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DEHYDRATION DUE TO DIARRHEA;

KNOWLEDGE, ATTITUDE AND PRACTICES OF MOTHERS ABOUT USE OF ORAL REHYDRATION SALT (ORS) FOR MANAGEMENT IN CHILDREN LESS THAN FIVE YEARS OLD.

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ABSTRACT … Background objective: Acute diarrheal diseases leading to dehydration, are among the leading causes of mortality in infants and young children in many developing countries. The objective of our study was to to assess knowledge, attitude and practice of mothers about use of oral rehydration salt for management of dehydration due to diarrhea in children less than five years of age. **Study Design:** Hospital based cross-sectional descriptive study. **Setting:** Oral rehydration center of Government Infectious Disease Children Hospital Peshawar. **Period:** February 16th, 2009 to March, 17th 2009. **Patients and Methods:** We enrolled 115 mothers of infants and children less than five years old by systematic random sampling. We included willing mothers for this study, children less than five years old showing some or no signs of dehydration due to three or more than three episodes of diarrhea within 24 hours. Exclusion criteria included unwilling mothers, severe dehydration due to diarrhea, complaints of severe vomiting and those having dysentery. **Results:** We evaluated 115 mothers, with majority 88 (76%) were 15-25 years age group and 27 (24%) were 26-36 years who visited oral rehydration center respectively. Majority of mothers were uneducated 97 (84%), Housewives 103 (90%), 59 (51%) had 4-6 children, 72 (63%) were living in Kacha house and about 84 (73%) had monthly family income less than 5000 rupees. It was found that 72 (63%) mothers knew benefits of oral rehydration salt in diarrheal dehydration. About 67 (58%) mothers were able to tell correct method of ORS preparation. 47 (41%) mothers knew that ORS should be discarded after one day usage, while 42 (37%) did not know. Doctors, 83 (72%) were found to be the most common source of information regarding ORS usage, followed by mothers-in-law, 21 (18%) and lady health workders (LHWs), 10 (10%) **Conclusion:** We concludedm young mothers and uneducated motheres of children below five years were of opinion that only medicine is the best management for diarrheal dehydration.

Key words: Knowledge, Attitude, Practice, Dehydration, Diarrhea, ORS.

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INTRODUCTION

According to UNICEF (2007), Pakistan ranks 42 for under-five mortality. The mortality rate is 90.4 per thousand live births upto 2007, whereas it was 183.5 in 1970. But still this rate is high as compare to other main South Asian countries like Bangladesh (60.5), India (71.8), Iran (32.8), Sri Lanka (20.5).[1] In Pakistan diarrhea is rated as the number one killer of children accounting for about 250,000 deaths and unimaginable morbidity.Estimated number of diarrhea episodes in the country is more than 20 million annually.[2] The Seasonal Awareness and Alert Letter for Epidemic-Prone Infectious Disease in Pakistan by Public Health Laboratory Division and Epidemic Investigation Cell of National Institute of Health Islamabad have declared the winter season from October 2008 to February 2009 as medium alert for acute gastroenteritis. According to the UNICEF 2008, DHS survey of 2006-07 in Pakistan showed that 37% children below 5 years had diarrhea receiving oral rehydration therapy or increased fluids, with continued feeding.[3]

Oral Rehydration Salt (ORS) regarded as medical miracle of 20th century is a simple, cheap and effective treatment for dehydration associated with diarrhea, particularly gastroenteritis caused by cholera or rotavirus. Acute diarrheal diseases are among the leading causes of mortality in

infants and young children in many developing countries. In most cases, death is caused by dehydration. Dehydration from diarrhea can be prevented by giving extra fluids at home, or it can be treated simply, effectively, and cheaply in all age-groups and in all but most severe cases by giving patients by mouth an adequate glucose-electrolyte solution called oral rehydration salt (ORS).[4]

Rehydration is replenishment of **water** and **electrolytes** lost through **dehydration**. It can be performed by mouth (oral rehydration) or by adding fluid and electrolytes directly into the blood stream (intravenous rehydration).[5] ORS consists of **solution** of **salts** and **sugars** taken **by mouth** and is used especially in developing countries, where it saves millions of children per year from death due to **diarrhea**.[6]

Keeping in view the importance of ORS, we conducted a KAP study in Government Infectious Disease Children Hospital Peshawar, regarding usage of Oral Rehydration Salt by mothers for management of diarrheal dehydration among their children aged less than five years attending Oral Rehydration Center for a period of one month.

