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Caregivers' Knowledge and Attitude about Using ORS in the Management of Diarrhea among Under-Five Years Aged Children in Gomma Sub County Mukono District Central Uganda

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ABSTRACT

The use of ORS in treating childhood diarrhoea reduces its severity, duration and recurrence. Therefore, WHO and UNICEF recommend the use of 10-14 days, treatment regimens for under five-year-old diarrhoea cases The Ugandan Ministry of Health adopted the same regimen that is now part of the Uganda Clinical guidelines. This study determined caregiver's knowledge and attitude towards use of Oral Rehydration Therapy in the management of childhood diarrhoea in Gomma sub county Mukono district, Central Uganda. This was a descriptive cross-sectional study among caregivers of underfive year children. Structured questionnaires were administered to consenting respondents with ORS use as the main dependent variable. Analysis of the data was done using Microsoft excel program and presented in percentage frequency distribution tables. Out of the 200 participants, majority 192(96% were females, 122(61%) were aged 25 – 49 years, 88(44%) had attained secondary education, about one half, 102(51%) were peasant farmers while 128(64%) were married. According to the study, only 48.0% of caregivers had good knowledge and majority (71.0%) had a favorable attitude towards use of ORS. An overwhelming majority 180(90.0%) had reportedly ever heard about ORS. When asked about the contents of ORS, only two thirds, and 130(65.0%) mentioned all the components of ORS while about a quarter, 34(17.0%) did not know them. About the use of ORS, 130(65.0 %) mentioned treatment or prevention of diarrhea with only 30(15.0%) mentioning treatment/ prevention of dehydration. The majority, 124(62.0 %) knew the correct amount of water used to mix one sachet of ORS while slightly less than one half, 80(40.0 %) knew the correct length of time that prepared Oral Rehydration Solution should be kept. The majority 167(83.5%) agreed that ORS is very important in the treatment of diarrhea, with 123(61.5%) agreeing that all under five-year-old children with diarrhea must receive ORS as part of treatment for diarrhea while 106(53%) were of the view that even if ORS is not given in health facilities, they ought to have to try and buy it to treat childhood diarrhea. The knowledge about ORS among participants was below average. Almost three-quarters of the participants had a favourable attitude towards the use of ORS. There is a need to strengthen caregivers' awareness of the use of ORS among children under five years.

Keywords: Childhood diarrhoea, Oral Rehydration Therapy, Caregivers, Under five-year-old children, Health facilities.

INTRODUCTION

World Health Organization (WHO) reports that about 2.4 billion diarrhoea cases occur among children under five-year-old children annually. The end result of most of these diarrhoea cases, most of which occur in Africa is death or other severe outcomes. Most of these deaths are due to dehydration [1]. Dehydration causes a decrease in total body water (TBW) in both the intracellular and extracellular fluid volumes. Volume depletion closely correlates

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with the signs and symptoms of dehydration and the younger the child the more the effects of dehydration in case of body water loss by any means [2]. In dehydration, the body cells are deprived of an adequate amount of water for normal functioning [3]. Dehydration usually as a result of diarrheal diseases is a major cause of malnutrition, delayed physical development, and early childhood mortality in developing countries and poor communities, and one of the major causes of death in under five-year-old children [4]. To prevent dehydration from occurring or worsening it is important that children get good management at home using either homemade sugar salt water or ORT. The caregivers who are well informed on home remedies and or ORT should commence it immediately even before they seek any medical advice once their children start losing fluids from any cause. The "early home remedies" and ORT given in time prevent dehydration and nutritional problems from occurring. This can be done by continuous feeding as well also giving extra fluids. By performing these practices, dehydration can be prevented and this results in a reduction in the adverse effects of diarrhoea on the nutritional status of the young one [5]. Since the early 1980's the introduction of Oral Rehydration Therapy (ORS) has led to a significant decrease in mortality due to diarrhoea [6]. In view of this scientific discovery, in May 2004, WHO and United Nations Children's Fund (UNICEF) released a joint statement recommending a switch to a new lower osmolarity formulation for ORS. In 2007 the Government of Uganda adopted World Health Organization/UNICEF recommendations for the clinical management of acute diarrhoea to include both oral rehydration salt (ORS) as part of its national treatment policy and is now part of the Uganda clinical guidelines [7]. Despite improved treatment protocols, diarrhoea continues to be a major cause of childhood morbidity and mortality in Uganda and Mukono district in particular. The 2016 Uganda Demographic and Health Surveys reported underutilization of ORS in treating under-five-year-old children with diarrhoea as up to 20% of under-five year children presenting g with diarrhoea did not receive ORT therapy. The situation is worse in Mukono district where up to 25 % of children under-five years with diarrhea do not receive ORS (Mukono District Annual work plan 2018/19). No study has been done in the Mukono district to explain why there is low use of ORS in managing under five diarrhoea cases. This study was therefore meant to find out factors that hinder the use of ORS in treating under five diarrhoea cases. Knowing these factors will help to improve diarrhoea case management in Mukono district, thereby reducing infant and under-five morbidity and mortality. This study therefore aimed at assessing the knowledge and attitude of caregivers on the use of ORS in the management of under-five childhood diarrhoea.

