ORT during their child diarrheal episodes of the mothers. The purpose of the study was explained to the mothers and their confidentiality was ensured. A total of 400 responses were collected during the study period.

For each of the study component, the correct response to the question was given a score of '1' and any other response was given '0' score. Score of above 50% in each component was taken as adequate knowledge, positive attitude and good practice.

Statistical Analysis

All the data collected were entered into the Microsoft excel. The data analysis was carried out using SPSS software version 23.0. The data related to demographic variables were analysed by using descriptive measures (frequency and percentage). The level of knowledge, attitude and practice on the use of ORS was analysed using descriptive statistics. Chi-squared test was used to find the statistical significance. For all statistical tests P value less than 0.05 was considered significance.

RESULTS

The study determined that the mother's mean age was 27.73 with a standard deviation of ± 3.703 and the children's mean age was 2.23 with a standard deviation of ± 1.903 . Of the 400 study participants, 225 (56.3%) mothers, were between the ages of 26 and 30, while 99 (24.8%) mothers were between the ages of 22 and 25. 174 (43.5%) of the mothers were multiparous, meaning they had more than one kid. 92(23%) of mothers have completed high school, and about 174 (43.5%) of mothers have graduated. There were just 7 (1.8%) illiterate mothers. Of the 400 mothers surveyed, 215 (53.8%) were housewives, and 19 (4.8%) were found to be medical professionals. Refer (Table 1).



Table 1: Socio-demographic characteristics of the study population.

S.No	Characteristics	Frequency N=400	Percentage
1.	Age of the mother		
	18-25 years	101	25.3%
	26-32 years	299	74.7%
2.	Education		
	Illiterate	7	1.8%
	Primary school	4	1%
	Middle school	19	4%
	High school	23	9%
	Graduate	174	43.5%
	Post graduate	104	26%
3.	Occupation		
	House wife/Unemployed	216	53.8%
	Daily wages	21	5.35%
	Business	64	16.1%
	Medical/non-medical profession	99	25.1%

Knowledge regarding the use of ORS among the mothers of under-five years old children:

The definition of diarrhea was not well understood by mothers in the current study, as only 52% (208) of mothers correctly identified the condition as "the passage of three or more loose, liquid stool per day, or more frequently than is normal for an individual." The remaining mothers were unsure of the exact definition of diarrhea. In the six months leading up to the poll, about 70% (276) of the mothers in the research said that their children had experienced diarrhea at some point. This demonstrates clearly that diarrhea in children is a serious health concern and that appropriate measures should be implemented to control and prevent diarrhea.

In the current study, 59.5% (238) of mothers believe that diarrhea will have an impact on their children's health, and 32.8% (131) are aware that diarrhea can be fatal. Just 7.8% (31) still believe it to be safe. 92.5% (370) of mothers in the current study were found to be aware of the use of ORS in the treatment of diarrheal illness. Only 39.5% (158) of the respondents stated that ORS restores electrolyte loss and replenishes water, despite the fact that 92.5% of participants were aware of ORS. 19.3% (77) of mothers stated that it reduces diarrheal water loss and 31% (124) by diarrheal frequency. Just 10.3% (41) of mothers are unaware that ORS can be used to treat diarrhea.

When asked about the method for preparing ORS, 60.5% (242) of mothers responded that they knew how to do so; unfortunately, only 44.8% (179) of them said they were aware of the proper way to make an ORS solution. Among the study's respondents, 40.5% (150) of mothers said that their primary source of expertise for preparing ORS was

healthcare experts, whereas 36.8% (136) of mothers made ORS according to the instructions on the sachet.

Of the responders, 38.3% (153) answered that ORS should be stopped on a reduced frequency of stools, and 39.5% (158) said that ORS should be administered even after the child vomits. More than half of the mothers involved in the study 51.5% (206) were aware that the prepared ORS should not be kept for longer than 24 hours. Less than half of the 400 study mothers 48.8% (195) were aware that ORS sachets are given away for free at Government Health Facilities.

