

**Original Article****KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING USE OF ORS IN DIARRHOEA BY MOTHERS IN AN ISLAND OF BANGLADESH**Islam MR¹, Akther KU², Nahid KA³, Chowdhury K⁴**Article History:**

Received: June 2024

Accepted: July 2024

Abstract:

Introduction: The second leading cause of death in under-five children is diarrhea. ORS is a simple and highly effective therapy for managing diarrhea. However inappropriate knowledge of preparation and lack of use of ORS leads to health hazards including increased rate of mortality and morbidity. So aim of this study to assess the knowledge, attitude, and Practice of mothers towards the use of oral rehydration solution in the treatment of acute diarrhea in children.

Methods: A cross-sectional study was carried out over eight months (1st May to 30th December 2023) among 510 mothers who had children of six months to five years and had recent episodes of diarrhea. Data were collected by using a semi-structured questionnaire in face-to-face interview. Data were analyzed by using SPSS software program. **Results:** Among 510 mothers, 47.05% were 20-30 years old, 29.80% were below 20 years and 23.13% were over 30 years. One fourth of them had no institutional education and 36.27% had primary, 20.78% and 18.23% had secondary and tertiary level of education respectively. 40.39% were from lower socioeconomic condition, 31.97% were from middle and 27.64% from upper socioeconomic condition. 100% of family used sanitary latrine though 73.72% use safe drinking water as a preventive part of diarrhea. 89.98% of mother was aware about ORS but only 75.88% used ORS in recent episode of diarrhea, among them 63.03% prepared ORS correctly and 60.98% used adequate amount. Age of mothers was not corresponds with the correct preparation and practice of ORS but socioeconomic condition and level of education carried statistically significant value.

Conclusion: Knowledge and practice of ORS preparation and used of ORS in recent episode of diarrhea among the mother was unsatisfactory. Improve the Maternal education and socioeconomic status will improve ORS correct preparation and use. Mothers should be taught the importance of optimal use and correct preparation of ORS in diarrhea.

Keywords:

ORS, knowledge, Preparation, Diarrhoea, under-five children

EWMCJ Vol. 12, No. 1&2, January 2024-July 2024: 43-49**Introduction:**

Diarrhoeal diseases are the second leading cause of death of children under five years of age in South Asia.¹ In 2019, diarrhea killed around 500,000 children under five years of age.² The estimated number of deaths from diarrhoea in children under five in Bangladesh was 6751 in 2018³. Diarrhoea leads to the loss of fluids and electrolytes, resulting in mild to severe dehydration and,

in some cases, death. Death in diarrhoea can be prevented by replacing lost fluid and electrolytes^{4,5}. ORS is a simple, highly effective, inexpensive, and appropriate therapy for diarrheal dehydration and since the introduction of ORT in 1979, there has been a steady decline in deaths due to diarrheal diseases⁶. Low-osmolality ORS is preferred now because it reduces stool output by 20%, vomiting by 30%, and the need

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for intravenous fluid administration by 33% in comparison to regular ORS. Zinc supplementation reduces the duration of diarrhea by one-fourth and 40% reduction in treatment failure and death in persistent diarrhea. Washing hands with soap is cited as one of the most cost-effective public health interventions, reducing incidence by over 40%. But only 39% children with diarrhea in developing countries receive ORT and continued feeding. Only 22% children drink more fluids of any type during diarrhea⁷. It is thus proven that children die not due to the lack of interventions but due to services provided and those at risk of not being reached. Study showed that ⁸ 65.5% of hyponatremic patient took diluted ORS, 41.1% of hypernatremic patient took concentrated ORS and 64.2% of patients who took appropriate ORS had normal serum sodium levels. So inappropriate preparation of ORS leading to electrolyte imbalance which causes increase rate to morbidity and mortality and economic burden. This study aimed to assess the knowledge, attitude and Practice of mothers towards the use of oral rehydration solution in the treatment of acute diarrhea in children at Charfassion, Bhola, Bangladesh.

