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KNOWLEDGE AND USAGE OF ORAL REHYDRATION THERAPY (ORT) IN THE TREATMENT OF DIARRHEA AMONG UNDER-FIVE MOTHERS IN LAGOS, NIGERIA

Joseph-Shehu Elizabeth M. and Alapa, Martha Echewunne

ABSTRACT

The Morbidity and mortality rate associated with diarrhea is still high despite the effective way of managing it with oral rehydration therapy which has been described as cost effective and great advancement in medicine in the 20th century. This study aims at examining the factors that determine the knowledge and usage of oral rehydration therapy (ORT) in the treatment of diarrhea among under-five mothers attending Massey Street Children Hospital, Lagos. Cross sectional descriptive design was used for the study and random sampling technique employed to select 150 under five mother attending the hospital. A semi-structured questionnaire was used to collect data on ORT. Data generated for the study were subjected to computer analysis using statistical package for social science (SPSS) version 25. Descriptive statistics like frequency mean, standard deviation and percentage were used while chi-square and multiple regression was utilized for the inferential statistics. Statistically significance was determined at $p \leq 0.05$. Findings reveal that majority of respondents are knowledgeable about oral rehydration therapy and majority administers ORT for their children. Two hypotheses are tested and the results show that there is significance association in the knowledge and usage of ORT and social demographic variables among under-five mothers. Age ($X^2 \leq 152.097$; $DF \leq 4$; $P < 0.0001$), religion ($X^2 \leq 93.554$; $DF \leq 6$; $P < 0.0001$), educational background ($X^2 \leq 159.322$; $DF \leq 6$; $P < 0.0001$) and occupation ($X^2 \leq 144.636$; $DF \leq 6$; $P < 0.0001$). Also, age

($X^2 \leq 113.054$; $DF \leq 2$; $P < 0.0001$), religion ($X^2 \leq 72.173$; $DF \leq 3$; $P < 0.0001$), educational background ($X^2 \leq 62.403$; $DF \leq 3$; $P < 0.0001$) and occupation ($X^2 \leq 53.017$; $DF \leq 6$; $P < 0.0001$) of the respondents are the determinants of ORT usage. We therefore recommend that the health professionals should encourage mothers on preparation and usage of ORT.

Keywords: Diarrhea; Oral Rehydration Therapy; Under Five Mothers.

INTRODUCTION

Diarrhea disease is the passing of frequent, loose or watery stool and is the second leading cause of death among under 5 years old children in developing countries. Globally, diarrhea disease remains one of the leading causes of childhood mortality and morbidity. World Health Organization and UNICEF reported about 2 billion cases of diarrheal disease globally every year, and 1.9 million under 5 years of age dies every year from diarrhea. Most deaths associated with diarrhea diseases are results of dehydration that is preventable through the use of oral rehydration therapy (ORT). The youngest children are most vulnerable with the incidence of severe gastroenteritis being high in the first 2 years of life. More than 50% cases of childhood diarrhea occur in Africa and Asia as it is rated as the fourth leading cause of mortality among under five children in Nigeria. Averagely, in many developing countries, children under the age of three years experience three episodes of diarrhea yearly. Nigeria has the second largest incidence

of under-five mortality rate related with diarrhea in the world as about 2,300 under- five year olds death are reported on daily basis .

Frequent and/or prolonged diarrhea is linked to poor nutritional status, and also make the affected children susceptible to other infections and malnutrition . Furthermore, loss of intestinal fluid caused by gastroenteritis may lead to severe hypovolemia, shock, and death, particularly in children younger than five years of age in areas of the world with limited resources . Most death associated with diarrhea is due to dehydration, fluid loss and electrolyte imbalance. Interestingly, a simple management such as oral rehydration therapy (ORT) has proven to be effective in preventing diarrhea mortality. However, ORT is not adequately used globally as about 80% of children who could benefit from ORT and prevent 15% of deaths among under-five globally do not have access to it. Despite the decline in the total global mortalities in the last several decades, the morbidity related to the disease has not shown similar decline. Some of the reasons why ORT might not have achieved its full potential of preventing diarrhea include poor knowledge of mothers or caregivers on when and how to administer it. ORT is underutilized due to fear of inducing iatrogenic hypernatremia, questionable efficacy in moderate dehydration, and parental preference

