

FACTORS INFLUENCING THE USE OF ORAL REHYDRATION THERAPY(ORT) BY MOTHERS IN THE MANAGEMENT OF DIARRHEA IN CHILDREN IN UNIVERSITY OF CALABAR TEACHING HOSPITAL, CALABAR

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ABSTRACT

The main purpose of this study was to determine the factors influencing the use of ORT by mothers in the management of diarrhea in children in University Teaching Hospital, Calabar. Two hypotheses were raised to guide the study and survey research design was adopted. A sample of 80 respondents were selected through the convenience sampling technique. The questionnaire was the main instrument used for data collection. The reliability estimate of the instrument was established through the test-retest reliability method. Contingency chi-square (χ^2) analysis was employed to test the hypotheses under study, at .05 level of significance. The result of the study revealed that education level and appropriate information dissemination significantly relate with the use of ORT by mother in the management of diarrhea. Based on the findings, it was recommended that training of health workers be intensified, more enlightenment campaigns to educate parents on the importance, preparation and use and of ORT should be carried out by government and NGOs.

Introduction

Diarrhea is a deadly disease that claims lives especially of children all over the world. It is widely recognized as a major cause of childhood morbidity and mortality in many developing countries, especially in sub-Saharan African (World Health Organization, 2005).

About 1.7 to 5 billion cases of diarrhea occur per year, most common in developing countries where young children get diarrhea on an average of three times per year (WHO, 2013). To protect children from this life threatening and nutritionally damaging condition, parents/mothers must know the essentials of preventing dehydration from diarrhea and how to prepare oral rehydration salt (ORS).

Oral rehydration therapy is one type of fluid replacement for the symptom of dehydration. It is a therapy, using a simple, inexpensive glucose and electrolyte solution as promoted by WHO. ORT is the giving of fluid by mouth to prevent/or correct the dehydration as a result of diarrhea. It is reported that the use of ORT has reduced substantially the

number of deaths due to diarrhea by about a million per year (<http://rehydrate.org/index.html>, 2014). ORT has advantages over conventional therapy such as: it is less invasive than other strategies for fluid replacement, brings about reduction of deaths, prevent malnutrition, decrease hospital admission as well as prevention of pains from punctured veins. In spite of its efficiency, ORT has not been used effectively and extensively by mothers in the developing countries.

Thus, the interest of this research is to investigate the factors influencing the use of oral rehydration therapy by mothers and treatment of diarrhea in children in University of Calabar Teaching Hospital, Calabar.

Statement of problem

ORT discovery represents a major advancement in global public health. Report from UNICEF (2007) indicated that between 1980 to 2006, the introduction of ORT resulted in decreased number of deaths worldwide from 5 to 3 million per year. In a recent scientific symposium held among a group of national and international experts to discuss the current status of ORT use in the United States, it was noted that there were many unnecessary medical visits and hospitalizations as a result of under use of ORT. Between 2006 to 2011, UNICEF also included ORT as one of the principle elements of UNICEF "GOBIFFF" Program, aimed at increasing child survival in developing nations (UNICEF, 2012).

This development caused many hospitals/health centres including University of Calabar Teaching Hospital Calabar to establish diarrhea treatment and training unit (DTTU) to train health workers who in turn educate the mothers on the importance of ORS, how to prepare and administer oral rehydration solution either as pre-packed commercial preparations or homemade solution consisting of a mixture of half a teaspoon of salt and six teaspoons of sugar added to one liter of clean water (WHO, 2005, 2014).

Mothers attending ante-natal clinics, child welfare and different health clinics are taught the types, uses and importance of all this important tool plus basic hygiene with

regards to diarrhea and its attendant consequence. Although ORT has been shown to decrease the severity of acute diarrhea episodes and sharply reduce the number of subsequent deaths, the researcher still notice that a large number of children are still being afflicted with diarrhea that impact negatively on their growth and development.

From the above observation, the question that comes to mind is what then are the factors influencing the use of ORT by mothers in the management of diarrhea in children in University of Calabar Teaching Hospital, Calabar?

Purpose of the study

The main purpose of this study is to determine the factors influencing the use of ORT by mothers in the management of diarrhea in children in University Teaching Hospital, Calabar.