Attitude Based Responses:

Attitude regarding the use of ORS among mothers of under-five children: Of the 400 mothers, 63% (252) agreed that oral Attitude based responses hydration solution should be given at home to treat diarrheal illnesses in children under five. In the same way, the majority of the respondents 67.8% (276) concurred that mothers can take care of their children' diarrheal illness at home. Similarly, 43.3% (173) mothers concurred that giving excess ORS can have adverse impacts on the health of their children; yet, 56.8% (227) of mothers in the current study concluded that giving excess ORS is safe.

In the present study, around 75.4% (302) of the mothers felt that giving fluids to children experiencing diarrheal episodes was an appropriate choice. However, 63.7% (255) of the mothers thought that restricting solid foods during an episode was an acceptable idea. In the current study, 46.8% (187) of mothers only visited hospitals when their child appeared weak and dehydrated or was not eating well. The remaining 53.3% (213) of mothers took their child to the doctor when the child had more than three loose stools in a day.

Practice Based Responses

while assessing the mothers practice regarding preparation and use of ORS, out of 400 60% (242) mothers were found to have utilized ORS for their diarrheal child. However, just 15% (60) thought of it as the standard treatment for diarrhea and made use of the ORS sachets that were readily available as their first course of treatment. 38.8% (155) mothers knew about ORS but chose not to use it when their children had diarrhea. The majority of them 39.5% (61) cited the fact that it makes them vomit. 17.5% (27) believe that ORS is not a suitable treatment for diarrhea. 27.8% (44) of mothers were unsure of the precise rationale behind their child's non-use of ORS.

Out of 400 mothers 329 (82.2%) of them were aware of home remedies, and managed diarrheal illness homemade fluids. kanji was the most preferred home remedy for diarrhea among the study mothers (155, 47.5%), followed by in Salt & sugar (132, 40.3) and dhal water (29, 9%) respectively. while preparing ORS, .89.5% (331) of the total respondents followed the recommended practice of not heating the prepared ORS and, similarly, of not keeping ORS in storage for longer than 24 hours. Refer (Table 2)



Table 2: Knowledge, attitude, and practices on oral rehydration therapy among mothers of under-five children

S.NO	Pre - determined questions	Response	Frequency (n=400)	Percentage (%)
Knowledge Related Questions				
1)	What is diarrhea?	Correct	208	52.0
		Wrong	192	48.0
2)	Have your child ever suffered from diarrhea in the past 6 months	yes	276	70.0
		No	124	30.0
3)	What do you think if diarrhea is left untreated?	Correct	238	59.5
		Wrong	25	14.45
4)	Are you aware of Oral Rehydration Solution (ORS) in the management of diarrhea??	Yes	370	92.50
		No	30	7.50
5)	What is the role of an ORS in diarrhea?	Correct	158	39.50
		Wrong	242	60.50
6)	. Do you know how to of prepare Oral Rehydration Solution (ORS)?	Yes	242	60.50
		No	110	63.58
7)	If yes to the above question, enumerate the steps of preparation?	Correct	179	44.75
		Wrong	221	52.25
8)	Can we stop ORS when child vomits during diarrhea?	yes	242	60.5
		No	158	39.5
9)	Can we store ORS for more than one day?	Correct	206	51.5
		Wrong	194	48.5
11)	Do you know that the Government Hospitals providing Oral Rehydration Salt for free of cost?	Yes	195	48.8
		No	205	51.2
Attitude Related Questions				
12)	At which place do you think you can manage diarrhea?	At hospital	124	31.0
		At home	276	69.0
13)	Do you think, giving oral rehydration fluids at home can treat diarrhea?	Yes	252	63.0
		No	148	37.0
14)	Do you think, giving excess of ORS can harm the child ?	Yes	173	43.25
		No	227	56.75
15)	What do you think about giving fluids during diarrheal episode to your child?	Should be given	302	75.5
		Should not be given	98	24.5
Practice Related Questions				
16)	What will be your first choice of intervention during a child's diarrheal episode?	ORS	242	60.5
		Others	158	39.5
17)	Have you ever given ORS to your child?	Yes	60	15.0
		No	340	85.50
18)	What do you think the reason for not giving ORS to child during diarrheal episode?	causes vomiting	61	15.25
		It is not a medicine & does not stop diarrhea	339	84.75
19)	If ORS sachet is not available, will you prepare ORS at home?	Yes	139	80.35
		No	34	19.65
20)	What Home Remedies will you give to your child during diarrhea?	Kanji	155	38.75
		Salt and sugar water	132	33.0
		Dhal water	29	7.25
21)	Do you heat the prepared ORS solution before feeding the child??	Yes	69	17.25
		No	331	82.75
22)	How long will you store the prepared Oral Rehydration Solution?	Up to 12 hours	65	16.25
		Up to 24 hours	181	45.25
		Until it is over	154	38.5

