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Knowledge, attitude, and practice of mothers regarding home-based management of acute diarrhea in children under 5 years in selected private and public hospitals of Peshawar

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ABSTRACT

Introduction: Adequate maternal knowledge about home-based management of childhood diarrhea has a positive effect on practice of Oral Rehydration Therapy (ORT), with resultant decrease in child mortality. However, barriers and gaps exist in knowledge and practice of home-based management.

Objective: To determine the barriers to Oral Rehydration Therapy of childhood diarrhea by assessing knowledge, attitude, and practice of acute diarrhea management by mothers attending selected public and private hospitals of Peshawar.

Materials & Methods: This was a cross-sectional descriptive study conducted from May to August 2019 at two major public and private hospitals of Peshawar, where attending mothers were selected by convenient sampling to answer a questionnaire assessing their knowledge, attitude, and practice towards management of acute diarrhea in their children under 5 years of age. Data were analyzed for descriptive statistics by SPSS 20.0.

Results: A total of 296 mothers attending private and public hospitals were interviewed, of which 256(89.5%) were housewives and 67(22.6%) college graduates; 258(87.2%) mothers were from Pakistan and 38(12.8%) from Afghanistan. Majority had satisfactory knowledge (251, 84.8%), positive attitude (218, 73.6%), and satisfactory practicing habits (239, 80.7%). Most (256, 86.5%) mothers correctly defined diarrhea and 215(72.6%) correctly identified its cause. Attitude towards diarrheal management revealed that 257(86.8%) mother believed they could manage diarrhea at home, while 229(77.4%) believed that ORT can control diarrheal episodes; 251(84.8%) responded positively to seeking treatment at a hospital during severe disease. Regarding practices of mothers, 118(39.9%) increased breastfeeding, while 40.5% offered more fluids, and 133(38.2%) offered more food during a diarrheal episode. Most mothers (273, 92.2%) practiced handwashing; 250(84.5%) used ORT during diarrheal episode and prepared it correctly 233(78.7%).

Conclusion: The knowledge, attitude, and practices of mothers about acute diarrheal disease in children and its management were satisfactory.

Keywords: Diarrhea; Oral Rehydration Therapy; Child, Preschool; Knowledge; Attitude.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research, data collection, data analysis, and write-up of the article, and agreed to be accountable for all aspects of the work.

INTRODUCTION

Worldwide, diarrhea is one of the leading causes of mortality in children aged under five years. Although it is a preventable and treatable disease, it accounts for 8% of deaths in children under-five, killing 525,000 such children each year.[1,2] Diarrhea is the passage of unusually loose or watery stools at least three times a day. Major cause of death is due to severe dehydration and malnutrition.[3] The cause is usually infectious and developing regions such as South Asian and Sub-Saharan countries are at more risk for transmission of infections due to poor sanitation, inadequate access to clean water, and lack of awareness campaigns in communities, resulting in improper treatment or delayed management of disease.[4]

When access to tertiary health care systems is challenging in developing regions, it is important to reach out to communities, raising awareness about home management of common childhood diseases. Among the measures, management of diarrhea and prevention of dehydration are important in reducing mortality and morbidity. Therefore, knowledge of mothers about diarrhea, recognizing the danger signs, and timely administration of ORT, are imperative measures in disease progression intervention.[5,6]

The under-five mortality rate in Pakistan is 75 per 1000 live births with death counts of 32000 while developed countries barely have 10 deaths each year.[7,8] This is of great concern and it is important to study why mortality rates are still high for a preventable and treatable disease. Mothers are primary care takers and therefore must be equipped with knowledge of managing episodes of acute diarrhea at home. According to the WHO, diarrhea can be safely managed at home by mothers with the right guidance, which includes instructions on preparing Oral Rehydration Salts (ORS), continuing breastfeeding and nutrition, and administration of zinc supplements. In severe infective cases they are told to seek medical attention at healthcare facilities as soon as possible, while maintaining ORT.[3]

In Pakistan the proportion of under-five children receiving ORT is just 38% when there is enough evidence that mortality can be reduced by 93% with right ORT.[2,7]