Methods:

A cross-sectional descriptive study was carried out to assess the knowledge, attitude, and practice for household management of Diarrhoea in Children among mothers who attended the OPD at Al-Insaf Diagnostic Centre and Hospital over a period of eight months (1st May to 30th December 2023). In present study, data were collected by using a semi structured questionnaire. The knowledge and attitude of the mothers pertaining to ORS was defined as awareness about the availability and preparation of ORS and its use in the management of diarrheal diseases. The questionnaire included questions concerning the knowledge about childhood diarrhoea including its household management, role of ORS, method of preparation and also source of information about the household management of diarrheal diseases. Data were analyzed by using SPSS software Programme Version 17. Descriptive analysis was done by using percentage and analytical interpretations were done using appropriate statistical tests like Chi Square Test. In all analyses, *P* values less than 0.05 were considered significant.

Results:

Table I showed the socio-demographic variables of the respondents where majority of the study participants (47.06%) were in the 20-30 years. Among

the study participants 40.39% were from lower socioeconomic status and 36.27% attained only primary education with large number (24.71%) had no institutional education.

Table-I
Socio-demographic variables of respondents

Variables	Frequency (N=510)	Percentage
Age in Years		
<20	152	29.80%
20-30	240	47.06%
>30	118	23.14%
Educational status of mothers		
No institutional education	126	24.71%
Primary	185	36.27%
Secondary	106	20.78%
Tertiary	93	18.24%
Socioeconomic status of mothers family		
Lower	206	40.39%
Middle	163	31.96%
Upper	141	27.64%

In these examination 376 (73.73%) mother use safe water for drinking. As a preventive part of diarrhea 510(100.0%) use sanitary latrin, proper waste disposal 316 (61.96%) and Proper hand washing 196 (38.43%)

Table-II
Distribution of Mothers according to preventive measures has taken against diarrhoea

Preventive measures against diarrhoea	No. of others	Percentage
Use safe drinking water	376	73.73%
Proper hand washing	196	38.43%
Using sanitary latrine	510	100.0%
Proper waste disposal	316	61.96%

Table III shows data regarding knowledge and attitude of the mothers. The vast majority 413 mothers (80.98%) were aware about ORS and 97 (19.01%) were not aware about ORS, 387 (75.88%) of the

mothers used ORS and 123 (24.11%) did not use ORS. Among mothers who used ORS 69(17.82%) used it depending on their own decision, and 98 (25.32%) advice was given by another family member, while 148 (38.24%) advice given by a physician, and 72 (18.60%) advice made by health worker. The amount of ORS given was adequate by 236 mothers (60.98%) and 151 (39.01%) was inadequate, while 244 mothers (63.03%) prepared ORS correctly and 143 mothers (36.95%) preparation of ORS was not correct.

Table-III
Mothers knowledge and attitude regarding oral rehydration solution

Variable	Number	Percentage
Aware of ORS		
Yes	413	80.98%
No	97	19.01%
Total	510	100.0%
Used ORS		
Yes	387	75.88%
No	123	24.11%
Total	510	100.0%
Advised to use ORS by		
Self	69	17.82%
Family member	98	25.32%
Physician	148	38.24%
Health worker	72	18.60%
Total	387	100.0%
Used adequate amount of ORS		
Adequate	236	60.98%
Inadequate	151	39.01%
Total	387	100.0%
Preparation of ORS		
Correct	244	63.03%
Incorrect	143	36.95%
Total	387	100.0%
Preparation of ORS		
Correct	244	63.03%
Incorrect	143	36.95%
Total	387	100.0%

Table IV showed that correct knowledge regarding ORS preparation among the mothers where mother age less than 20 years had correct knowledge about 27.87%, age 20-30 years 42.627% and above 30 years 29.51% which proves increase the age of the mother increases the rate of correct knowledge regarding ORS preparation but this is not statistically significant ($p=0.23$)

Table V shows that among the low socioeconomic group, 18.45% had correct knowledge, among the middle socioeconomic group 27.45% had correct knowledge and among the upper socioeconomic group 54.10% had correct knowledge. The socioeconomic status of family was found directly proportional to the knowledge of the mothers regarding the preparation of ORS, which was statistically highly significant ($p<0.01$).

Table VI showed that 28.94% of the mothers whose ages were 20 years or below used ORS in diarrhoea, 45.48% of them whose ages were in the range of 21 to 30 years used ORS in diarrhoea and 25.58% of them whose ages were above 30 years used ORS in diarrhoea. Though was increase in the age of mothers increased the rate of use of ORS there was no significant relationship between the age of the mothers and the practice (use) of ORS in the diarrhoea of their children ($p>0.05$).