Figure 1 shows a bar diagram that represents the general knowledge, attitude, and practice about the usage of ORS among mothers of children under five. It is noted that 78.5% of the mothers have adequate knowledge, 56% had a positive attitude, and 42% engaged in good practice.

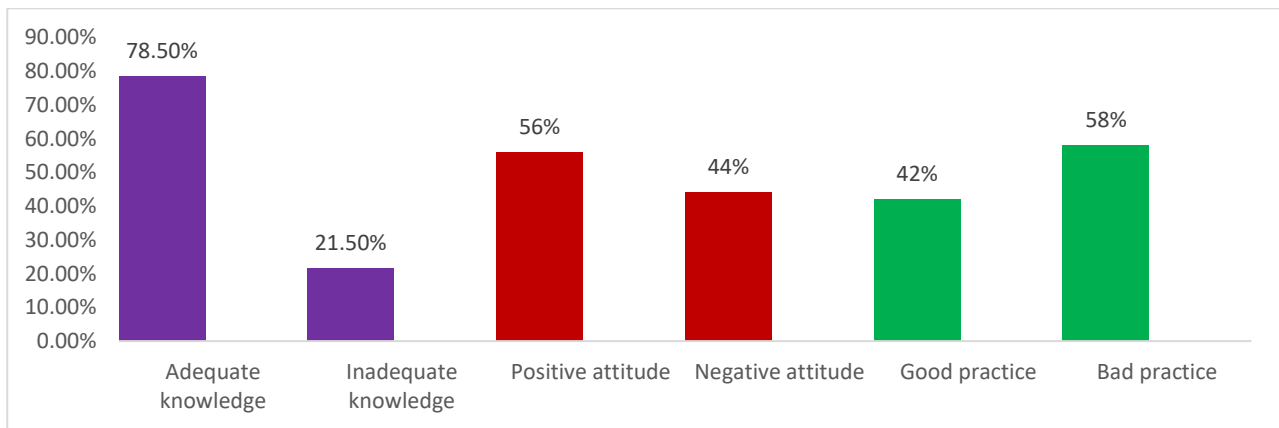


Figure 1: Knowledge, attitude and practice about the use of ORS among mothers of under-five children.

Table 3: Association of knowledge, attitude and practices with selected demographic variables

