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Original research article

To evaluate knowledge and approach of mothers towards a child with diarrhea, focusing on oral rehydration therapy

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Abstract

Introduction: Pneumonia and diarrhea are the leading causes of under-five mortality. Oral rehydration therapy (ORT) with oral rehydration salt (ORS) solution remains the cornerstone of appropriate case management of diarrheal dehydration and is considered the single most effective strategy to prevent diarrheal deaths in children. However, data show that ORS usage rates are still unacceptable. Moreover, there is lack of knowledge and awareness amongst care providers on how to implement and achieve greater coverage of existing cost-effective interventions.

Materials and Methods: This is a community based; time bound observational study conducted at Gnanapuram, Visakhapatnam from over a period of 6 months. The study was conducted at Primary Health Centre. In our study, all the mothers of under-five children coming to the OPD (irrespective of their reasons for attendance to the health centre) were interviewed. These mothers belonged to the low socio-economic strata from the adjoining area.

Results: The age of the study subjects ranges between 18 to 38.5 years. Most mothers in the study were between 24-34 years of age. 95% had municipal/tap water as a source of drinking water. Only 2.3% were using purified treated water. 12% had poor sanitation in the form of open field and public toilet. In this study, we assessed the knowledge and approach of mothers towards a child with diarrhea, focusing on Oral Rehydration Therapy. Out of 215 mothers interviewed, 70.2% gave a history of their child having diarrhea at the time of presentation or in past. Lethargy was the most common (44%) danger sign identified by mother. Only 3.8% mothers recognized decreased urine output as a danger sign. However, 45.6% mothers failed to identify any danger sign.

Conclusions: The urban slum areas have their own typical problems related to high rate of childhood infections and also a tendency towards non-acceptance of health interventions. Hence, to achieve universal immunization and thereby to prevent infections like diarrhea and pneumonia, a multi-pronged strategy needs to be implemented. This would include increasing the level of awareness of people by an effective use of electronic and mass media along with interpersonal communication by health workers.

Keywords: Diarrhea, oral rehydration therapy, pneumonia

Introduction

In the early 1900s, children under five accounted for 30% of all deaths. Remarkably, under-five mortality plummeted to less than 2% by the late 1990s, commemorating an epoch-making epidemiological transition from infectious diseases to non-communicable diseases, wherein heart disease and cancers replaced diarrhoea and pneumonia as the major killers [1].

The phenomenal drop in diarrhoeal deaths is entirely the outcome of a global commitment to tackle life-threatening cholera with Oral Rehydration Therapy (ORT) between 1970 and 1990. WHO and UNICEF policies globally promoted mass ORT utilisation and caregiver education. Consequently, diarrhoeal deaths fell from 4.6 million to less than 1.5 million annually [2]. Despite the drop, diarrhoea continues to be the second leading killer of children under-five, constituting about 0.5 million deaths annually or 1,300 every day (more than AIDS and malaria combined), with 80% dying in Africa and South Asia alone [3]. ORT remains an unsung public health hero, underutilised to this day. We memorialise the fiftieth year of the path breaking ORT field trials in 1971, by highlighting the suboptimal ORT utilisation

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and its devastating implications in meeting the Sustainable Development Goals (SDGs) on global health.
The life-saving potential of ORT was first demonstrated during the 1971 Bangladesh Liberation War when a cholera epidemic hit a refugee camp housing 350,000 individuals. Dilip Mahalanabis, an Indian paediatrician, without access to intravenous solutions (mainstay for diarrhoea at that time), saved thousands by administering a sugar-salt solution [4]. Although experts were divided in their opinion about ORT-still in its early developmental stages-Mahalanabis brought down the mortality from ~30% to 2%. ORT needed another four years to seize the attention of the medical community through publications demonstrating its efficacy. By 1978, ORT was the topmost priority of WHO's global diarrhoeal diseases control program and was adopted by over 100 countries in the next decade [5].
Many variants of ORT were attempted even before discovering the 'co-transport' phenomenon, wherein sugar enhances sodium absorption [6]. Although David Nalin and Richard Cash are credited for pioneering ORT, this 'simple solution' was the culmination of many decades of tantalising struggles by both bench-workers and clinicians globally. Ultimately, Mahalanabis's field trial drew global policy directives towards universal ORT [7].
Diarrhoeal diseases disproportionately affect low-and middle-income countries due to poor hygiene and sanitation. When the role of zinc was established in 2004, UNICEF and WHO jointly announced recommendations for low-income countries, promoting ORT with zinc along with continued feeding, which remains the UNICEF-WHO's recommended first-line treatment for acute diarrhoeal diseases [8].