A study from Pakistan revealed that although most mothers knew the benefits of ORT, there were still many among them who did not use it during episodes of diarrhea.[9] This gap between knowledge and practice was also observed in previous studies done in Bangladesh and India.[10–12] Early recognition of disease and timely ORT is vital in preventing disease progression according to a study in India where less than half of the mothers had knowledge about ORT and even less knew the correct way to prepare it.[11] Knowledge about the early life threatening symptoms of dehydration can help mothers recognize and begin fluid replacement on time.[2] Most mothers in countries like India, Iran, Bangladesh and Ethiopia believe strongly in home remedies and other practices which can prove harmful and further deteriorate the health status of the child such as inability to recognize dehydration, reducing food intake, using herbal remedies and stopping breastfeeding.[2,12–14]

Maternal knowledge and attitude have a strong bearing on how diarrheal diseases progress. It has a great impact on how mothers manage the diarrhea and take preventative steps to reduce its recurrence; however according to a study in Pakistan, there is still a gap between knowledge and practice of safe prevention and management of diarrhea among mothers.[15] Studies inside Pakistan and other countries showed a strong association between maternal education and its influence on hygiene practices, ORT use and feeding practices.[16–20] Most mothers in developing countries do not receive appropriate education; according to a World Bank study and another study in India, adopting positive behavioral changes such as implementing ORT and practicing good hygiene and handwashing which prevents diarrheal diseases is more difficult in populations with low literacy rates.[4,13] Similarly, attitude towards home-based management can also affect practice of management by mothers. A study in Sub-Saharan Africa showed that even though mothers had good knowledge, they had poor practices and negative attitude towards providing treatment at home when instead they could easily seek care at health institutes.[2] Diarrhea is not a lethal disease, however harmful practices, deficient knowledge and mismanagement of the disease can result in high mortalities and it is imperative to know why it continues to remain prevalent in the community.[15]

Lack of previous studies on this topic and comparison between private and public hospitals in Peshawar makes this study vital for the community; it will outline the steps required to fill gaps in the knowledge and ensure safe management

The objectives of the study were to assess knowledge, attitude and practice of mothers attending two public and private tertiary care hospitals of Peshawar regarding management of diarrhea, and to compare the selected public and private hospitals for differences in knowledge, attitude and practice of mothers.

MATERIALS & METHODS

This cross sectional comparative study was conducted at two tertiary care hospitals one belonging to private sector, Rehman Medical Institute (RMI) and the other belonging to public sector, Hayatabad Medical Complex (HMC) located in Peshawar, Pakistan during May-August, 2019.

The study was carried out on mothers of children under five years of age having acute diarrhea, visiting the tertiary care hospitals; 296 mothers were interviewed after informed consent, 148 from RMI and 148 from HMC. They were selected by convenience sampling technique among mothers visiting the OPD and Inpatient ward at the Department of Pediatrics.

Mothers with whom communication would be difficult due to language or education barriers, and mothers with comprehension issues due to any level of mental impairment were excluded.

The sample size was determined as 274 by using WHO formula **(**$n= z^2 p (1-p) / d^2$), with p= 0.50, and d= 0.06); the final sample size was decided at 300, with 150 mothers from each hospital.

Operational Definitions:

Diarrhea: Diarrhea is the passage of unusually loose or watery stools at least three times a day.[3]

Fluid Replacement: Administration of fluids, ORS or homemade ORS composed of water, salts and sugar.[3]

Knowledge: Mothers' ability to define diarrhea, recognize cause and symptoms, administer ORT and supplements and continue feeding during the disease.[2,15,21]

Attitude: Mothers' behavior towards home-based treatment and its success, ORT and other common remedies practiced in the community.[2]

Practice: Mothers' ability to manage diarrhea appropriately with ORT, nutrition, supplements and improving hygiene and sanitation and seeking care at a hospital.[2,15,21]

Data Collection & Analysis

Selected subjects were approached and briefed about the research and its importance for their child. After obtaining informed consent, the preferred language of communication was ascertained. Mothers were interviewed and asked to respond to questions based on a structured questionnaire, designed with references to previous studies[2,15] which included demographic data such as age, number of children, literacy status and socioeconomic status; there were further three sections based on knowledge, attitude and practice questions. A scoring system was devised for these three sections, with correct = 1 mark and incorrect = 0 mark, so that maternal final scores were graded into Satisfactory and Unsatisfactory Knowledge, Positive or Negative Attitude, and Satisfactory and Unsatisfactory Practice.