1. Determine the educational status of mothers influencing the use of ORT in the management of diarrhea.
2. Determine the appropriateness of information dissemination about the use of ORT by mothers.
3. Determine the frequency of usage of ORT by mothers in the management of diarrhea in children.

Research questions

1. Does educational level of mothers influence the use of ORT in diarrhea management in children?
2. Does appropriate information dissemination influence the use of ORT by mothers?
3. How often do mothers use ORT in the management of diarrhea?

Hypotheses

1. There is no significant relationship between educational level and the use of ORT among mothers in the management of diarrhea in children.
2. There is no significant relationship between appropriate information dissemination and the use of ORT by mothers in the management of diarrhea.

Scope of the study

The study was restricted to mothers in the children emergency, children's ward, pediatrics, out-patient department, DTTU, and immunization center of U. C. T. H Calabar.

Significant of the study

The study will be relevant to the health care providers, mothers and the hospital management in the following ways.

1. Inputs from the study will assist the health care workers identify their shortcomings in the area of

appropriate dissemination of information and teaching of mothers on the effective use of ORT for the treatment and prevention of dehydration.

2. The study will add to the knowledge of mothers to change their health behaviour positively especially as it relates to child bearing practices and health care and increase their compliance level.

3. The study will provide information for the hospital management to instate training opportunities more often for practitioners at all levels about the proper use of ORT. This will ensure hospital efficiency and quality health care delivery.

Limitation of the study

Some respondents were not honest in responding appropriately to items in the instrument.

Definition of terms

Diarrhea: This is the passage of watery stool more than three times in 24hrs.

ORAL Rehydration Therapy (ORT): Is the administration of sugar and salt dissolved in water to replace water and mineral salt loss in diarrhea stool. It can be in the form of oral rehydration solution (ORS) or salt sugar solution (SSS).

DTTU: Diarrhoea Treatment and Training Unit.

GOBIFFF: Growth monitoring, ORT, breast feeding, immunization, female education, family spacing and food supplementation.

LITERATURE REVIEW

What is oral rehydration therapy (ORT)

Wikipedia, the free encyclopedia (2014) described ORT or ORS or oral electrolyte as a simple cheap and effective treatment for diarrhea related dehydration. It involves drinking water with small amount of sugar and salt and other substances such as glucose, sucrose citrates or molasses. It is used around the world but is most important in the third world where it saves millions of children from diarrhea.

Medical uses/effectiveness

- i) ORT is cheap and considered to be the best method for combating dehydration caused by diarrhea and/or vomiting than other strategies for fluid replacement.
- ii) Mild to moderate dehydration in children seen in an emergency department is best treated with ORT instead of intravenous replacement of fluid.
- iii) Kumer (2012), observed that effective use of ORT has saved millions of lives around the world, indicating substantive progress towards the millennium development goal of reducing child morbidity and mortality from diarrhea

diseases by 2015.

iv) ORT is easily accessible to all families. Today the total production is around 500 million ORS sachets per year. With UNICEF distributing them to children in around to developing countries (WHO, 2005). It is potentially the most important medical discovery of the 20th century.

Physiological basis

A healthy individual secret 20-30 grams of sodium per day in to the intestinal lumen. Nearly all of this is absorbed so that sodium levels in the body remain constant. In a diarrhea illness, sodium-rich intestinal secretions are lost before they can be reabsorbed. This can lead to a life threatening hyponatraemia within hours. This is the motivation for sodium and water replenishment in ORT (Paediatrics and Child Health, Canadian Paediatric Society, Nutrition Committee, 2009).

The Co-transport of glucose into the epithelial cells via the SGLTI protein requires sodium. Two sodium ions and molecule of glucose (as galactose) are transported together across the cell membrane via the SGLTI protein. Without sodium, intestinal glucose is not absorbed. This is why oral rehydration salts (ORS) include both sodium and glucose. For each cycle of transport, hundreds of water molecules move into the epithelial cells slowly rehydrating the patient.

