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Original Research Article

Is knowledge and practice of oral rehydration therapy suboptimal? Assessment at Federal Medical Center, Asaba, South-South Nigeria

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ABSTRACT

Background: Oral rehydration therapy (ORT) is a core component of the childhood survival strategies to reduce child mortality and morbidity due to diarrhoeal disease with its fatal dehydrating complication of acute kidney injury. This strategy is indispensable to the attainment of the International Society of Nephrology's (ISN) aim to eliminate preventable deaths from acute kidney injury (AKI) by year 2025. Diarrheal disease is the second most common cause of morbidity and mortality in children at our centre. This interventional study assessed the knowledge and the practice of ORT among caregivers, educated and trained them on the management of diarrhoeal diseases and practice of ORT. Oral rehydration salt (ORS) and zinc tablets were also distributed.
Methods: An interviewer-administered questionnaire was used following informed consent. Consented care givers of wards attendees of FMC Asaba were assessed on their knowledge and their practice of ORT, educated on childhood diarrheal diseases, trained on practice of ORT and had ORS and zinc tablets distributed to them. These assessments were done on the spot and 6 weeks after the health talk, from July 2015 to December 2015.
Results: There were 266 respondents and 231 were mothers. The immediate impact of the health talk on the knowledge and the practice of ORT was laudable, $p \leq 0.0001$ and educational attainment of the respondent influenced the immediate post health talk knowledge of ORT, $p=0.009$. The age of the respondent predicted the long term impact of health talk on practice of ORT, $p=0.020$.
Conclusions: Knowledge and practice of ORT are not optimal but can be improved by regular education.

Keywords: Oral rehydration therapy, Children, Practice, Knowledge

INTRODUCTION

Oral rehydration therapy (ORT) is one of the child's survival strategy initiated in 1978 by the World Health Organization to reduce child mortality and morbidity due to diarrhoeal disease.[1] In Asaba, diarrheal disease is the second most common cause of morbidity (20%) and mortality (18%) in children.[2] The ORT strategy becomes even more indispensable in this era of 0 by 25; a human right initiative by the International Society of Nephrology (ISN) which aims to eliminate preventable deaths from AKI by year 2025.[3] One of the common preventable causes of AKI in paediatric emergency room in Nigeria is dehydration following gastrointestinal losses.[4,5]

In our locality only 47% of caregivers knew about ORT and only 23.5% administered properly reconstituted ORS to their ward at home before presentation to the hospital.[2]

This interventional study assessed the knowledge and the practice of ORT. It incorporated education, training on

the management of diarrhoeal diseases and practice of ORT, and also distribution of ORS.

METHODS

An interviewer-administered questionnaire was used for this interventional study. A minimum sample size of 240 care givers who brought their wards to CHOP and who consented were recruited, based on 20% prevalence rate of diarrhoea at Federal Medical Center, Asaba. Information were collected on socio-demographic characteristics of the care givers, their knowledge of ORS: indication for use, preparation and administration. The relationship of the caregiver with the child was categorized into mother, father and others (aunt, grandparents, sister and cousin). Source of prior knowledge of ORT was listed as health facility (nurses, doctors and pharmacists), media (television, radio jingles and social media) and others (friend, fellow mother and parents). Each care giver had two research oriented encounter with the researchers. The study period was between July and December 2015.

The care givers whose children do not need urgent attention were given the questionnaire. The reason for the study was explained to them and the research assistants administered the pre health talk questionnaire to those who gave consent. Thereafter, one of the researchers gave a sensitization health talk to the care givers about diarrhea and its management. Key components in the sensitization talk covered the following:

- Risk factors for development of diarrhoeal diseases (failure to practice exclusive breastfeeding, poor hygiene etc).
- Features of diarrhoea (frequent loose stool, with or without vomiting and fever)
- Complications of diarrhoea (dehydration with acute kidney injury, electrolyte imbalance, malnutrition)
- Prevention of diarrhoea and its complications (home management with ORS, breastfeeding, optimal food and hand hygiene, care of utensils utilized in preparation of ORS, vaccination as well as telling other care givers to inculcate similar habits)
- Diarrhea during teething (mouthing of dirty objects in attempt to sooth the itchy gum)
- Hospital management of diarrhea
- Preparation of ORS (1 sachet to 1L of water) with demonstration. To discard the preparation after 24 hours.
- Home administration of ORS with cup and spoon at the onset of diarrhea
- Continued feeding and increased breastfeeding are encouraged.
- Change of diet and diluted formula not necessary during diarrhoeal episodes.
- To commence age-appropriate unrestricted diet as soon as rehydration is done.
- Use of ORS for ongoing loss and the use of SSS
- The use of sprite and salt, flagyl, septrin, teething powder and other medications not recommended.