Satisfactory/Unsatisfactory Knowledge was characterized by mothers' ability/inability to answer 50% or more of the knowledge questions correctly. Positive/Negative Attitude was characterized by mothers' ability/inability to answer 50% or more of the attitude questions correctly. Satisfactory / Unsatisfactory practice was characterized by mothers' ability/inability to answer 50% or more of the practice questions correctly.

After the interview, the mothers were thanked, and the scoring was completed. The questionnaires were collected, and data entered into Statistical Package for Social Sciences (SPSS) software version 20.0.

Descriptive statistics of socio-demographic, literacy rates, education status and the area the mothers came from such as nationality and cities were obtained. The scorings were also analyzed and any association and differentials within variables were tested using appropriate tests. Comparative tests were used to analyze between the mothers in the two hospitals. Chi square test was used for categorical data; $p \leq 0.05$ was kept as significant.

RESULTS

A final total of 296 mothers attending private and public hospitals was obtained, out of which 148(50%) were from RMI and 148(50%) were from HMC.

Socio-demographic characteristics of mothers

Maternal socio-demographic characteristics are given in Table 1. All mothers were married with 24.7% having 3 children while 16.9% were first time mothers. The ages of children of these mothers ranged from 0 to 5 months (15.9%), 6 months to 2 years (35.8%) and 2 years to 5 years (48.3%) with mean age of 2.3 years; 256(89.5%) mothers were housewives while 123(41.6%) had higher secondary education. Out of the 258(87.2%) mothers from Pakistan, 69.6% were from Peshawar while 38(12.8%) mothers were from Afghanistan.

Table 1: Sociodemographic characteristics of mothers (n=296).

Characteristics of Mother	Category	f	%
Mothers Education status	Primary Higher	106	35.8
	Secondary	123	41.6
	Graduation	67	22.6
Mothers Occupation	Housewife	265	89.5
	Teacher	17	5.7
	Nurse	5	1.7
	Doctor	3	1.0
	Other	6	1.8
Number of children	One	50	16.9
	Two	63	21.3
	Three	73	24.7
	Four	40	13.5
	Five	37	12.5
	Six	10	3.4
	Seven	14	4.7
	Eight	6	2.0
	Nine	3	1.0
Nationality of Mother	Pakistan	258	87.2
	Afghanistan	38	12.8
Address of Mother	Peshawar	206	69.6
	Kabul	37	12.5
	Charsadda	15	5.1
	Mardan	8	2.7
	Dir	5	1.7
	FATA	6	2.0
	Karak	6	2.0
	Swat	6	2.0
	Bannu	7	2.4

Data regarding maternal knowledge of childhood diarrhea and its management are provided in Table 2.

Majority of the mothers 251(84.8%), had satisfactory knowledge about diarrhea and its management. When defining diarrhea, 256(86.5%) mothers answered correctly that it was passage of loose/watery stools three or more times per day, while 215(72.6%) correctly pointed out the cause of diarrhea as contaminated food and water; 256(86.5%) mothers knew about ORT and its benefits during diarrheal episode, however only 196(66.2%) knew how to correctly prepare it; 205(69.3%) mothers knew how often it should be given.

Knowledge on feeding practices showed 224(75.7%) mothers knew the importance of increased feed and fluids during a diarrheal episode.

Regarding correctly recognizing the danger signs of diarrhea i.e. weakness, sunken eyes, weight loss and blood in stool, majority of the mothers (63.9% – 97.0%) knew how to identify these signs and begin prompt management.