Materials and Methods
This is a community based; time bound observational study conducted over a period of 6 months. The study was conducted at Primary Health Centre, Gnanapuram, Visakhapatnam.

In our study, all the mothers of under-five children coming to the OPD (irrespective of their reasons for attendance to the health centre) were interviewed. These mothers belonged to the low socio-economic strata from the adjoining slum.

Inclusion criteria
- All mothers of under-five children visiting the primary health center.

Exclusion criteria
- Mothers of children above 5 years of age.

Data collection technique
In our study, we interviewed the mothers of under-five children with a well-planned questionnaire. The questionnaire was formulated in English and was then translated into the local language (Telugu). Detailed data was collected regarding the demographic profile, symptomatology, recognition of danger signs of diarrhea. The data collection was done in terms of the following pattern.

Parameters recorded
Socio-demographic factors
- Age of mother.
- Education level of mother.
- Number of living children.
- Religion.
- Occupation of mother.
- Decision maker of family.
- Source of drinking water.
- Toilet facilities.
- Number of family members.

Diarrhea
- History of diarrhea in the child.
- Awareness of symptoms/signs of dehydration.
- Awareness of ORT.
- Best source of ORT information.
- Usage of ORT during diarrheal episodes.
- Reasons for not using ORT during diarrhea.
- Feeding practice during the diarrheal episode.
- Hygiene practices before cooking food and feeding the child.

Statistical analysis
The data collected were coded, entered into Microsoft Excel 2021 and analyzed using EPI-INFO 2005

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software of WHO and SPSS 26.0. Descriptive statistics, including mean, standard deviation and range for quantitative data and proportions for qualitative data were used to characterize the study population. For quantitative data, the difference between the means of 2 groups was compared using the t test (for normal distribution) or Mann Whitney test (non-normal distribution). The association of various factors with knowledge of mothers pertaining to diarrhea/pneumonia was quantified using univariate analysis.

Results

The age of the study subjects ranges between 18 to 40 years. Most mothers in the study were between 24-34 years of age (Table 1).

Mothers in the study

Table 1: Age distribution of mothers

Age (years)	Number	%
18-23	72	33.5
24-34	137	63.7
≥ 35	6	2.8

Table 2: Distribution of cases according to drinking water supply

Type of water supply	Number	%
Municipal water	204	94.9%
Hand pump	6	2.8%
Well water	0	0%
Purified treated water	5	2.3%

95% had municipal/tap water as a source of drinking water. Only 2.3% were using purified treated water. 12% had poor sanitation in the form of open field and public toilet (Table 2).

Table 3: Recognizing Danger Signs

Diarrhea		
Danger Signs (n=215)	**Number of Cases**	**%**
Dry mouth	35	16.3
Thirsty	23	10.7
Decreased urine output	8	3.7
Lethargy	95	44.2
Sunken eyes	10	4.7
None	98	45.6

In this study, we assessed the knowledge and approach of mothers towards a child with diarrhea, focusing on Oral Rehydration Therapy. Out of 215 mothers interviewed, 70.2% gave a history of their child having diarrhea at the time of presentation or in past. Lethargy was the most common (44%) danger sign identified by mother. Only 3.8% mothers recognized decreased urine output as a danger sign. However, 45.6% mothers failed to identify any danger sign (Table 3).

Table 4: Source of information regarding ORS amongst mothers (n-169)

	PHC	Hospitals	Doctor	Others (TV/Radio/Friends)
Number	46	7	76	40
%	27	4	45	24

In table 4, of the 169 mothers (78.6%) having knowledge about ORT, the best source of information was doctors (45%). Primary health centres/health workers were reported as the best source of information in 27% cases and media comprising TV/radio in 24% cases.