Variables	Category	Knowledge		Total	Chi-square	P-value
		adequate	inadequate			
Education	Illiterate	2(33.3%)	4(66.7%)	6	11.530	0.001*
	Primary and Secondary school	17(73.1%)	6(26.9%)	23		
	High school	74(80.4%)	18(19.6%)	92		
	Graduate and Post graduate	223(79.9%)	56(20.1%)	279		
No. of children	1 st order	178(78.9%)	48(21.2%)	226	1.848	0.391(NS)
	2 nd and above	139(79.9%)	35(20.1%)	174		
Age	<25 years	79(78.2%)	22(21.8%)	101	6.832	0.022*
	>25 years	238(79.6%)	61(20.4%)	299		
Occupation	Housewife/unemployed	163(75.5%)	53(24.5%)	216	11.365	0.001**
	Daily wages	17(81%)	4(19%)	21		
	Business	51(57.9%)	13(42.1%)	64		
	Medical/non-medical	86(86.9%)	13(13.1%)	99		
Attitude	Positive attitude	182(81.9%)	39(18.1%)	221	53.539	<0.001** (0.0006)
	Negative attitude	159(89.5%)	20(10.5%)	179		
Practice	Good practice	197(84.5%)	36(15.5%)	233		<0.001** (0.00027)
	Bad practice	119(71.3%)	48(28.7%)	167		

NS- Not significant *- significant **- highly significant

Table (3) illustrates that a significant association between the knowledge, attitude and practices with selected demographic variables among mothers of under-five year old children.

DISCUSSION

Diarrheal diseases are the second leading cause of death in India for children under 5 years old, and it is responsible for 13% of all deaths. Nearly all of these deaths are from dehydration, which is cheaply preventable with the use of oral rehydration salts (ORS). Diarrhoea is defined as the passage of loose, liquid or watery stools more than three times a day. Despite the success of ORS in reducing child mortality, usage rates in developing countries including India remain dangerously low. Low socio-economic status, poor hygiene practices of the mother, poor maternal

literacy, the presence of under-five sibling in the family, are strongly linked with a higher incidence of diarrheal diseases in young children. Community health education is of utmost importance for the effective case management, and it can only be provided on the basis of accurate understanding of prevailing knowledge, attitude and practices (KAP) of the community about the use of ORS therapy.

In the study, The Mean age of the mothers were found to be 27.73 with the SD ±3.703 and the Mean age of the children were found to be 2.23 with SD ±1.903. Among 400 study participants, 56.3% (225) of mothers were in the age

group of 26- 30 years and 24.8% (99) belonged to 22-25 years. above 25 years. Most of the mother 43.5% (174) were multi-parous, having more than one child. Nearly 43.5% (174) mothers were graduates and 23% (92) of mothers have completed high school. Only 1.8% (7) mothers were found to be illiterate. Out of 400 mothers, 53.8% (215) of mothers were housewives. The distribution of socio demographic characteristics was found to be almost similar to the findings of other studies done elsewhere.

In the present study, the meaning of diarrhea was not very much evident among mothers, because only 52% (208) of mothers answered correctly and the remaining mothers did not know what exact the diarrhea means. On the contrary, Neelma Kunwar et al study demonstrated that 72% of the mothers knew the correct definition of diarrhoea which is higher than the present study. In the studies conducted by Sailesh Sutaria et al and Bachrach LR et al showed that, most mothers didn't consider diarrhoea to be dangerous. Whereas, in the present study 59.5% of mothers perceive that diarrhea will affect the child health, 32.8% knows that diarrhea is a life-threatening condition. Only 7.8% still think it is harmless. These results can be attributable to the individuals' high levels of education. In the present study, 92.5% of mothers were found to be aware of ORS in the management diarrheal disease. This result is much more encouraging when compared to the study done by Dr.N.Mohamed Naveed et al., (2017) where only 7.5%of mothers knew about ORS in the management of diarrheal disease.

Mother's milk is beneficial for a child's healthy growth and development as it is packed with nutrients. To stay hydrated while experiencing diarrhea, the youngster requires more fluids in the form of milk and water. When mothers were questioned about continuing breastfeeding the babies during diarrheal episodes, 67.5% of mothers said that, it should be continued. This is considered as a positive response and this response is similar with the study conducted by Ashraf A et al., (2017).