Table 2: Knowledge of mothers regarding diarrhea and management (n=296).

Characteristics	Category	f	%
Definition of Diarrhea	Frequent passing of watery stool (3 or more times day)	256	86.5
	Frequent passing of normal stool	03	1.0
	Blood in stool	37	12.5
Cause of Diarrhea	Contaminated food and water	215	72.6
	Teething	34	11.5
	Evil Eye	39	13.2
	Don't know	08	02.7
Diarrhea danger signs	Weakness and lethargy	287	97.0
	Sunken Eyes	231	78.0
	Repeated Vomiting	259	87.5
	Fever and Blood in stool	251	84.8
	Increased thirst	218	73.6
	Decreased appetite	221	74.7
	Weight loss	189	63.9
Knowledge about ORT?	Yes	256	86.5
	No	40	13.5
Knowledge about ORT Preparation	1 sachet ORT + 500 ml	37	12.5
	Preparation	196	66.2
	1 sachet ORT + 1000 ml	63	21.3
	1 sachet ORT + 1500 ml		
Knowledge about ORT benefits	Yes	256	86.5
	No	40	13.5
How often is ORT given?	Once a day	17	5.7
	Frequently during day	205	69.3
	Whenever child is thirsty	66	22.3
	After passing loose stool	08	02.7
Knowledge about increasing food and fluids during episode	Yes	224	75.7
	No	72	24.3

Attitude of mothers

An overall positive attitude was noted by mothers about home management of diarrhea, (940/1184, 79.4% responses) (Table 3). When asked if mothers believed they could manage diarrhea at home, 257(86.8%) believed they could, while 229(77.4%) believed that ORT can control diarrheal episodes. However, 181(61.1%) believed that home remedies controlled diarrhea better than ORT. There was positive attitude towards preventive measures, as 273(92.2%) mothers believed that handwashing, using boiled water, and increasing nutrition prevented progression of disease.

Table 3: Attitude of mothers regarding diarrheal management at home (n=296).

Questions	Category	f	%
Do you believe diarrhea can be managed at home?	Yes	257	86.8
	No	39	13.2
Do you believe diarrhea can be controlled by ORT?	Yes	229	77.4
	No	67	22.6
Do you believe home remedies control diarrhea better than ORT?	Yes	181	61.1
	No	115	38.9
Do you believe handwashing, boiling water and continuing feeding prevent diarrhea?	Yes	273	92.2
	No	23	7.8

Practices of mothers

It was found that most mothers, 239(80.7%) had satisfactory practicing habits (Table 4). Breastfeeding data revealed that 118(39.9%) mothers answered correctly by increasing the feed, while 132(44.6%) continued breastfeeding as usual. Majority of mothers, 133(44.9%) offered the same amount of fluids, while 120(40.5%) offered more fluids during diarrhea; 133(38.2%) mothers offered more food during an episode, 95(32.1%) offered less food, and 87(29.4%) offered the same amount of food as before. Most mothers 273(92.2%) washed hands before handling their child and their food.

Table 4: Practice of mothers regarding diarrheal management at home (n=296).

Characteristics	f	%
Breastfeeding during diarrheal episode		
Less than usual	36	12.2
Same amount as usual	132	44.6
More than usual	118	39.9
Not at all	10	03.4
Offering child fluids during diarrheal episode		
Less than usual	41	13.9
Same amount as usual	133	44.9
More than usual	120	40.5
Not at all	02	0.7
Offering child food during diarrheal episode		
Less than usual	95	32.1
Same amount as usual	87	29.4
More than usual	113	38.2
Not at all	01	0.3
Washing hands before handling child and food		
Yes	273	92.2
No	23	07.8

An association was observed between hospital type and the satisfactory practicing habits of mothers in controlling diarrhea, (Table 5), so that mothers visiting private hospitals had better practicing habits than public hospitals (p=0.027).

Table 5: Hospitals and practice scores of mothers (n=148 each).