ORT is inexpensive and can easily be administered at home by mothers or care givers at the onset of diarrhea to prevent mortality and morbidity associated with it as oral rehydration salt (ORS) or salt, sugar, solution (SSS). In this paper it shall be used interchangeably. Oral rehydration therapy is introduced in 1975 and it consists of combination of clean water, salt and sugar . ORS has been considered as inexpensive and can be easily administered at home by the mothers as soon as there is diarrhea. Its use has been widely advocated by World Health Organization (WHO). Several literatures have shown that death from diarrhea is easily

preventable by simple management such as ORT.

With high mortality rate (2,300 under-five death on daily basis) of the disease in Nigeria, only 26 percent of all cases of diarrhea are treated with ORT. (Charyeva et al., 2015; Ghasemi et al., 2013; Osonwa Kalu et al., 2016).

To the best of our knowledge, little literature exists on the determinants of knowledge and usage of ORT among the under-five mothers attending Massey Street Hospital in Lagos. For Nigeria to achieve the third Sustainable Development Goal by 2030 there is a need to implement strategies to reduce infant mortality rate. Also, ORT has been identified as means to prevent mortality and morbidity rate related to the disease. Hence this study sets out to examine the determinants of knowledge and usage of oral rehydration therapy (ORT) in the treatment of diarrhea among under-five mothers attending Massy street children hospital, Lagos.

OBJECTIVES

1. To determine the knowledge of oral rehydration therapy (ORT) in the treatment of diarrhea among under-five mothers attending Massy street children hospital, Lagos.
2. To identify the usage of oral rehydration therapy (ORT) in the treatment of diarrhea among under-five mothers attending Massy street children hospital, Lagos.

TEST OF HYPOTHESIS

1. There is no significance association on the knowledge of ORT and social demographic variables among on under-five mothers.
2. There is no significance association on the usability of ORT and demographic variables among on under-five mothers.

METHODOLOGY

Research Design: The study adopted a descriptive design.

Research Setting: Massey Street Children Hospital primarily cares for children. It is located at Lagos Island, Lagos the commercial capital of Nigeria. It is a 56 bedded neonatal centre runs by two state government hospitals.

Target Population: Under five-mothers attending the hospital. The hospital admits about 1500 children annually.

Sample Size Determination: Rule-of-thumb that states a minimum of 10% of target population is adequate for generalization in a descriptive study was applied to collect data from 150 respondents will be selected.

Sampling Technique: Simple random sampling technique was used to select 150 respondents from the target population.

Instruments: A self-designed, semi-structured interviewer-administered questionnaire. The questionnaire consists of two sections: the

social demographic section and the section that elicits information on knowledge and usage of ORT.

Validity: The questionnaire was well edited by expert on the field for face, construct and content validity.

Reliability: The questionnaire was suggested to pilot study using test retest to determine the reliability of the instrument. The reliability coefficient score was 0.85.

Data Analysis: The questionnaire are subjected to computer analysis using statistical package for social science (SPSS) version 25. Descriptive statistics like frequency mean, standard deviation and percentage were used while chi-square and multiple regressions are utilized to perform the inferential statistics. Statistically significant was determined at $p \leq 0.05$

Ethical Consideration: A letter of approval was collected from the hospital management and informed consent was obtained from the respondents.

