ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES AMONG MOTHERS REGARDING THE RECOGNITION, MANAGEMENT AND PREVENTION OF CHILDHOOD DIARRHOEA AND THE FACTORS INFLUENCING THEM

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ABSTRACT

BACKGROUND

Diarrhoea remains a leading killer of children under 5, accounting for about 1.5 million deaths annually. The management of diarrhoea depends on the knowledge, attitude and practices of the mother which in turn are influenced by various social, cultural and demographic factors.

In this study, we aim to study these factors which determine the outcome of diarrhoeal illness.

MATERIALS AND METHODS

In this cross-sectional study, 200 mothers of under 5 children attending the outpatient and inpatient departments of Paediatrics at Basaveshwar Teaching and General Hospital (BTGH) and Sangameshwar Teaching and General Hospital (STGH) were interviewed with the help of a structured questionnaire. Data related to the knowledge regarding the diarrhoeal disease among mothers was studied. Social and demographic details of the mothers were collected and their influence on the attitude and practice in the management of diarrhoea was analysed.

RESULTS

18% of the mothers could correctly identify the causes of diarrhoea and 65% believed that it could be prevented. Though 68.5% of mothers knew about ORS, the usage of ORS was just 6.5%. 2% of the mothers knew the correct method of ORS preparation at home. The coverage of zinc was just 4.5% while fewer percentage of children received zinc for adequate duration. Literacy status of mother and father and the socioeconomic status were significantly associated with early health seeking behaviour, whereas knowledge about ORS was influenced by literacy status of mother and social economic status of the family.

CONCLUSION

The study reveals that, there exists a significant gap between knowledge of the mothers and the rightful practices in the management of childhood diarrhoea.

KEYWORDS

Diarrhoea, ORT, Zinc, Knowledge, Attitude, Practices.

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BACKGROUND

Diarrhoea is the second leading cause of death in children under 5,¹ accounting for 9% of under 5 deaths.² Approximately, 70% of these occur in first 2 years of life.³ Diarrhoea is also a leading cause of malnutrition in children under 5 years old. Though significant progress has been made in controlling this disease, the numbers still remain high with one child dying every 60 seconds, which is largely preventable.² Diarrhoea is defined as the passage of 3 or more loose/liquid stools per day.¹ The knowledge about the definition is important because frequent passing of formed stools/passing the loose, "pasty" stools by breastfed babies can be wrongly interpreted as diarrhoea.

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In India, the incidence of diarrhoea was found to vary between 14-20%, the maximum risk being in between age group of 6-12 months.⁴

Oral rehydration therapy for the management of diarrhoea has been considered as one of the most important medical advances of 20th century. The WHO/ UNICEF in 2004 released a joint statement recommending Zinc supplementation along with ORS for the management of childhood diarrhoea.⁵ Since then, low osmolarity ORS and Zinc have remained the cornerstone of management of diarrhoea.

In view of the disease burden, UNICEF rolled out a 7-point plan for comprehensive diarrhoea control which included – treatment with low osmolarity ORS and Zinc and preventive measures that included measles and rotavirus vaccination, promotion of early and exclusive breastfeeding, vitamin A supplementation and promotion of hand washing with soap.⁶ Each of the above measures have the potential to significantly reduce the morbidity and mortality from diarrhoea, but the lack of their awareness and low practice rates continue to contribute to higher rates of incidence and mortality due to diarrhoea.

Despite of more than 40 years of promotion of ORS through all available channels, the knowledge of ORS among

the community especially the mothers is just marginally satisfactory (46-72%) as per various studies in India.^{7,8,9,10} Only 2 out of every 5 children with diarrhoea receive ORS and the difference in the coverage rate are even greatest between the richest and the poorest children.²

Recent study in India reveals the number of children receiving ORS and ORS with Zinc was 54.4% and 12.6% respectively.¹¹ Adequate zinc supplementation for 10-14 days has been proven to reduce the incidence of diarrhoea by 14-15% and mortality due to diarrhoeal illness by 23%.¹² Despite of its proven benefit and widespread promotion, the coverage of zinc globally was found to be less than 4%.² The above statistics reflect the gap between the knowledge and practices prevailing in the community. Lower socioeconomic and literacy status of the mothers is known to be associated with less knowledge and usage of ORS among mothers.⁹ Diarrhoea is a disease of poverty with 60% of cases concentrated in 10 developing nations including India.¹³