Table 5: Feeding practice

Feeding (n-215)	Yes	No
Number	142	73
%	66%	34%

In table 5, 66% of mothers were aware that feeding (breast feeding/top feeding has to be continued during the diarrheal episode.

Discussion

Diarrhoea stays one of the main worldwide reasons for death among youngsters younger than five years.

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ORS is straightforward, exceedingly compelling, economical and suitable treatment for diarrheal drying out and since the presentation of ORT, there has been an unfaltering decrease in passing because of diarrheal ailments [9]. Diarrhoea is the frequent (typically characterized as at least three times in multi day) passage of liquid or soft stool [10]. It is the most widely recognized clinical indication of gastrointestinal infection and the second driving reason for death on the planet among kids under five years old [11].

Unfortunately, particularly in developing nations, because of absence of legitimate information in mother, with respect to accessibility, planning and utilization of ORS, this objective is a long way from accomplished. Improper sterile conditions, risky drinking water and absence of cleanliness are likewise in charge of not ready to diminish the occurrence of diarrhoeal ailments. The outcomes are fairly unique in relation to the investigation completed by Raghu MB A. *et al*. who discovered that 60% mothers were found to have satisfactory learning in regards to the strategy for ORS readiness though a similar data was seen to be fractional and deficient among 35.94% and 4.06% respondents albeit 61.87% moms were having a place from centre social class [12]. It was found in an instructive intercession contemplate by Bhatia V *et al*. that Education realized huge enhancement in information, state of mind and practice at first, second and third development. The middle scores of information, disposition and practice expanded from, individually, because of rehashed intercessions. Besides, intercessions reinforced the connection between information, mentality and practice [13].

Study directed by Khamgaonkar MB *et al*. have detailed that 69.8% of the members knew with respect to the job of ORS in looseness of the bowels and just 38.7% knew how to plan ORS legitimately [14]. Sharma R *et al*. have detailed that 65.7% of the members thought about ORS, and the mindfulness was more in literates when contrasted with uneducated people [15]. Cantered wellbeing instruction of moms has been appeared to enhance their insight and practice in the utilization of ORS in the diarrhoea [16].

According to NFHS, in India 43% of ladies thought about ORS pockets yet just 26% at any point utilized it [17]. Similar results were obtained in the study by Bryce J, *et al*. [18] Though a large portion of the ladies knew about the ORS powder, just third of them knew the correct method for utilizing it. This extent is comparative when contrasted with the information accessible from NFHS IV in which it is 30% [19]. Knowledge in regards to the preventive measures is likewise insuffi cient among the moms. Over 60% of them couldn't recognize even a solitary measure from the choices gave to them. To strengthen the prior articulation, centred wellbeing training of moms in such manner might be of helpful [20].

In our examination, about 45% of the moms were of the misguided judgment that getting teeth is the explanation behind advancement of the runs. The greatness of this misguided judgment is likewise archived in different examinations directed in India and in addition Iran, in these investigations the size is 64% and 48% respectively [21]. A not very many moms had information in regards to the reason for looseness of the bowels. Just 17% of them gave rectify answer i.e. disease as the reason for the runs. Bazargan M, *et al*. in their examination led in Philippines reports 77%, 34% and 23% moms recognizing dangerous drinking water, inability to wash hands in the wake of pooping and subsequent to taking care of loose motion separately as regular purposes behind diarrhoeal diseases [22].

Similarly, as mentioned above 30.98% mothers were able to mention all the steps for the correct and complete preparation of ORS solution which is Similar to the other studies which found approximately 20% to 50% of the mothers were able to prepare ORS solution correctly and completely [23]. This may be because of moms' absence of related knowledge, an absence of legitimate training about the concerned issues and their ethnicity itself [24].

Conclusions

The urban slum areas have their own typical problems related to high rate of childhood infections and also a tendency towards non-acceptance of health interventions. Hence, to achieve universal immunization and thereby to prevent infections like diarrhea and pneumonia, a multi-pronged strategy needs to be implemented. This would include increasing the level of awareness of people by an effective use of electronic and mass media along with interpersonal communication by health workers.

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