The objective of our study is to assess knowledge, attitude and practice of mothers about use of oral rehydration salt for management of dehydration due to diarrhea in children less than five years of age.

MATERIAL AND METHODS

This hospital based cross-sectional descriptive study was carried out to assess the knowledge, attitude and practice of mothers regarding oral rehydration salt (ORS) usage in management of diarrheal dehydration among children aged less than five years. The study was carried out after taking permission from hospital ethical committee. Total study period was one month, from February 16th, 2009 to March, 17th 2009.

After taking formal permission from hospital administration, days were chosen for interview of mothers. Monday, Tuesday, Wednesday, Thursday and Friday were specified for data collection and Saturday and Sunday for data analysis during 15 days from February, 16th to March, 2nd 2009. Semi-structured questionnaire used as data collection tool and interview was used as data collection technique. Queries were made in view of various variables by translating it into local language first and pre-tested prior to its implementation to exclude methodological error. After getting verbal consent about 15 mothers were interviewed initially during the pilot study and then study was preceded on re-designed questionnaire to collect required data.

We include willing mothers for this study, children less than five years old showing some or no signs of dehydration due to three or more than three episodes of diarrhea within 24 hours. Exclusion criteria include unwilling mothers, severe dehydration due to diarrhea, complaints of severe vomiting and those having dysentery.

About 115 mothers were interviewed by doing systematic random sampling to collect data during two weeks. Respondents were chosen at regular interval i.e every fourth mother entering Oral Rehydration Center, considering inclusion and exclusion criteria. Two participants took part during data collection. A female participant interviewed mothers in order to overcome non-response while male participant filled questionnaires. At the end of data collection, a session was taken with mothers to provide information regarding preparation and advantages of oral rehydration salt and substitute used as rehydration. The demonstration regarding preparation of oral rehydration solution was also conducted.

Variables such as age of mother, maternal education, monthly family income, type of housing, number of children, household crowding, and source of information regarding use of oral rehydration salt were taken as independent variables and management of diarrheal dehydration as a dependent variable. The results were analyzed by using statistical software SPSS 13. Informed consent and confidentiality was

maintained as to avoid possible bias due to non-response.

RESULTS

The results of our study were analyzed by using following headings:

Socio- demographic characteristics

Our study include 115 mothers, with majority 88 (76%) were 15-25 years age group and 27 (24%) were 26-36 years who visited oral rehydration center respectively. Among children, 67 (58%) were infants, 42 (37%) were between age group 13-24 months, 6 (5%) between age group 25-36 months. Majority of mothers were uneducated 97 (84%), Housewives 103 (90%), 59 (51%) had 4-6 children, 72 (63%) were living in Kacha house and about 84 (73%) had monthly family income less than 5000 rupees. This is shown in table no.I.

Socio- demographic characteristics		n (%) N=115
Age groups of mothers	15-25 year	88(76%)
	26-36 year	27(24%)
Age group of the child vs gender	0-12 months	male=33% female=25%
	13-24 months	male=24% female=13%
	25-36 months	male=2% female=3%
Number of children in the family	1-3	54 (47%)
	4-6	59 (51%)
	7-9	2 (2%)
Education level of mother	Primary	14 (12%)
	Secondary	4 (3%)
	Uneducated	97 (84%)
Occupation of Mother	Housewife	103 (90%
	Working woman	12 (10%)
Monthly income of family	< 5000 Rs	84 (73%)
	5000-10000 Rs	31 (27%)
Type of Housing	Kacha	72 (63%)
	Pakka	15 (13%)
	Semi-pakka	28 (24%)

Table-I. Socio- demographic characteristics.

Presentation of child after diarrhea:

When mothers were asked about condition of their children after diarrhea, majority were 'restless and irritable (57.4%), followed by 'weakness and thirsty' (27.8%) and 'dry mouth and tongue' (14.8%).

Knowledge item

In this KAP study, 5 questions related to knowledge were asked from mothers regarding awareness related to ORS. It was found that 72 (63%) mothers knew benefits of oral rehydration salt in diarrheal dehydration. About 67 (58%) mothers were able to tell correct method of ORS preparation. 47 (41%) mothers knew that ORS should be discarded after one day usage, while 42 (37%) did not know. Doctors, 83 (72%) were found to be the most common source of information regarding ORS usage, followed by mothers in law 21 (18%) and lady health workers (LHWs), 10 (10%). During this study it was found that 31 (27%) mothers have heard about homemade sugar salt solution. This is shown in table no.II.