Poor sanitation, lack of access to clean water and inadequate personal hygiene are responsible for about 88% of childhood diarrhoeal cases in India and up to 60% of diarrhoea related deaths globally.^{9, 14}

Exclusive breastfeeding is an important protective factor for reducing diarrhoeal morbidity and mortality. Non-breastfed babies have an increased incidence of diarrhoea by 165% and are 10.5 times more likely to die from diarrhoea than breastfed babies.^{15,16}

Hand washing with soap is found to be the most cost-effective intervention, with decrease in the incidence of diarrhoea by 40%.¹⁷ Studies have shown that washing hands with water alone is much less effective in preventing disease than using soap.

Proper sanitation is associated with decreased incidence of diarrhoea by 34%.¹⁸

Over 1.1 billion people still practise open air defecation worldwide with India constituting half of such population.¹⁹

Vitamin A supplementation is known to reduce all causes of mortality by 24% and cases of diarrhoea by 15%.

Scaling up of ORS coverage up to 100% would prevent 93% of diarrhoea related mortality.²⁰

With so many variables influencing the incidence and outcome of diarrhoea, it is of utmost importance to take them into consideration while educating the public or framing national policies. In this study, we attempt to understand these factors which determine the outcome of diarrhoeal illness in children.

MATERIALS AND METHODS

This was a hospital-based cross-sectional study conducted at BTGH and STGH attached to MR Medical College, Kalaburagi, Karnataka, India over a period of 4 months (September 2016-December 2016). The subjects recruited for the study were the mothers of children below the age of 5 years who attended the outpatient and inpatient departments of Paediatrics at BTGH and STGH. The mothers of the children who had at least one episode of diarrhoea in the previous 2 weeks were included in the study.

Keeping in view the diarrhoea incidence of 14.3% in the available literature,⁴ a sample size of 200 was estimated considering 95% confidence level with 5% relative error.

The study was approved by the Institutional Ethics committee, MR Medical College, Kalaburagi. The aim of the

study was explained to the mothers and informed consent was taken. Confidentiality of the participants was protected throughout the study.

A structured questionnaire was administered to gather information about the sociodemographic details, knowledge of the mothers regarding the cause, identification, assessment of diarrhoeal severity and the attitude and practices followed for its prevention and management. The questions framed were of multiple choice type and the mothers were followed to choose more than one option for few questions. The questionnaire was completed by an interview.

Socioeconomic status was determined using updated Kuppuswamy's socioeconomic scale (2014) which comprised of Education and occupation of the father and the per capita income of the family.

In this classification, class I is regarded as the highest order and class V being the lowest. The data collected was analysed. Mean, Standard Deviation and Percentages were calculated. The relation between the knowledge, attitude and practices with variables such as age of the mother, sex of the child, father's level of education, literacy status of the mother and socioeconomic status were analysed. Chi square test was used for the descriptive analysis. The p value of less than 0.05 was considered significant in this study. Analysis was done with the help of SPSS software – version 16.

RESULTS

A total of 200 mothers were interviewed over 4 months. Among the children of the mothers (study population) who were admitted, male children constituted 56.5% and females constituted 43.5%. Majority of the mothers were in the age group of 21-25 years (71.5%). 43.5% of the mothers and 45% of fathers had secondary/higher secondary education. 78.5% of the mothers belonged to Hindu religion and 90.5% worked as housewives. Lower middle class (47.5%) constituted the major socioeconomic class in our study. 54.5% of mothers were previously educated regarding diarrhoea, with mother's mother and mother-in-law being the main source of information followed by Health professionals. The demographic details of the mothers are presented in Table-1.