After the child has been attended to by the clinician, the researcher administered the post talk questionnaire on the care givers to help assess the impact of the health talk on the knowledge, attitude and practice of ORS. Thereafter, a sachet of ORS and 10 tablets of zinc were given to the caregiver for use in any episode of diarrhea in their children. Those who gave the wrong answers in the post health talk assessment were educated individually on the correct answer as they submitted their questionnaire. The same post health talk questionnaire was administered to the care giver at 6th week following the health talk to further assess the long term impact of this intervention. Those who were able to come were refunded their transport fare while those who failed to come for the 2nd research-oriented hospital visit, had theirs conducted over the phone.

A total of 8 questions were asked; four questions to ascertain the level of knowledge (if heard about ORS, who needs it, effect of ORS and any alternative) and the other four for practice of the ORS strategy (where ORS should be started, how to prepare it, how to give and length of storage). Two or less correct answers indicate poor knowledge or practice while three or more correct answers indicate good knowledge or practice.

The data were analyzed using Software Package for Social Sciences (SPSS) version 22.0 and results expressed in frequency tables. Chi squared test was used to test association between categorical variables such as knowledge and practice of ORT pre and post health talk. Multiple regression analysis was done to identify predictors of the observed outcome. For any comparison of variable, p is significant at a value <0.05.

RESULTS

There were 279 respondents but only 266 who gave their complete biodata were analyzed. The relationship of the respondents to the children showed that 86.8% (231/266) were mothers, 51.1% (136/266) had university education and 58.3% (155/266) were within the age of 30-39 years, Table 1. One hundred and forty seven admitted to having a previous episode of diarrhoea in their children but only eighty eight of this cohort administered ORS during the management of the diarrhoeal episode. A good number of the respondents (240/266) already heard about ORT, 75.2% (200/266) first heard about it in a health facility and of this number, 70.5% (141/200) heard it from a nurse at the immunization or ante-natal care center.

Pre health talk knowledge and practice of ORT

The proportion of respondents who had good knowledge of ORT prior to the health talk was 57.5% (153/266) while those with good practice was 63.9% (170/266),

Table 2. Multiple regression analysis shows that predictors of good knowledge of ORT prior to health talk were educational qualification and initial source of information about ORT (p=0.002 and p<0.0001 respectively) whereas only initial source of information predicted good practice (p≤0.0001), Table 3.

Table 1: Socio-demographic characteristics of the respondents.

Variable	Category	Frequency (%)
Relationship to the child	Mother	231 (86.8)
	Father	14 (5.3)
	Others	21 (7.9)
	Total	266 (100.0)
Age group in years	<20	7 (2.6)
	20-29	52 (19.5)
	30-39	155 (58.3)
	40-49	43 (16.2)
	≥50-59	9 (3.4)
	Total	266 (100.0)
Highest educational qualification	No formal education	6 (2.3)
	Completed primary education	20 (7.5)
	Completed secondary education	67 (25.2)
	Undergraduate	37 (13.9)
	Graduate	136 (51.1)
	Total	266 (100.0)
Source of knowledge	Health facility	201 (75.6)
	Media	14 (5.3)
	Others	25 (9.4)
	No knowledge	26 (9.8)
	Total	266 (100.0)

Table 2: Evaluation of the pre health talk knowledge and practice and the immediate impact of health talk on the knowledge and practice of ORT.

Variable		Immediate post health talk			χ^2	P value
		Good	Poor	Total (%)		
Pre health talk knowledge	Good	152	1	153 (57.5)	54.660	0.000
	Poor	76	37	113 (42.5)		
	Total (%)	228 (85.7)	38 (14.3)	266 (100.0)		
Pre health talk practice	Good	166	4	170 (63.9)	16.294	0.000
	Poor	81	15	96 (36.1)		
	Total (%)	247 (92.9)	19 (7.1)	266 (100.0)		

Table 3: Factors influencing the pre health talk knowledge and practice and the outcome of health talk on knowledge and practice of ORT.

Parameters		P value		
		Pre health talk	Immediate post talk	6 weeks post talk
Age of respondent	Knowledge	0.970	0.381	0.671
	Practice	0.132	0.208	0.020
Relationship with the child	Knowledge	0.216	0.673	0.122
	Practice	0.101	0.332	0.114
Highest educational qualification	Knowledge	0.002	0.009	0.133
	Practice	0.095	0.172	0.562
Initial source of knowledge	Knowledge	0.000	0.681	0.886
	Practice	0.000	0.685	0.251

Table 4: Evaluation of long term impact of health talk on ORT.