WHO recommends ORT as a standard treatment worldwide for children under 5 who suffer from diarrhea. A basic oral rehydration therapy solution is composed of salt, sugar and water in solution made using a standard ratio. Very importantly, the solution should not be hyperosmolar. An inexpensive homemade solution consists of 6 teaspoon sugar: 1/2 teaspoon salt: 1 liter water, (WHO, 2014).

Management

In many cases of diarrhea, replacing lost fluid and salts is the only treatment needed. This is usually by mouth- oral rehydration therapy. It is the first line of therapy for all children with mild to moderate dehydration, based on an assessment of the degree of dehydration present. In case of severe dehydration, prompt intravenous therapy is indicated with rapid infusion of saline plasma sufficient to replete blood volume.

Empirical Review

Yilgwan and Okolo (2012) in their study in JOS UTH noted that prevalence of diarrhea varies according to educational level of mothers, being significantly lower among children of more educated mothers than among children of mothers with no education. EL-Gilary and Hammed (2005) noted that education helps in enlightening mothers and changing their health care seeking behaviour and practices. This knowledge is said to affect their behaviour especially as it relates to child rearing practices and health care. Education provides the knowledge of the rules of hygiene, feeding and weaning practices and interpretation of symptoms which

enhances timely action on childhood illness.

Information dissemination on the use of ORT by mothers are all over the world especially in developing countries. They have been taught the types, use and importance of ORT as an important tool in the prevention of dehydration resulting from diarrhea. Health education talks are given at ante-natal clinics, different health clinics, child welfare clinics. The print and electronic media are other ways of giving health education on basic hygiene, household sanitation and adequate appropriate feeds are emphasized (Ekanem, Akitoye and Adedeji, 2005).

In the different diarrhea training units in hospitals, mothers are taught how to prepare ORS and administer at an early stage of onset of diarrhea. All these are meant to empower the mothers with skills for home management of diarrhea and thus, reduce the number of children necessitating hospitalization.

Udo (2012) in his study on the use of ORT among mothers in the Eastern zone of Nigeria, discovered that the use of ORT among mothers in the zone was low especially in the rural areas because they were ignorant of this therapy and most of these mothers were of low educational background. Majority complained it was time wasting, it takes very longtime before the child recovers and if one is not lucky, the child may even die because of delay for the diarrhea to stop. Drugs like Flaggy and septrin works faster. Mothers preferred intravenous infusion.

For the frequency of administration of ORS, WHO (2005) stated that oral rehydration can be accomplished by drinking frequent small amounts of an ORS. The principles of early adequate rehydration therapy, replacement on-going fluid losses from vomiting and diarrhea, and frequent feeding with appropriate food or formula as soon as dehydration is corrected saves million of lives.

RESEARCH METHOD

A descriptive survey method was adopted to determine factors influencing the use of ORT by mothers in the treatment of diarrhea in children. The study setting was University of Calabar Teaching Hospital (UCTH) where mothers were admitted with their babies with symptoms of diarrhea in the Diarrhea Treatment and Training, Unit (DTTU) of the hospital. A convenience sampling was adopted since this was a special group with an exposure to a health problem that occurs frequently. 80 mothers whose child/children had diarrhea and were admitted in the hospital were involved. The instrument for data collection was structured, developed by the researcher. The questionnaire was made anonymous to retain the correspondent's confidentiality. Reliability of the Instrument was determined through a test retest technique. Data collected were analysed using inferential statistical tools as frequency tables, percentages and chi-square (χ^2) at

ANALYSIS AND RESULTS

TABLE 1: Respondents' demographic profile (N=80)

| Variables | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| Age | | |
| 18-23 | 24 | 30 |
| 24-30 | 35 | 43.75 |
| 31-36 | 16 | 20 |
| 37 and above | 5 | 6.25 |
| Total | 80 | 100 |
| Marital Status | | |
| Single | 15 | 18.75 |
| Married | 65 | 81.25 |
| Total | 80 | 100 |
| Occupation | | |
| Civil servants | 34 | 42.5 |
| Traders | 14 | 17.5 |
| Business women | 14 | 17.5 |
| House wives | 18 | 22.5 |
| Total | 80 | 100 |
| Religion | | |
| Christians | 76 | 95 |
| Muslim | 4 | 5 |
| Total | 80 | 100 |
| Education | | |
| Primary | 25 | 31.25 |
| Secondary | 35 | 43.75 |
| Tertiary | 12 | 15 |
| None education | 8 | 10 |
| Total | 80 | 100 |

Table 1 showed respondents demography. Highest number 35 (43.75%) were between 24-30; 65 (81.25%) were married; 34 (42.5%) were civil servants; 76 (95%) were Christians; 35 (43.75%) finished secondary school while 4 (5%) were Muslims.