Hospital	Practice Score		X^2 & p value
	Satisfactory	Unsatisfactory	
RMI	127 (85.8%)	21 (14.2%)	4.889
HMC	112 (75.7%)	36 (24.3%)	p=0.027

Similar association was found when comparing maternal knowledge about diarrhea and its management between the two hospitals with significant differences as seen in Table 6.

Table 6: Hospital and knowledge about diarrhea and management (n=148 each).

Characteristics	Hospital		X^2 & p value
	RMI f (%)	HMC f (%)	
Diarrhea definition			
Frequent passing of loose stools ≥3 times a day	137 (92.6)	119 (80.4)	11.356 p=0.003
Frequent passing of normal stool	2 (1.4)	1 (0.7)	
Blood in stool	9 (6.1)	28 (18.9)	
Causes of diarrhea			
Contaminated food & water	114 (77)	101(68.2)	14.542 p=0.002
Teething	17 (11.5)	17 (11.5)	
Evil Eye	10 (6.8)	29 (19.6)	
Don't know	7 (4.7)	1 (0.7)	
Knowledge about ORT			11.563 p=0.001
Yes	138(93.8)	118(79.7)	
No	10 (6.8)	30 (20.3)	

Nationality of mothers showed strong association with their practicing habits with significant difference of (p=0.037) but knowledge displayed a stronger relation where mothers of Pakistan had better knowledge about diarrhea and its management than Afghani mothers (p<0.001). Similarly, nationality also influenced other factors such as ability to define diarrhea, its causes, recognizing the danger signs and management with ORT. Both type of hospital and nationality showed strong association with mothers seeking treatment at health facilities with a significant difference of (p≤0.001).

Table 7: Relationship of nationality with knowledge and practice scores (n=296).

Nationality	Knowledge Score f (%)		X^2 and p value
	Satisfactory	Unsatisfactory	
Pakistan	226 (87.6)	32 (12.4)	12.218
Afghanistan	25 (65.8)	13 (34.2)	p<0.001
Practice Score			
Pakistan	213 (82.6)	45 (17.4)	4.257
Afghanistan	26 (68.4)	12 (31.6)	p=0.037

Another association that this study found was education status of mother and attitude towards home remedies in diarrheal management. Results showed that mothers with primary and higher secondary school education preferred home remedies more than ORT with a significant difference of (p< 0.05).

Table 8: Education of mother and attitude towards home remedies controlling your child's diarrhea better than ORT?

Education of Mother	Do you believe home remedies control your child's diarrhea better than ORT?		X^2 & p value
	Yes	No	
Primary school	75 (70.8)	31 (29.2)	6.599 p= 0.037
Higher secondary school	70 (56.9)	53 (43.1)	
College graduate	36 (53.7)	31 (46.3)	

DISCUSSION

The aim of this study was to observe maternal knowledge, attitude and management of acute diarrheal episodes in children under five years, visiting tertiary care hospitals in Peshawar. The data showed us some interesting results that were in line with similar studies conducted around the world as well as contrasting results that set this study apart from others. It was also observed that certain factors influenced the mothers' knowledge and practice while some factors like socioeconomic status and occupation of the mother played no role in diarrheal management.

Diarrhea is a disease of infancy and its mortality is highest in younger children.[10,11,14] According to studies, only 38% children receive ORT in Pakistan and experience a great deal of disease burden in this age group, when with the right interventions and preventive measures in place, can reduce the disease burden by 10%.[2,5,6] However, mortality rates have declined globally mainly due to immunization campaigns, programs for diarrheal disease control and mass education about ORT, handwashing and safe sanitations practices.[10,12,16]

When considering sociodemographic factor influencing home management practices, such as education of mother, our study did not reveal any association with knowledge or practice, however there was an association when it came to attitude of mother regarding home remedies. It was noted that mothers with primary and secondary school education believed home remedies controlled diarrhea better than ORT (p<0.05). Similar studies conducted in India revealed, not only did education status of mothers influence incidence of diarrhea, but despite the awareness of ORT, initial management always began with home remedies.[11,12] This pattern was also observed in Pakistan, where mother's literacy played a vital role in feeding and preventive measures like handwashing. Another study in Iran observed that it was the education status of the father, rather than mother that influenced disease progression. However, a study in Karachi had contrasting results where majority of the mothers had good knowledge and practice when only 26% of mothers had formal education, which led them to conclusion that, regular visits to

medical professionals must have influenced maternal awareness.[5,16-18]