Variable		Six weeks post health talk			χ^2	P value
		Good	Poor	Total		
Pre health talk knowledge	**Good**	110	10	120	0.536	0.464
	Poor	78	10	88		
	Total	188	20	208		
Pre health talk practice	**Good**	136	6	142	0.174	0.677
	Poor	64	2	66		
	Total	200	8	208		

Immediate impacts of health talk on knowledge and practice of ORT

The proportion of respondents whose knowledge of ORT was assessed to be good immediately after the health talk was 85.7% (228/266), while that for practice was 92.9% (247/266), Table 2. As shown in Table 2, the immediate impact of the health talk on the knowledge and practice of ORT was laudable, p≤0.0001. Educational attainment of the respondent influenced the immediate post health talk knowledge of ORT, p=0.009 (Table 3) and no other respondent factor contributed to the immediate impact of the health talk on knowledge of ORT. The improvement in the practice noted in the immediate post health talk response occurred irrespective of age, educational attainment, initial source of knowledge of respondent and the respondent relationship to the child, Table 3.

Long term impact of health talk on knowledge and practice of ORT

Of the 266 respondents, only 208 were evaluated during the six weeks post health talk assessment and the long term impact of health talk on the knowledge and practice of ORT were analyzed for this number only. As shown in Table 4, knowledge of ORT was good in 90.4% (188/208) of the respondent 6 weeks after the health talk and practice of ORT was good in 96.1% (200/208). No respondent factor contributed to the long term knowledge of ORT whereas age influenced the long term impact of health talk on practice of ORT, Table 3.

DISCUSSION

A substantial number of respondents had good knowledge and practice of ORT prior to the health talk and these were influenced by the source of information which was the nurses, during antenatal and immunization clinics. Similar observation was made by Agbolade et al in Ibadan Nigeria and Amare et al in Ethiopia, who noted that majority of their subjects accessed ORT information from the health facilities.[6,7] This demonstrates the effective role of the nurses in dissemination of useful health tips in the course of their duties. The bulk of the study population was majorly mothers who to a large extent obligatorily make contact with the nurses during the aforementioned clinic days.

Educational qualification had a positive influence on the prior knowledge and practice of ORT. This influence was also demonstrated in the immediate health talk assessment of knowledge of ORT, which showed remarkable improvement as most of the respondents had tertiary education. Saurabh et al in Puducherry India,[8] found that mothers with lower educational qualification were less likely to have good knowledge of ORS preparation. Amare et al in Ethiopia also noted in their study that illiterate mothers were 4 times more likely to have poor knowledge than graduate mothers.[8] The role of female education in promoting child health and reducing child mortality in the society cannot be overemphasized. Probably because the educated mother is likely to be well informed and thus have a better health seeking attitude than their illiterate counterparts.

The laudable improvement in the practice of ORT as assessed by the immediate impact of the health talk occurred regardless of any respondent factor. This buttressed the fact that demonstration may be a valuable tool in health education as it is likely to break all barriers of illiteracy, age, source of information, marital status and other respondent characteristics. Agbolade et al opined that such demonstration will enable mothers acquire the correct skills needed in proper preparation and administration of ORT to children with diarrhoea.[6]

The age of the respondent has no demonstrable effect on the knowledge of ORT similar to the study by Saurabh et al in Puducherry India which documented that young age has no influence on the lack of knowledge of ORS preparation.[8] However, Amare and colleagues in Ethiopia found that older mothers were twice more likely to have poor knowledge than the younger mothers and this finding was attributed to inaccessibility of the older mothers to formal education.[7]

The index study also noted that the long term impact of health talk on knowledge and practice of ORT was encouraging as increasing number of respondents showed good knowledge and practice. Pertinent to note that this sustained improvement in knowledge of ORT occurred irrespective of any respondent characteristics. This shows that in addition to female education, continued demonstrative health education of mothers will positively influence the child health in our society. Ansari and coworkers in Morang Nepal demonstrated similar

improvement in knowledge, attitude and practice of mothers toward diarrhoea and its management following successive educational interventions.[9] The positive influence of age of respondents on the long term impact of health talk on the practice of ORT may be due to varying degrees of dementia seen with older age group hence the younger age group may have a better retentive memory.

CONCLUSION

Knowledge and practice of ORT are not optimal but can be improved by regular demonstrative health education.

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