	Variable	N	%
1	Sex of the child		
	a) Male	113	56.5
	b) Female	87	43.5
2	Age group of mother (in years)		
	a) <20 yrs.	20	10
	b) 21-25 yrs.	143	71.5
	c) 26-30 yrs.	35	17.5
	d) >30 yrs.	2	1
3	Literacy status of mothers		
	i) Primary schooling	56	28
	ii) Secondary/Higher secondary schooling	87	43.5
	iii) Diploma/graduate	22	11
	iv) Illiterate	35	17.5
4	Religion		
	i) Hindu	157	78.5
	ii) Muslim	42	21
	iii) Christian	1	0.5
	iv) Others	-	-
5	Socioeconomic status		
	i) Upper class	-	-

	ii) Upper middle class	46	23
	iii) Lower middle class	95	47.5
	iv) Upper lower class	48	24
	v) Lower class	11	5.5
6	Father levels of education		
	1) Primary schooling	44	22
	2) Secondary/Higher secondary schooling	90	45
	3) Diploma/graduate	60	30
	4) Illiterate	6	3
Table 1. Demographic and Social Characteristics of Participants. Total Number of Participants = 200			

About knowledge regarding prevention of diarrhoea, 55.5% believed that diarrhoea could be prevented but only 55.38% of them knew at least one preventive measure. Regarding the cause of diarrhoea, majority of the mothers (39.5%) identified teething as main cause for diarrhoea, while 18% answered that diarrhoea was caused due to consumption of contaminated food and water. 71.5% of mothers knew diarrhoea would lead to dehydration but 24.47% of them failed to identify any signs of dehydration. Majority (59.5%) of

the mothers would seek immediate medical care during an episode of diarrhoea while 13% waited to resolve on its own.

With respect to knowledge about ORS, a good number of mothers (68.5%) had knowledge about ORS, whereas only 22.6% of them administered ORS to their children during the previous episode of diarrhoea. The number of children receiving adequate amount of ORS was much lower (16.1%). Only 2% of the mothers, knew how to correctly prepare ORS at home.

Findings regarding feeding practices during diarrhoeal illness showed that 20% of mothers gave more feeds whereas food restriction was followed by 13.5% and 66.5% of mothers continued normal feeding. The reasons for feeding restriction included the misconception of gut rest and child not able to take orally. 82.4% of the mothers opted to continue breastfeeding during diarrhoeal episodes.

In issues related to Zinc administration, 4.5% of mothers administered ORS to their children. The proportion of children receiving Zinc for adequate duration was still lower (1.5%). 78.9% of the mothers had exclusively breastfed their babies for 6 months.

The knowledge attitude and practices and represented is Table-2.

1	Knows definition of diarrhoea	N	%
	i) Correct definition	82	41
	ii) Wrong response	118	59
2	Consider diarrhoea as a serious childhood illness		
	a) Yes	128	64
	b) No	72	36
3	Know that diarrhoea is preventable		
	a) Yes	130	65
	b) No	70	35
4	Know preventive measures of diarrhoea (n = 130) (at least one method)		
	a) Yes	72	55.38
	b) No	58	44.61
5	Cause of diarrhoea (more than one response allowed)		
	a) Sudden exposure to heat/ sun	26	13
	b) change in type of food and water	72	36
	c) Evil eyes	5	2.5
	d) Teething	79	39.5
	e) Eating mud	32	16
	f) Maternal diet	7	3.5
	g) Weaning	48	24
	h) Contaminated food and water	36	18
	i) Do not know	23	11.5
6	Knows whether diarrhoea leads to dehydration		
	Yes	143	71.5
	No	57	28.5
7	Able to identify signs of (n=143) dehydration		
	a) When child has some dehydration	100	69.93
	b) When child has severe dehydration	7	4.86
	c) Only when child is in shock	1	0.699
	d) Not able to identify any signs of dehydration	35	24.47
8	Usual response to diarrhoeal illness		
	a) Immediate medical care	119	59.5
	b) Home care with herbal medication	19	9.5
	c) Home care with ORS (standard ORS + Homemade ORS)	13	6.5
	d) Home care with other Home available fluids	23	11.5
	e) Wait to resolve on its own	26	13
9	Knowledge about ORS		
	a) Yes	137	68.5
	b) No	63	31.5