RESULTS:

Table 1 shows that 50.7% of the respondents are between the age ranges of 20-30 years, 21.3% are within the ages of 31-40 years and 28% are within 41-50 years. Thus, the mean score of age is 15.5 ± 1.53 . The study further revealed that majorities of the respondents (68.7%) are married, while 18.7% are singles, 5.3% are widows and 7.3% are divorced. The study also observed that (45.3%) are Christians, 41.3% are Muslims, 16% are traditional worshippers while 7.3% belongs to

other religion. The study reported that 14.7% had no formal education, 28% had secondary education and 41.3% had tertiary education. Lastly, 33.3% are civil servant, 10% house wives, 45.3% self-employed and 11.3% unemployed.

The findings of this study therefore showed that majority of the respondents are within 20-30 years, majority are married, majority are Christians, majority had tertiary education and majority are self-employed.

Table 1: SOCIO -DEMOGRAPHIC DATA OF RESPONDENTS

AGE IN YEARS	Frequency (N≤150)	Percentage (100%)
20-30	76	50.7
31-40	32	21.3
41-50	42	28.0
Minimum – 20	Maximum- 55	Std. Deviation - 7.8
MARITAL STATUS		
Single	28	18.7
Married	103	68.7
Widowed	8	5.3
Divorced	11	7.3
RELIGION		
Islam	47	31.3
Christianity	68	45.3
Traditional	24	16.0
Others	11	7.3
EDUCATIONAL QUALIFICATION		
No formal education	22	14.7
Primary	24	16.0
Secondary	42	28.0
Tertiary	62	41.3
OCCUPATION		
Civil Servant	50	33.3
House Wife	15	10.0
Self-employed	68	45.3
Unemployed	17	11.3

Table 2 shows that all (100%) the respondents have heard about ORT through nurses (80.7%) and majority (90.7) reported that ORT is administered when a child passes watery stool. In term of frequency of ORT administration, more than half (58.7%) administered it as often as necessary. About half (46.7%) of the respondents prepares ORS with clean drinking water in the house while 66.0 % prepared it with 1 liter of water. Quite a number (62.0%) and (75.3%) of the respondents prepared ORT with one teaspoon of salt and 10 Teaspoon/5 Cubes of sugar respectively. Large proportion (92.7%) of the respondents reported that ORT can be prepared at home while 76.0% administered it with cup

& spoon or only cup. Majority (80.0%) of the respondents keep ORS for 24 hours

Ninety-four per cent (62.7%) of the respondents report that ORT is good for every child while 31.3% reported to stop the ORT when vomiting and diarrhea persist and even when baby face is puffy. Majority (80.0%) of the respondents seek for further management from hospital when diarrhea continues (25.3%). Only 39.3% of the respondents had good knowledge, 22.7% fair knowledge and 38.0% poor knowledge on ORT. This study concludes that the respondents were knowledgeable about oral rehydration therapy.

TABLE 2: RESPONDENTS KNOWLEDGE ON ORAL REHYDRATION THERAPY

Questions	Frequency (N≤150)	Percentage (100%)
Have you ever heard of Oral Rehydration therapy (ORT)/ORS/SSS		
Yes	150	100.0
Where did you hear about it first		
Nurses	121	80.7
Doctors	15	10.0
Other health workers	14	9.3
In what condition will you give ORS/ORT/SSS to your child		
When Child have fever	11	7.3
When child passes watery stool	136	90.7
No response	3	2.0
How many times do you give ORS per day		
Once	13	8.7
Five times	49	32.7
As often as necessary	88	58.7
What type of water do you use in preparing ORS		
Clean drinking water in the house	70	46.7
Sachet water	33	22.0
Bottled water	47	31.3
What is the quantity of water do you use		
1 Litre	99	66.0
1 Beer water	51	34.0
What is the quantity of salt		
1 Tea spoon	93	62.0
2 Teaspoon	46	30.7
3 Teaspoon	11	7.3