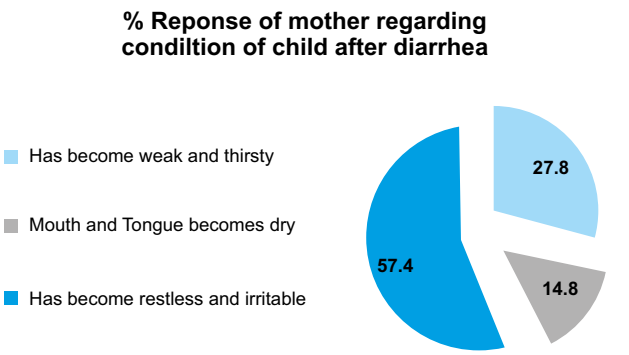

Figure-1. Response of Mother regarding condition of child after diarrhea.

Knowledge of Mother	Response	n(%)
1-. About the benefits of ORS?	**Yes**	72(63%)
	No	43(37%)
2- About Method of ORS preparation?	Four glass of water from one packet	67(58%)
	Three glass of water from one packet	5(4%)
	Two glass of water from one packet	36(31%)
	Do not know	7(6%)
3- For how many days one packet of ORS can be used after preparation?	One day	47(41%)
	Two days	21(18%)
	Three days	5(4%)
	Do not know	42(37%)
4- Regarding source of information about ors.	Doctor	83(72%)
	Mother-in-law	21(18%)
	Lady health workers (LHWs)	10(10%)
5-Did you hear about homemade sugar salt solution?	Yes	31(27%)
	No	84(73%)

Table-II. Knowledge of mother regarding use of ORS for management of diarrheal dehydration in children less than five years of age.

Attitude Questions	Response	no(%)
1-. Do you think ORS should be prepared by using boiled water?	**Yes**	78(68%)
	No	37(32%)
2- What was the reason for not giving ORS?	Was not available at home	20(33%)
	Was not prescribed by the health worker	15(25%)
	Medicine was given at home	23(38%)
	Child did not like taste	3(5%)
3- In your opinion, which is the best way for management of dehydration from diarrhea?	ORS only	11(10%)
	ORS and medicine	36(31%)
	Medicine only	61(53%)
	Did not know	7(6%)

Table-III. Attitude of mother regarding use of ORS for management of diarrheal dehydration in children less than five years of age.

Attitude Items

In order to assess attitude, questions related to usage of boiling water for ORS preparation were asked, 78 (68%) mothers thought that ORS should be prepared by using boiled water. When question regarding reasons for not giving ORS were asked, it was found that 61 mothers did not use ORS, 23 (38%) mothers responded that medicine was given at home, 20 (33%) ORS packet was not available at home and about 15 (25%) ORS was not prescribed by health worker, while other 3 (5%) responded that child did not like taste. Regarding management of diarrheal dehydration majority, 61 (53%) mothers responded that medicine is the best management for diarrheal dehydration, 36 (31%) in favor of ORS and Medicine and only 11 (10%) ORS only and 7 (6%) answered did not know (Table III).

Practice Items

Actual usage of ORS was lower than knowledge. About 54 (47%) mothers had given ORS to their children. Among them 43 (37%) mothers had given from packet while 11 (10%) given pre-package ORS fluid. About 61 (53%) did not give ORS at all. Only 47 (41%) mothers continued to give ORS or fluids and breast feeding during diarrheal dehydration. When asked about frequency of ORS administration, among 54 (47%) mothers who gave ORS to their children only 37 (68%) responded that they used it thrice a day or less, 9 (17%) four times a day or more and 8 (15%) no consistent pattern was followed.

Regarding quantity of ORS given to child that among 54 mothers, majority 32 (59%) responded as per acceptance of child, 13 (24%) gave approximately half glass and 9 (17%) one or more glass was given. About 69 (60%) mothers did not give any fluid during diarrhea to their children, while 32 (28%) gave green tea and tea, 8 (7%) juices and 6 (5%) water only. Just like liquids, majority of mothers 63 (55%) did not give semi-solid foods during diarrhea. Only 11(10%) gave Kitchri, 20 (17%) Kheer, 14 (12%) mashed banana and 7 (6%) mashed potato (Table IV).