Table VII showed that 15.50% of the mothers who had no institutional education, 37.20% of them who had primary level of education, 24.57% of mothers who had secondary level of education and 22.73% of mothers had a tertiary level of education practiced ORS in their children in recent diarrhoea. Study found that Educational status of the mother is directly proportional to the use of ORS in recent diarrhoea ($p=0.01$).

Table VIII showed that the percentages of the mothers used ORS in recent diarrhoea of their children among the lower and middle class were 32.29% and 33.09% respectively. But it was relatively high (34.62%) among the mothers of upper socioeconomic group. There was a significant association between the economic status of the mothers and their ORS practice in diarrhoea ($p <0.05$).

Table-IV*Relationship between age of the mothers and their knowledge regarding ORS preparation*

Age of mothers	Status of knowledge about ORS preparation		Total N=387	P value
	Correct knowledge (n=244)	Incorrect Knowledge (n=143)		
< 20 year	68 (27.87%)	46 (32.17%)	114 (29.46%)	P= 0.23
20-30 year	104 (42.62%)	66 (46.15%)	170 (43.93%)	
>30 year	72 (29.51%)	31 (21.68%)	103 (26.61%)	

Table-V*Relationship between socioeconomic status and knowledge regarding ORS preparation among mothers*

Socioeconomic status	Status of knowledge about ORS preparation		Total N=387	P value
	Correct knowledge (n=244)	Incorrect Knowledge (n=143)		
Lower	45 (18.45%)	68 (47.55%)	113 (29.19%)	P= 0.01
Middle	67 (27.45%)	41 (28.67%)	108 (27.90%)	
Upper	132 (54.10%)	34 (23.78%)	166 (42.89%)	

Table-VI*Relationship between mothers age and use of ORS by them during diarrhea of their children*

Age of mothers	Practice of ORS in Diarrhoea		Total N=510	P value
	Practiced (n=387)	Not practiced (n=123)		
< 20 year	112 (28.94%)	40 (32.52%)	152 (29.80%)	P= 0.06
20-30 year	176 (45.48%)	64 (52.03%)	240 (47.05%)	
>30 year	99 (25.58%)	19 (15.45%)	118 (23.13%)	

Table-VII*Relationship between mothers educational status and use of ORS by them during diarrhea of their children*

Mothers education	Practice of ORS in Diarrhoea		Total N=510	P value
	Practiced (n=387)	Not practiced (n=123)		
No institutional education	60 (15.50%)	66 (52.05%)	126 (24.70%)	P= 0.01
Primary	144 (37.20%)	41 (33.33%)	185 (36.27%)	
Secondary	93 (24.57%)	13 (10.56%)	106 (20.78%)	
Tertiary	88(22.73%)	5(4.06%)	93 (18.25%)	

Table-VIII*Relationship between socioeconomic status and use of ORS by mothers during diarrhea of their children*

Socioeconomic status	Practice of ORS in diarrhoea		Total N=510	P value
	Practiced (n=387)	Not Practiced (n=123)		
Lower	125 (32.29%)	81 (65.85%)	206 (40.39%)	P= 0.01
Middle	128 (33.09%)	35 (28.45%)	163 (31.96%)	
Upper	134 (34.62%)	7 (5.70%)	141 (27.65%)	

Discussion:

Diarrhoea stays the second main worldwide reasons for death among youngsters younger than five years¹. Bangladesh is the country where ORS was discovered and has been widely promoted by government and nongovernmental organizations. BRAC, a national NGO, carried the message about ORT to over 12 million households through house-to-house health education programmes and taught mothers how to prepare and use a homemade form of ORS in 1980s⁹. ORS is straightforward, exceedingly compelling,

economical and suitable treatment for diarrhea. Despite the fact that availability of ORS can substantially reduce the mortality and morbidity resulting from diarrhea, poor knowledge pertaining to diarrhea and its management has posed the third world countries with diarrhea associated deaths and ill health among children¹⁰.

The age of all mothers involved in this study ranged from 16 to 40 years with a mean of 26.7 which is lower than in a study done in Thailand where the average age was 40 years but near the average age in an Iranian study where it was 28.^{11,12}.

In our study, 126(24.70%) of respondents had no institutional education, and 93(18.23%) had high educational level which corresponds to another study done in Sulaimani city Iraq¹³.

In socioeconomic status maximum families in study belong to lower class followed by middle and upper class. Ramesh Puri and Mehta reported that 66.4% belonged to lower class, 23.8% belong to middle class and 9.6% belong to upper class¹⁴. The different observation is due to different study setting.