What is the Quantity of Sugar		
10 Tea spoon/5 Cubes	113	75.3
2 Tea spoon/2 Cubes	17	11.3
5 Tea spoon/5 Cubes	20	13.3
Can ORS be prepared at home		
Yes	139	92.7
No	11	7.3
How do you administer it		
By giving it with cup & spoon or only cup	114	76.0
By giving it with feeding bottle	36	24.0
For How long can you keep the solution		
48 Hours	12	8.0
72 Hours	9	6.0
24 Hours	120	80.0
12 Hours	9	6.0
ORS is good for every child		
Yes	94	62.7
No	56	37.3
When will you stop given ORS		
When the child refuse to take the fluid	14	9.3
When vomiting and diarrhoea persist	47	31.3
when baby face is puffy	47	31.3
When there is no sign of dehydration	42	28.0
Where do you seek for further management		
Hospital	120	80.0
Traditional healer	17	11.3
Pharmacy store	13	8.7
When do you seek for further management		
When the baby is weak	47	31.3
When baby refuses breastfeeding or not eating well	31	20.7
When diarrhoea continue	38	25.3
when there is blood in the stool	34	22.7

Table 3 shows that 77.3% gives ORS to their children. Reasons under-five mothers administers ORT are to treats diarrhea (28.0%), rehydrates babies (24.0%), told by nurses/health workers (10.0%) and 15.3% administers it to make their babies look healthy/ Strengthen my baby. Although, the

22.7% have not administered ORS to their babies because they prefer going to the hospital (6.0%), babies may not get better (6.0%), they don't know how to prepare it (6.0%) and they give their babies traditional medicine (4.7%). This study observes that the respondents utilize ORT (77.3%) to their children.

TABLE 3: RESPONDENTS USE OF ORAL REHYDRAT ION THERAPY

Questions	Frequency (N≤150)	Percentage (100%)
Do you give ORS to your child		
Yes	116	77.3
No	34	22.7
If yes, why?		
It treats diarrhea	42	28.0
It rehydrates the baby	36	24.0
I was told by nurses/health workers	15	10.0
make baby look healthy/ Strengthen my baby	23	15.3
Not applicable	34	22.7
If No, why?		
I prefer going to the hospital	9	6.0
Baby may not get better	9	6.0
I don't know how to prepare it	9	6.0
I prepare traditional medicine	7	4.7
Not applicable	116	77.3

Table 4 shows that there are significant association between respondents' socio demographic characteristics and knowledge. Age (X^2 Value ≤ 152.097 ; DF ≤ 4 ; $P < 0.0001$), religion (X^2 Value 93.554 ; DF ≤ 6 ; $P < 0.0001$), educational background (X^2 Value 159.322 ; DF ≤ 6 ; $P < 0.0001$) and occupation (X^2 Value 144.636 ; DF ≤ 6 ; $P < 0.0001$). Also, ORT usage

by under-five mother has significant association with age (X^2 Value ≤ 113.054 ; DF ≤ 2 ; $P < 0.0001$), religion (X^2 Value 72.173 ; DF ≤ 3 ; $P < 0.0001$), educational background (X^2 Value 62.403 ; DF ≤ 3 ; $P < 0.0001$) and occupation (X^2 Value 53.017 ; DF ≤ 6 ; $P < 0.0001$)

TABLE 4: RESPONDENTS KNOWLEDGE, USABILITY OF ORT AND SOCIAL DEMOGRAPHIC VARIABLES

Socio demographic variables	Knowledge		
	Poor %	Fair %	Good %
Age			
20-30	0.0	10.0	28.0
31-40	11.3	11.3	0.0
41-50	39.3	0.0	0.0
X^2 Value = 152.097; DF =4; P < 0.0001			
Religion			
Islam	0.0	8.0	23.3
Christianity	14.7	14.7	16.0
Traditional	16.0	0.0	0.0
Others	7.3	0.0	0.0
X^2 Value 93.554; DF =6; P < 0.0001			
Educational background			
No formal education	0.0	8.0	6.7
Primary	0.0	0.0	16.0
Secondary	0.0	11.3	16.7
Tertiary	38.0	3.3	0.0
X^2 Value 159.322; DF =6; P < 0.0001			
Occupation			
Civil servant	0.0	8.0	33.3
House wife	0.0	0.0	10.0
Trader/Artisan	38.0	7.3	45.3
Unemployed	0.0	7.3	11.3
X^2 Value 144.636; DF =6; P < 0.0001			
Socio demographic variables	Usability		
	Used %	Not used %	-
Age			
20-30	50.7	0.0	-
31-40	21.3	0.0	-
41-50	5.3	22.7	-
X^2 Value = 113.054; DF =2; P < 0.0001			
Religion			-