Practice Questions	Response	n(%)
1-. During diarrheal dehydration, did you give which of the following to the child?	ORS (nimkol) from packet.	43(37%)
	Pre-Package ORS fluid.	11(10%)
	ORS was not given	61(53%)
2- Did you continue to give ORS or fluids and breast-feeding during diarrhea?	Yes	47(41%)
	No	68(59%)
3- Frequency of ORS administration? (Those who had given ORS,n=54)	Thrice a day or less	37(68%)
	Four times a day or more	9(17%)
	No consistent pattern followed	8(15%)
4- Quantity of Oral Rehydration Solution given each time?	Approx. half glass	13(24%)
	1 glass or more	9(17%)
	As per the acceptance of the child	32(59%)
5-Which fluids were given during diarrhea?	Green tea	16(14%)
	Juice	8(7%)
	Tea	16(14%)
	Water	6(5%)
	No fluid given	69(60%)
6-Which semi-solid food given diarrhea?	Kitchri	11(10%)
	Kheer	20(17%)
	Mashed banana	14(12%)
	Mashed potato	7(6%)
	No semi-solid food given	63(55%)

Table-IV. Practice of mother regarding use of ORS for management of diarrheal dehydration in children less than five years of age.

Response regarding awareness of mothers vs Usage of ORS

It was found that mothers who gave ORS (nimkol), among them 25.22% knew benefits of ORS while 12.17% mothers did not even know it. Those who gave pre-package ORS, 8.70% knew benefits of ORS and 0.87% did not know it. Among those who did not give ORS, 28.70% mothers knew benefits, while 24.35% did not know it (Figure 2).

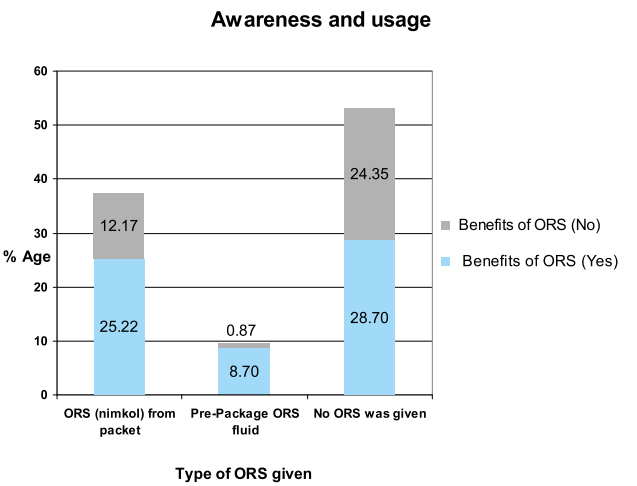

Figure-2. Graphical presentation between benefits of ORS and type of ORS given.

Management of diarrheal dehydration Vs Age group of Mothers

Regarding management of diarrheal dehydration it was found that among mothers of age group 15-25 years, 9% mothers responded that only ORS is the best management for, 28% in favor of both ORS and medicine, 37% for medicine only and 3% did not know about it.

Between age group 25-36 years, only 1% mothers responded for ORS as the best management for diarrheal dehydration, 3% for ORS and medicine, 16% in favor of medicine only while 3% did not know about it. So, in both age groups mothers were in opinion that medicine is the best possible way of management in diarrhea. (Figure 3).

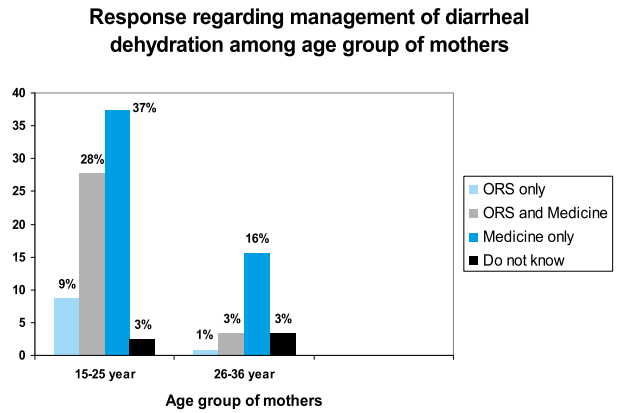

Figure-3. Graphical presentation between management of diarrheal dehydration and age group of mothers.