10	Whether ORS administered during previous episode of diarrhoea (n=137)		
	a) Yes	31	22.6
	b) No	106	77.4
11	Frequency and amount of ORS administration during previous episode of diarrhoea (n=31)		
	a) Adequate	5	16.1
	b) Inadequate	26	83.9
12	Know how to prepare ORS at home		
	a) Correct method	4	2
	b) Incorrect method	87	43.5
	c) Don't know to prepare	109	54.5
13	Feeding practices during episode of diarrhoea		
	a) Stop/reduced frequency	27	13.5
	b) Continue normal feeding	133	66.5
	c) Give more feeds	40	20
14	Continued breastfeeding during diarrhoea (≤ 2 yrs.) (n=176)		
	a) Yes	145	82.4
	b) No	31	17.6
15	Zinc administration during previous diarrhoeal episode		
	a) Yes	9	4.5
	b) No	127	63.5
	c) Don't know	64	32
16	Number of days for which zinc was administered		
	a) Adequate (10-14 days)	3	1.5
	b) Inadequate	6	3
17	Practised exclusive breastfeeding for 6 months (n=185)		
	a) Yes	146	78.9
	b) No	39	21.1
18	Whether educated about diarrhoea		
	a) Yes	109	54.5
	b) No	91	45.5
19	Source of information regarding diarrhoea (n=109)		
	a) Mother/Mother-in-law	52	47.7
	b) Relatives	18	16.5
	c) Health professional	34	31.1
	d) Hearsay	5	4.6
Table 2. Knowledge Attitude and Practices in Management of Diarrhoea			

Table 3. Factors influencing the KAP of mothers in management of diarrhoeal illness**1) Response to diarrhoeal illness:**

	Individual variable	Immediate medical care	Alternative treatment	Wait to resolve on own	Total	P value
A	Age of mother (years)					
	a) <20 yrs.	8	10	2	20	
	b) 21-25 yrs.	100	30	13	143	
	c) 26-30 yrs.	10	13	9	32	
	d) >30 yrs.	1	2	2	5	
	Total	119	55	26	200	0.000097
B	Father's educational status					
	a) Primary schooling	12	16	16	44	
	b) Secondary/Higher secondary schooling	57	28	5	90	
	c) Diploma/Graduate	48	10	2	60	
	d) Illiterate	2	1	3	6	
	Total	119	55	26	200	<0.00001
C	Literacy status of mother					
	a) Primary schooling	29	19	8	56	
	b) Secondary/Higher secondary schooling	62	19	3	84	
	c) Diploma/Graduate	21	3	1	25	
	d) Illiterate	7	14	14	35	
	Total	119	55	26	200	<0.00001
D	Socioeconomic status					

	a) Upper-class	2	1	1	4	
	b) Upper middle class	38	7	1	46	
	c) Lower middle class	63	28	4	95	
	d) Upper lower class	14	16	14	44	
	e) Lower class	2	3	6	11	
	Total	119	55	26	200	<0.00001

B) Literacy Status of Mother:

	Individual variable	Primary schooling	Secondary/ Higher secondary schooling	Diploma/ Graduate	Illiterate	Total	P value
A	Knowledge about cause diarrhoea						
	a) Correct response	9	17	9	1	36	
	b) wrong response	39	64	10	28	141	
	c) Does not know	8	6	3	6	23	
	Total	56	87	22	35	200	0.010583
B	Whether diarrhoea leads to dehydration						
	Yes	35	73	21	14	143	
	No	21	14	1	21	57	
	Total	56	87	22	35	200	<0.00001
C	Knowledge about ORS						
	Yes	33	72	21	11	137	
	No	23	15	1	24	63	
	Total	56	87	22	35	200	<0.00001
	Individual Variable	Primary schooling	Secondary/ Higher secondary schooling	Diploma/ Graduate	Illiterate	Total	P value
D	Feeding practices during diarrhoea						
	a) Stop/reduced feeding	12	8	1	6	27	
	b) Continue normal feeding	36	62	13	22	133	
	c) Increased feeding	8	17	11	4	40	
	Total	56	87	25	32	200	0.012217

Individual variable	Knowledge about ORS				Exclusive breastfeeding for 6 months			
Socioeconomic status	Yes	No	Total	P value	Yes	No	Total	P value
a) Upper-class	1	1	2		1	1	2	
b) Upper middle class	44	2	46		40	2	42	
c) Lower middle class	72	21	93		73	13	86	
d) Upper lower class	17	31	48		27	18	45	
e) Lower class	3	8	11		5	5	10	
Total	137	63	200	<0.00001	146	39	185	0.00007

DISCUSSION

The hospitals where the study was conducted, cater to a wide variety of population coming from diverse socioeconomic, cultural and educational background. Hence, we had the opportunity to study the population which at least in some part reflects the actual status of the society.