Islam	31.3	0.0	-
Christianity	39.3	6.0	-
Others	0.0	7.3	-
X² Value 72.173; DF =3; P < 0.00 01			
Educational background			
No formal education	14.7	0.0	-
Primary	16.0	0.0	-
Secondary	28.0	0.0	-
Tertiary	18.7	22.7	-
X² Value 62.403; DF =3; P < 0.0001			
Occupation			
Civil servant	23.3	10.0	-
House wife	10.0	0.0	-
Trader/Artisan	32.7	12.6	-
Unemployed	11.3	0.0	-
X² Value 53.017; DF =6; P < 0.0001			

DISCUSSION

Our study examines the knowledge and usage of oral rehydration therapy (ORT) in the treatment of diarrhea among under-five mothers attending Massey Street Children Hospital, Lagos. The socio-demographic characteristics of this study showed that majority of the respondents were within 20-30 years, majority were married, majority were christians, majority had tertiary education and majority were self-employed.

This study revealed that respondents were knowledgeable about oral rehydration therapy. This is in line with the study of Osonwa, Eko and Ema (2016) who reported that about 96% mothers in Cross River State, Nigeria are knowledgeable about ORT in the management of diarrhea. The report of this study is contrary to the study of Masiha, Khalid, Malik, & Shah (2015) conducted in Pakistani where many of the test items on knowledge especially on preparation of ORS were not rightly responded to by the respondents, hence their level of knowledge on ORT was low and only 39.3% had good knowledge on ORT. The report of this study is

not also similar to studies conducted among mothers in Ibadan, Nigeria by Agbolade, Dipeolu & Ajuwon (2015), where only 27% had good knowledge.

Our study observed that the level of utilization of ORT is high. This is supported by the study of Osonwa et al., (2016) who observed that 77.3% of respondents administered ORT to their children in Cross River State, Nigeria. Our findings have demonstrated that it is not in line with the study of Charyeva, Cannon, Oguntunde, Garba, Sambisa, Bassi & Lawal (2015) where only 26.0% of respondents reported treating childhood diarrhoea cases are with ORT in Nigeria and also a study conducted by Gao, Yan, Wang, & Dang (2013) on ORT in rural western China who reported that only 34.6% of under five children with diarrhea were treated with ORT.

This study observed that there is significant association between respondents' socio demographic characteristics and knowledge. Our study also reports that there is a significant association between respondents' socio demographic characteristics and usage.

Our study also reported that age, religion, education and occupation are determinants of both knowledge and usage of ORT among under-five mothers in Massey Children Hospital, Lagos. Our Study is similar to the study conducted in Northwest Ethiopia by Amare et al., (2014) who reveals similar results as the determinant of knowledge and practice of ORT among mothers.

CONCLUSION

There is an urgent need for concerted and intensified health education of under-five mothers regards ORT. Both knowledge and usage of ORT have increased over the years but much still need to be done to reduce the prevalence rate of mortality and morbidity associated with diarrhea. There is a need to improve in the awareness program on the correct preparation and usage of ORT by all the health professionals in the hospital. Health education on diarrhea and its management should be delivered in a manner acceptable to all categories of mothers considering their socio-cultural and economic characteristics. Health education can be done in a way that capture new mothers, this can be conducted routinely during immunization clinic

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