DISCUSSION

Diarrhea is one of the leading causes of child mortality. An estimated 2.2 million deaths are due to diarrhea each year worldwide. WHO and UNICEF both have initiated its simple solution by introducing oral rehydration salt (ORS). British Medical Journal, the Lancet, called it " ... possibly the greatest medical discovery of 20th century." No other single medical breakthrough of 20th century had potential to prevent so many deaths, over such a short period of time and at so little cost.[7]

We interviewed 115 mothers, whereas study at Jinnah Hospital Lahore involved 150 mothers of children aged less than five years for a period of 2 months (April & May 2003). These both studies were hospital based. Among children, majorities were infants and male in both studies as well as mothers were uneducated. The questions regarding ORS substitute were not asked in study at Jinnah Hospital Lahore as done at Children's Hospital Peshawar. During this study, majority of mothers did not hear about the substitute, Homemade Sugar Salt Solution ((HSSS). 47% mothers had given oral rehydration salt to their children at Children's Hospital Peshawar as compared to study conducted at Jinnah Hospital Lahore where 84.7% had given ORS to their children.[8]

During this study, we found that 61(53%) mothers did not give ORS to their children, self medication at home was main reason for it, whereas study conducted at Pediatric Department Jinnah Hospital Lahore showed lack of knowledge about use and importance of ORS. In both studies, mothers came to know about ORS from a health personal, a doctor in majority of cases. About 58.3% mothers knew proper method of ORS preparation in our study which is quite closer (62.5%) to study conducted at Pediatric Department of Jinnah Hospital Lahore. Similarly their study showed majority of mothers, despite being illiterate knew about ORS use and had used it, but still 47.01% were preparing it wrongly. But according to our study, only 47% used ORS despite knowing its benefits and hence we noted gape of knowledge. According to Demographic and Health Survey Pakistan (2006-07), about 37% of below five with diarrhea received oral rehydration salt therapy and continued feeding.[9] Other larger studies published in Pakistan Journal of Nutrition in 2002 was nationwide survey conducted in Pakistan (1991-92) by Pakistan Health Education Survey to obtain information on health related knowledge, attitude and maternal and child health concerning practices of women with children under two years of age. Several questions addressed knowledge, attitudes, beliefs and practices regarding ORS. About 5433 women were interviewed.[10] The design of survey was a stratified, clustered and systematic sample of households that consist of all four provinces of Pakistan and Azad Jammu Kashmir (AJK).Their sampling was community based while we used systemic random sampling technique. In both these studies, we found that majority of mothers were uneducated and falling into younger age groups. Majority of mothers (76%) in our study were between 15-25 years old, while study conducted at National level published in Pakistan Journal of Nutrition in 2002 showed mothers' age between 25-29 years. In

both studies, awareness about ORS was high as majority heard and knew the benefits of ORS. This study showed that 53% mothers thought that 'Medicine only' as the best treatment for diarrheal dehydration, while 10% mothers considered only ORS as the best treatment. On the other hand, study conducted nationwide showed that 56% mothers consider ORS therapy as the best treatment plan for diarrheal dehydration. In both studies, actual use was lower than knowledge and about 47% mothers gave ORS to their children in our study as compared to study conducted at National level where, only 34% gave it. The feeding practices adopted by mothers also showed greater difference in both studies. From this study we found that 60% mothers did not continue to give fluids and 55% as well not utilized semi-solid food during diarrhea. This is in contrast to National survey conducted in 1991-92, where 90% continue to give fluids during diarrhea and 83% responded by semi-solid feeding to their child. The reason behind more practice was a massive public health campaign launched as a part of Control Diarrheal Disease Program.

CONCLUSION

We concluded young mothers and uneducated mothers of children below five years were of opinion that only medicine is the best management of diarrheal dehydration. Therefore in future, further studies are needed to highlight importance of early usage of ORS therapy.

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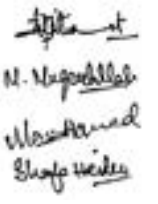
1	Dr. Atif Sitwat Hayat	Concept and design and drafting of manuscript	
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3	Dr. Mona Humaira	Manuscript typing & critical review.	
4	Dr. Shafa Haider Sawal	Data collection	