Current study showed that preventive measures had taken by the mothers to prevent diarrhoea among their youngsters where 100% use sanitary latrine, 61.96% had proper waste disposal and 73.72% use safe drinking water and 38.43% take proper hand washing before caregiving of their child which is far better from Acharya NC et al, showed only 63.4% using sanitary latrine, proper hand washing 37.60%, use safe water 58.97% and proper waste disposal 42.30%¹⁵. This variation might be due to differences in culture, sociodemographic and information access.

In our study (80.98%) mothers were aware of oral rehydration solution; this finding is similar to that of Kadam et al¹⁶, (89%) of mothers had information about ORS and also its usefulness in the management

of dehydration due to diarrhea. Another study showed 99.5% mother were aware about ORS¹³.

75.88% of participants in this study used ORS during recent episode of diarrhea in their children, where 60.98% of them used adequate amount and only 63.03% prepared correctly. Where as in a study by Taha et al¹⁷ was (64%), while in Muhammed et al study¹⁸ (69.3%) of mothers correctly prepared oral rehydration solution. Though another study in Bangladesh showed 95.12% had correct knowledge regarding preparation of ORS¹⁹. This variation might be due to socioeconomic condition, educational level of mother, area of residence and information access. In a study conducted in rural Bangladesh the ORS use rate was 74% in project area which supports this study¹⁷.

In present study 148(38.24%) patients were given oral rehydration solution on advice of physician, 98(25.32%) on advice of family member, 72(18.60%) on advice of health worker and 69 (17.82%) on their own knowledge. In a similar study by Qureshi et al²⁰ 182,32% heard of oral rehydration solution from Aga Khan university program workers, (21%) from mass media, (28%) from general practitioners and (18%) from other sources (health facilities, chemists and family members) while Seyal et al study²¹ reported that (27%) used ORS by their own knowledge, (28%) used on advice of general practitioners, (10%) by pediatricians, (3%) by medical officers and (27%) from other sources could be due to improvement of health services in our region.

In this study, Mothers age is not significantly associated with correct knowledge of preparation and practice of ORS, but Socioeconomic and educational status of mothers was found significantly associated with mother knowledge, attitude and practice. Those belonging to upper class and higher educational status had correct knowledge of preparation and practice of ORS as compared to those belonging to middle and lower socioeconomic group and low level of education. This finding is similar to that found in a study on the prevalence of oral rehydration therapy use and associated factors among under-five children with diarrhoea in Dangure, Benishangul Gumuz Region where Mother's educational status was one of the factors associated with oral rehydration therapy use²². Another study from Rajshahi region Bangladesh also support the current study stated that correctly use of ORS during diarrhoea of the children was found significantly associated with family income ($p < 0.05$)¹⁹.

Annexure: Questionnaire
Title: Knowledge, Attitude & practice regarding use of ORS in diarrhoea by mothers
in an island of Bangladesh

Principal investigator: Md Rafiqul Islam

1. a) Name: _____ b) Age. _____ c) Sex _____
2. Caregiver information :(mother)
 - a) Age. _____
 - b) Educational Qualification:

“ None.	“ Primary.	“ secondary.	“ tertiary
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 - c) Family income (monthly).....
3. Preventive measures:
 - a) Drink safe water. “ Yes “ No
 - b) Proper hand wash “ Yes. “ No
 - c) Use sanitary latrin. “ Yes. “ no
 - d) Proper waste disposa “ Yes. “ no
4. Knowledge regarding use of ORS
 - a) Knowledge about ORS. “ Yes. “ no
 - b) Used ORS. “ Yes. “ no
 - c) ORS advised by. “ self. “ Family member. “ Physician. “ health worker
 - d) Use adequate amount of ORS. “ Yes. “ No
 - e) ORS preparation “ correct. “ incorrect

Conclusion:

The finding of this study showed that The knowledge regarding use and correct preparation of ORS solution for management of diarrhoea was found unsatisfactory. Maternal education and socioeconomic status has important role is ascertaining the knowledge, attitude and practice of ORS in acute diarrhoeal

diseases. Mothers should be taught the importance of optimal use and correct preparation of ORS in diarrhoea and it can be achieved by implementing health education programme through ORT corners of every hospitals of Bangladesh.

Conflict of Interest:

None to Disclose

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