Among 400 study mothers, less than half of the participants 195(48.8%) knew that, ORS sachets are available at free of cost in Government Health Facility. This might be due to the fact that most of the mothers in the city sought private sector for medical treatment for their children during the time of diarrheal diseases. The results of the present study conducted on the mothers of under five-year-old children on ORT showed that, more than half of the mothers (51.7%) had moderate knowledge, 27.5% of mothers had a good knowledge and only 20.8% had poor knowledge on ORT in under 5 year old children with diarrhoea.

Among 400 mothers, nearly half of the mothers 252(63%) agreed towards the provision of oral rehydration solution at home, for the treatment of under-five diarrheal diseases. Similarly, most of the participants (67.8%) agreed with the statement "mothers can treat their children's diarrheal disease at home". In the same way 173 (43.3%) mothers agreed that giving excess ORS can have harmful effects on

child health and this is similar with the findings of S. K. Kiran et al (2014). But still 56.8% of mothers in the present study believed that it is harmless to give excess ORS. This approach implies the lack of proper knowledge on ORS and its mechanism, because oral rehydration therapy is designed to normalize electrolyte levels. However, if the solution isn't prepared or used correctly, it can cause salt toxicity. This is also known as hypernatremia.

About 75.4% of the mothers in the present study agreed that, fluids should be given during child diarrheal episode, and at the same time 63.7% of mothers believed that solid foods should be restricted during the diarrheal episode. This approach showed a positive attitude of mothers towards the management of diarrhea.

The bivariate analysis of the study results showed a statistically significant association between good attitude and knowledge score. It was discovered that having more than one child in the household was adversely correlated with having a positive attitude, meaning that mothers with more than one child had worse attitudes than mothers with only one child. This could be as a result of mothers not providing each child with the necessary care as a result of having more children. Over all, in the present study conducted among the mothers of under five-yearold children on ORS, the attitude scores of most of the mothers regarding prevention and management of diarrhoea were found to be positive.

In the Practice regarding the use of ORS among mothers of under-five children, it was observed that 242 (60%) mothers used ORS for their child suffering from diarrhea. but only 60 (15%) mothers considered it as the mainstay treatment of diarrhea and used the available ORS sachets as their first choice of intervention. This may be a result of mother's understanding on the value of ORS in managing the initial dehydration phase of diarrhea. 155(38.8%) mothers did not use ORS during the diarrheal episode of their children though they were aware of ORS.

Almost 329 (82.2%) mothers were aware of home remedies in diarrheal management, and among these only 106 mothers used homemade fluids as their first choice of intervention. This seems to be a good practice among study mothers. In the present study, Kanji was found to be the most preferred homemade remedy among study mothers. 47.5% of mothers gave kanji as their home remedy for their child during diarrheal episode, whereas 40.3%, and 9%, of mothers were used salt and sugar water, dhal water respectively as home remedies in place of ORS.

From this study it is evident that 78.5% have adequate knowledge, 56% have positive attitude and 42% have good practice. With adequate knowledge, the chances for the good practice level can be improved among mothers.

CONCLUSION

Diarrhea is one of the important preventable causes of under five-year-old children's mortalities. The use of oral rehydration therapy is a proven intervention to prevent



dehydration among children in diarrhoea. In this study, 92.5% of mothers were found to be aware of ORS in the management diarrheal disease. In the study it was observed that, 78.5% of mothers had adequate knowledge, 56% had positive attitude and 42% had good practice about the use of ORS in diarrhea. Though the study participants had adequate knowledge and positive attitude on ORT, 58% of mothers did not use ORS to their children during diarrheal episodes, and among the mothers who used ORS, more than half of the mothers (55.3%) were not even aware of the correct method of preparation of ORS. The gap among the knowledge and practice of ORT among mothers needs to be closed. The present study showed a significant association between mother's education, occupation and age with knowledge on ORT. Since the study result showed a significant association between educational status and knowledge, increase in women's educational status definitely improves mothers understanding on the importance of ORS in childhood diarrhea. Effective community health education should be utilized as a strategy to spread awareness on interventions that address ORT use in diarrhea.

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