As mother is the primary caregiver in most of the circumstances, her awareness of the causes and knowledge of the management are critical in the reduction of diarrhoea-related morbidity and mortality.

41% of the mothers among the study population knew the correct definition of diarrhoea which is similar to the values obtained from Rewa (50%).²¹ and southern Odisha.²²

Only 64% of the mothers considered diarrhoea as a serious childhood illness which can explain the low medical care seeking behaviours (59.5%) of the population. Study done by Sailesh Sutaria et al²³ also showed that the proportion of mothers considering diarrhoea as a serious illness was low.

The health care seeking behaviours was low in our study as compared to national statistics.¹¹

The findings of teething as a major cause of diarrhoea is in par with the study done by Kapoor et al and Priti Chaudhary et al.²¹

11.5% of mothers relied upon available home foods for management of diarrhoea, the common foods being rice ganji and coconut water.

The knowledge about ORS in the mothers in our study (68.5%) was in concurrence to the Sadasiba Padhy et al,²² S K Rasania et al and other Indian studies.²⁴

The usage rates of ORS were low (22.6%) when compared to the proportion of mothers having knowledge about diarrhoea; the reasons cited by the mothers being, unawareness about the method of preparation and low acceptability of ORS by the children.

The usage rates of ORS in our study was similar to those found in NFHS-3 (26%).⁹

The reason for lower ORS usage despite of higher medical care seeking behaviours could be due to fewer number of doctors prescribing ORS or failure on the part of doctors in effectively educating about the importance of ORS among mothers or absence of robust ORS promoting activities in the hospitals and the community.

The values regarding the adequacy of ORS treatment was further more disappointing in our study as only 16.1% of children treated with ORS received adequate amount of ORS during their illness.

Our study showed a lower rate of interruption/decreased feeding as compared in those found in NFHS-3 survey and other studies.¹⁰

The zinc usage in our study was substantially low with only 1.5% of children with diarrhoea receiving zinc for adequate duration which is similar to other Indian studies.^{9,25}

The rate of continued breastfeeding during diarrhoea in our study (82.4%) was similar to that found in Chaudhary P et al's study.⁸

78.9% of our mothers practised exclusive breastfeeding which is much higher than Indian standards (64.9%) which is a welcome measure.²⁶

68.48% of the children were vaccinated against measles as compared to 78.99% found in Rapid survey on children study – 2013.¹¹

The major source of diarrhoea-related information was mother/mother-in-law (47.7%), followed by health care professional (31.1%).

On statistical analysis, age of mother, father's educational status, literacy status of the mother and socioeconomic status of the family were significantly associated with response to diarrhoeal illness. Whereas literacy status of the mother was significantly associated with knowledge about diarrhoea, knowledge about ORS and rightful feeding practices during diarrhoea. (Table 3).

CONCLUSION

As mother is the primary caregiver in most of the circumstances, her awareness of the causes and knowledge of the management are critical in the reduction of diarrhoea-related morbidity and mortality.

Knowledge and practices should go hand in hand. Our study reveals a significant gap in the knowledge and practices of mothers in management of childhood diarrhoea. Though this gap may be somewhat compensated by higher rates of exclusive breastfeeding and vitamin A coverage rates, the importance of protective effect of exclusive breastfeeding, correct weaning practices, measles vaccination and vitamin A supplementation still needs to be stressed upon, which are cost effective and are proven interventions in decreasing diarrhoea-related morbidities and mortality.

Nonetheless, there is a stressed need for creating awareness about proper use of ORS and Zinc with due consideration to the cultural and social beliefs of the people.

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