TABLE 2: Influence of education of mothers on use of ORT

| Variables | YES | NO | N=80 |
|------------------------------|-------------------|-------------------|-----------|
| I have heard of ORT | 80 (100%) | 0 = | 80 |
| Conversant with ORT usage | 20 (25%) | 60 (75%) | 80 |
| Prepare ORS correctly | 10 (12.5%) | 70 (87.5%) | 80 |
| Can administer ORS correctly | 10 (12.5%) | 70 (87.5%) | 80 |
| Have no need for ORS | 30 (37.5%) | 50 (62.5%) | 80 |
| Average | 30 (37.5%) | 50 (62.5%) | 80 |

Table 2 revealed that on the average, 30 (37.5%) of mothers had good knowledge on the use of ORT, while 50 (62.5%) had poor knowledge.

TABLE 3: Appropriateness of information on use of ORT

| Variables | Respondents | | | | | |
|--|-------------|--------------|-----------|--------------|------------|-------------|
| | A | % | D | % | Don't know | % |
| Told about requirements and correct preparations of ORS. | 50 | 62.5 | 22 | 27.5 | 8 | 10 |
| ORS sustains child through rehydration. | 45 | 56.25 | 15 | 18.75 | 20 | 25 |
| Diarrhea stops immediately after administration of ORT | 70 | 87.5 | 8 | 10 | 2 | 2.5 |
| Give food alongside ORT | 30 | 37.5 | 40 | 50 | 10 | 12.5 |
| Helps recovery of normal intestinal function | 10 | 12.5 | 60 | 75 | 10 | 12.5 |
| Average | 41 | 51.25 | 29 | 36.25 | 10 | 12.5 |

Table 3 revealed that high percentage of mothers 37%, 90% and 75% respectively.

TABLE 4: Frequency of administration of ORT

| Variables | YES | % | NO | % | N = 80 |
|---|-----------|------------|-----------|------------|--------|
| Prepare and give ORS as soon as diarrhea | 15 | 18.75% | 65 | 81.25% | |
| Give small amounts at a time, slow and at continuous pace | 20 | 25% | 60 | 75% | |
| Do not stop feeding child | 10 | 12.5% | 70 | 87.5% | |
| Continue on maintenance dose after diarrhea stops | 35 | 43.75% | 45 | 56.25% | |
| Average | 20 | 25% | 60 | 75% | |

Table 4 showed that more numbers of mothers 65 (81.25%) did not know when to commence ORT. 70 (87.5%) stop feeds during diarrhea and 45 (56.25%) said no to continuation of maintenance dose of ORS.

HYPOTHESIS TESTING

Hypothesis one:

There is no significant relationship between educational level and the use of ORT among mother in the treatment of diarrhea in children.

TABLE 5: Contingency chi-square (χ^2) of the influence of education level and the use of ORT among mother in the treatment of diarrhea in children

| Educational level | Use of ORT by mother | | TOTAL | Cal χ^2 |
|-------------------|----------------------|------------|-------|--------------|
| | Yes | No | | |
| Primary | 20 (15.63) | 5 (9.37) | 25 | 13.9* |
| Secondary | 15 (21.87) | 20 (13.13) | 35 | |
| Tertiary | 7 (7.5) | 5 (4.5) | 12 | |
| No education | 8 (5) | 0 (3) | 8 | |
| Total | 50 | 30 | 80 | |