Diarrhea can safely be managed with the right guidance and low cost intervention as long as mothers have knowledge about the disease and its management. Our study observed majority of the mothers having satisfactory knowledge (84.8%), where they could correctly define diarrhea, identify the cause, recognize the danger signs and awareness about ORT and its benefits. Many studies conducted in Pakistan displayed a higher knowledge about ORT and its benefits than knowledge about recognizing the disease and its cause, which can explain why the mortality rates are still high.[19,22,23] However, other studies conducted in Peshawar, Karachi and Kashmir, showed similar results to ours when it came to knowledge about diarrhea and ORT benefits. These studies also displayed good knowledge about breast feeding, increasing fluids and food.[18,21,24] Breast feeding during a diarrheal episode is a very effective intervention, however a study in Nigeria observed 23.4% of mothers breastfeeding their child and perceived it as a cause of diarrhea as well as restricting fluids and food which can result in severe morbidity. Even though majority of mothers in this study were aware of ORT and its benefits, there were still not many who knew the correct way to prepare it which was also seen in a study in Kashmir while contrasting results were seen in Karachi with over 70% mothers knowing how to prepare ORT.[18,24]

Attitude towards home based management and preventive measures were positive in this study (73.6%) which was not consistent with a study conducted in Ethiopia. The study found negative attitude towards home based management with ORT and didn't believe mothers could safely manage the disease at home.[2] A study in Nigeria had positive response from the mothers when it came to managing diarrhea at home with ORT (72.9%) however only 60% agreed that handwashing is important in reducing disease transmission.[20] Other studies conducted in Pakistan were consistent with the positive results in this study.[5,16]

When it comes to diarrheal management, practices of mothers play an important role in disease outcome. Such practices can be offering food and continuing breastfeeding, washing hands, using ORT and seeking treatment at health care facilities. This study showed an overall satisfactory maternal practice habits (80.7%) but certain practices such as increasing breastfeeding and offering more food and fluids during a diarrheal episode were not satisfactory (39.9%, 38.2%, 40.5%) respectively. Regarding breastfeeding, only studies from Kashmir and Karachi were in line with our result while other studies in Pakistan, India and Ethiopia, mothers did not continue breastfeeding their child.[2,10,11] Similarly other studies from Pakistan also observed unsatisfactory practice when it came to increasing fluids and food during a diarrheal episode.[18,21,24]

Preventive measures like handwashing before handling child or preparing their food is very important in preventing disease transmission and this study observed good practice when it came to handwashing (92.2 %). Many studies also observed good hygiene and hand washing as a determinant in disease transmission in children.[2,15,16,23] However a study in Bangladesh only had 49 % of mothers practicing handwashing which could explain why the disease burden is still prevalent.

This study revealed 86.5% of mothers knew about ORT and 84% used it in practice which was a positive finding displaying no gap in maternal knowledge and practice. This finding was however not in line with studies in Lahore, India and Iran.[11,12,17,22] This could be due to preferring home remedies to ORT, education status of the mother or lack of knowledge on how to prepare the solution.

Although most of the diarrheal episodes can safely be managed at home with prompt treatment, the severe episodes however need to be managed at health care facilities. Delay in treatment or inability to recognize the danger signs on time can result in further mortality. This study found that 84% of mothers sought treatment at hospitals in severe cases which was in line with studies in Ethiopia and Bangladesh where 98% and 87% of the mothers went to health care facilities respectively.[2,10] A study is Karachi also observed majority of mothers seeking treatment which resulted in reduced mortality.[6] Other studies inside Pakistan however, were not consistent with these results and displayed less than half of the mothers going to seek treatment at a hospital.[11,19-22,24]

This study was a comparative study between maternal knowledge attitude and practice and private and public sector hospital and thus it was imperative to observe why there was a difference among the two hospitals. We found positive association between better knowledge and practice of mothers and private hospital, RMI ($p<0.05$) This was also seen in a study conducted in South Pakistan[5] where majority preferred and trusted private sector facilities. The reason for this according the study was that private sector offered better services, shorter waiting times and attentive doctors, whereas public hospitals despite being low cost did not offer better services. This study also observed an association between nationality of the mother and its relationship with knowledge and management of diarrhea. Such observations were not found in recent studies.