*significant at .05 level, critical

| O | E | O-E | (O-E) ² | (O-E) ² /E |
|----|-------|-------|--------------------|-----------------------|
| 20 | 15.63 | 4.37 | 19.09 | 1.22 |
| 5 | 9.37 | -4.37 | 19.09 | 2.04 |
| 15 | 21.87 | -6.87 | 47.20 | 2.16 |
| 20 | 13.13 | 6.87 | 47.20 | 3.59 |
| 5 | 7.5 | -0.5 | 0.05 | 0.03 |
| 5 | 4.5 | 0.5 | 0.25 | 0.06 |
| 8 | 5 | 3 | 9 | 1.8 |
| 0 | 3 | -3 | 9 | 3 |

$\chi^2=13.9$

The result of analysis as presented in Table 6 revealed that the calculate χ^2 value of 13.9 is higher than the critical χ^2 value of 7.81 at .05 level of significance with 3 degree of freedom. With this result the null hypothesis is rejected. This therefore implies that there is a significant relationship between educational level of mothers and the use of ORT in the management of diarrhea in children.

Hypothesis two

There is no significant relationship between appropriate information dissemination and the use of ORT by mother in the treatment of diarrhea.

TABLE 6: Chi-square (χ^2) of relationship between appropriate information dissemination and the use of ORT by mother in the treatment of diarrhea (N=80)

| Appropriate information | Use of ORT by mother | | Partly know | TOTAL | Cal χ^2 |
|-------------------------|----------------------|------------|-------------|-------|--------------|
| | Yes | No | | | |
| Appropriate | 35(30.75) | 15 (21.75) | 10 (7.5) | 60 | 14.05* |
| None appropriate | 6 (10.25) | 14 (7.25) | 0 (2.5) | 20 | |
| Total | 41 | 29 | 10 | 80 | |

*significant at .05 level, critical

| O | E | O-E | (O-E) ² | (O-E) ² /E |
|----|-------|-------|--------------------|-----------------------|
| 35 | 30.75 | 4.25 | 18.06 | 0.59 |
| 6 | 10.25 | -4.25 | 18.06 | 1.76 |
| 15 | 21.75 | -6.75 | 45.56 | 2.09 |
| 14 | 7.25 | 6.75 | 45.56 | 6.28 |
| 10 | 7.5 | 2.5 | 6.25 | 0.83 |
| 0 | 2.5 | -2.5 | 6.25 | 2.5 |

$\chi^2=14.05$

The result of analysis as presented in Table 7 revealed that the calculate χ^2 value of 14.05 is greater than the critical χ^2 value of 5.99 at .05 level of significance with 2 degree of freedom. With this result the null hypothesis was rejected. This therefore implies that there is a significant relationship between appropriate information dissemination and the use of ORT by mother in the management of diarrhea.

DISCUSSION OF FINDINGS

The result of the study revealed that education level and appropriate information dissemination significantly relate with the use of ORT by mother in the treatment of diarrhea. The findings is in line with view of EL-Gilary and Hammed (2005) who noted that, education helps in enlightening mothers and changing their health care seeking behaviour and practices. This knowledge is said to affect their behaviour especially as it relates to child rearing practices and health care. Education provides the knowledge of the rules of hygiene, feeding and wearing practices and interpretation of symptoms which enhances timely action on childhood illness.

Results on appropriate information dissemination on use of ORT by mothers were not well explained especially on the fact that ORS does not stop diarrhea immediately, thus the mothers focus their expectations more on drugs and

injections and exhibit negative attitude. This agrees with Ekanem et al (2005) that appropriate information given is very essential to enable mothers practice ORS effectively when their children have diarrhea.

RECOMMENDATIONS

Based on the findings of the study, it was recommended that training of health workers be intensified, more enlightenment campaigns in print and electronic media by government and NGOs to educate parents on the importance, preparation and proper use of ORT. Ensure availability of ORT in hospitals at all times.

CONCLUSION

Diarrhea disease is a major cause of morbidity and mortality in children especially in developing countries like Nigeria. The main purpose of this study was to determine the factors influencing the use of ORT by mothers in the management of diarrhea in children in University of Calabar Teaching Hospital, Calabar. The result of the study revealed that education level and appropriate information dissemination significantly relate with the use of ORT by mother in the management of diarrhea.

Based on the findings of the study it was recommended that training of health personnel and more enlightenment campaigns in print and electronic media to educate parents on the importance, preparation and proper use of ORT should be carried out by government and NGOs.

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