LIMITATIONS

Since this was a hospital based study it did not reveal the community's perception about diarrhea. Assessing maternal knowledge in hospitals was also a limitation, as mothers regularly visiting hospitals have better insight into the disease compared to others in the community. Another limitation was mothers' inability to recall knowledge and practice habits or answering the questions inaccurately resulting in socially desirable responses. Although socio-economic status plays a vital role in diarrhea incidence and majority of the mothers were housewives, the responders in this study did not manage to reveal their status, income and number of dependents in the family. When observing preventive measures and ORT preparation, this study failed at testing mothers at performing these practices.

CONCLUSION

This study revealed satisfactory maternal knowledge, attitude and practice of diarrheal disease and its management. Though diarrhea remains a leading cause of childhood mortality, with

the right knowledge and management steps as observed in this study, it can be controlled safely and successfully at home reducing disease burden and health costs.

RECOMMENDATIONS

Awareness about diarrhea and its fatal outcomes need to be stressed to mothers as well as educating them about benefits of ORT and the right preparation method through mass media campaigns to encourage breastfeeding, nutrition and ORT. Comprehensive counselling should be given to mothers visiting hospitals and encouraged to share the knowledge with their community. It is important to put disease control programs in place and develop immunization services throughout the country. Finally, preventive measures like sanitation, clean water and food sources and handwashing should be stressed because they can reduce disease transmission considerably resulting in reduced child morbidity and mortality.

REFERENCES

1. WHO. Diarrhoeal Disease [Internet]. World Health Organization. 2017. Available from: https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease
2. Workie HM, Sharifabdilahi AS, Addis EM. Mothers' knowledge, attitude and practice towards the prevention and home-based management of diarrheal disease among under-five children in Diredawa, Eastern Ethiopia, 2016 : a cross-sectional study. BMC Pediatr. 2018 Nov 19;18(1):358.
3. World Health Organization. The treatment of diarrhea. A manual for physicians and other senior health workers, 4th rev. WHO [Internet]. 2005. Available from: https://apps.who.int/iris/handle/10665/43209.
4. Peterson A, Michael Z. What works in fighting diarrheal diseases in developing countries ? A critical review. World Bank Res Obs [Internet]. 2007;22(1):1–24. Available from: https://academic.oup.com/wbro/article-abstract/22/1/1/1655339.
5. Aftab W, Shipton L, Rabbani F, Sangrasi K, Perveen S, Zahidie A. Exploring health care seeking knowledge, perceptions and practices for childhood diarrhea and pneumonia and their context in a rural Pakistani community. BMC Health Serv Res. 2018 Jan 27;18(1):44.
6. Durrani HM, Kumar R, Durrani SM. Recognizing the danger signs and health seeking behaviour of mothers in childhood illness in Karachi, Pakistan. Univers J Public Health. 2015; 3(2):49-54.
7. WHO. UNICEF data for Pakistan [Internet]. UNICEF Data: Monitoring situation of mothers and children. 2017. p. 1. Available from: https://data.unicef.org/country/pak/
8. WHO. Number of deaths by country, diarrhoeal diseases [Internet]. Global Health Observatory Data Repository. 2017. Available from: http://apps.who.int/gho/data/view.main.ghe1002015-CH3?lang=en
9. Baloch G, Abbasi MA, Bhutto A. Children with diarrhea and awareness about ORS among mothers at pediatric OPD of district hospital, Dadu, Sindh, Pakistan. Medical Channel. 2013 Jan;19(4):42-6.
10. Das SK, Nasrin D, Ahmed S, Wu Y, Ferdous F, Farzana FD, et al. Health care-seeking behavior for childhood diarrhea in Mirzapur, rural Bangladesh. Am J Trop Med Hyg. 2013 Jul;89(1 Suppl):62-8.
11. Shah MS, Ahmad A, Khalique N, Afzal S, Ansari A, Khan Z. Home-based management of acute diarrhoeal disease in an urban slum of Aligarh, India. J Infect Dev Ctries. 2012 Feb 13;6(2):137-42.
12. Lakshminarayanan S, Ramakrishnan J. Diarrheal diseases among children in India: Current scenario and future perspectives. J Nat Sci Biol Med. 2015 Jan-Jun;6(1):24-8.
13. Kareem R, Irshad S, Asad R, Alam S. Cultural and traditional practices for the management of diarrhea in children under 5 years of age in selected suburbs of Khyber Pakhtunkhwa. J Rehman Med Inst. 2016 Jul-Sep;2(3):12-23.
14. Yalew E. A qualitative study of community perceptions about childhood diarrhea and its management in Assosa District, West Ethiopia. BMC Public Health. 2014;14:975.
15. Mumtaz Y, Zafar M, Mumtaz Z. Knowledge attitude and practices of mothers about diarrhea in children under 5 years. J Dow Uni Health Sci. 2014;8(1): 3-6.
16. Ehsan A, Saeed S, Ehsan F. Association of hygiene practices and diarrhea prevalence in children: a comparative study among children of educated and uneducated mothers. Pak Armed Forces Med J. 2019;69(3):617-24.
17. Ghasemi AA, Talebian A, Alavi NM, Mousavi GA. Knowledge of mothers in management of diarrhea in under-five children, in Kashan, Iran. Nursing and Midwifery Studies. 2013;2(1):158–62.
18. Zahid SS, Zehra N, Ullah S, Khan N, Javed MH, Khan M. Mothers' awareness and practices regarding home management of childhood diarrhea in a squatter settlement of Karachi. Pak J Med Dent. 2014;3(2):3-8.
19. Hanif Z, Afridi A, Kibria Z, Maroof A, Sumayyah E. Knowledge, attitude and practice of mothers regarding the use of oral rehydration solution in children's suffering from diarrhea. J Khyber Coll Dent. 2018 March 8;8(1):37-40.
20. Ogbeyi GO, Onyemocho A, Matthew O, Gabriel A, Ogbonna C. Effect of health education on caregivers knowledge of diarrhoea and practice of home management of diarrhoea diseases among under two children in Opialu, a rural community in Benue State, Nigeria. Int J Healthcare Biomed Res. 2017 Jul;05(4):85-101.
21. Gul R, Hussain SS, Hussain F, Ali W, Khan B, Saeed A. Knowledge, attitude and perceptions of mothers about diarrhoea having at least one child under five years. J Med Sci. 2017;25(1):6-9.
22. Noor S, Nawaz H, Wajid Z, Qaiser F, Jamal H, Abdullah A, et al. Awareness of mothers about diarrhea ; a cross sectional comparative study focusing on consciousness of diarrhea among different socioeconomic classes in Pakistan. Int J Pediatr Child Care. 2017 Nov;2(1):1-6.
23. Misbah S, Rasheed K. Maternal knowledge and management skills about diarrhea among children under five years age. [Conference Paper]. Proceedings of the 2016 13th International Bhurban Conference on Applied Sciences and Technology (IBCAST), Islamabad, Pakistan, 12-16 January 2016:92-5. Available from: https://www.researchgate.net/publication/300417222_Maternal_knowledge_and_management_skills_about_diarrhea_among_children_under_5_years_of_age.
24. Ashraf A, Bhat MA. Childhood diarrhoea : assessment of knowledge, attitude and practices among mothers attending the tertiary care hospital : an observational analytical study. Int J Community Med Public Health. 2017 Apr;4(4):1219-22.