Statement of Problem

Worldwide, 1.87 million children die from dehydration, particularly in the countries of Asia, Africa and Latin America [8]. Hypernatraemic dehydration as a complication of diarrhoeal disease contributes to the morbidity and mortality of affected patients, with a prevalence of 6.4% and 13.75%, respectively in developing countries [9]. In 2017, dehydration-related diarrhoeal deaths in Uganda reached 6.41% of total deaths, making the country to be ranked 27th worldwide [10]. There has been a worrying trend in children not using ORS for diarrhoea management in Uganda because declining slightly from 19% in 2000-01 to 16% in 2006 and 14% in 2011, the proportion of children with diarrhoea who received no treatment increased to again reach 19% in 2016 [11]. The situation is not very different in Mukono district where up to 25% of under-five year aged children with diarrhoea did not use ORS (Mukono District Annual Work Plan 2018/19). This study, therefore, intended to study the knowledge and attitude of caregivers towards using ORS in the management and prevention of dehydration,

Purpose of the study

To assess the knowledge and attitude of caregivers towards using ORS in the management and prevention of dehydration among children under-five children in Gomma Sub-county Mukono district.
ORS use for the treatment of diarrhoea among children under five years.

Specific Aim

To determine the caregiver's knowledge and attitude towards Objectives

- To assess the knowledge of caregivers regarding the management and prevention of dehydration using ORS among under-five-year-old children in Gomma Sub-county Mukono district.
- To determine the attitude of caregivers towards the use of ORS in management and prevention among under-five-year-old children in the Gomma Sub-county Mukono district.

Research Questions

i. What is the level of knowledge of caregivers regarding the management and prevention of dehydration using ORS among under-five-year-old children in the Gomma Sub-county Mukono district?

ii. What is the attitude of caregivers towards using ORS in the management and prevention of dehydration among under-five-year-old children in the Gomma Sub-county Mukono district?

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METHODOLOGY

Study design

This was a cross-sectional study design conducted in October 2022. The study examined caregivers of under-five-year-old children on the knowledge and attitudes towards the use of ORS in the management and prevention of dehydration in under five year aged children [12]. The study design was selected because it aids in rapid data collection and analysis

Area of Study

The study was carried out in the Gomma Sub-county Mukono district. The study area is located approximately 17 Km East of Kampala, Uganda's capital city.

Study population

The target population consisted of caregivers with under-five-year-old children. Children below five years are very vulnerable and care given to them by caregivers affects their health. Therefore, caregivers of under-five year aged children were chosen because their knowledge, attitudes and practices on dehydration affect the care they give their children with dehydration which in turn affects their health.

Sample size determination

The minimum number of study subjects **(n)** was estimated by using a sample size formula by Kish and Leslie (1965) for cross-sectional studies where **(n)** is calculated by the formula

$$= \frac{z\alpha^2 p(1-p)}{\delta^2}$$

p = 20% [11].

$Z\alpha$ = Standard normal deviation at 95% confidence interval corresponding to 1.96;

δ = Margin of error *of* 5% or 0.05;

n = estimated sample size for a population greater than 10,000

$$\mathbf{n} = \frac{1.96^2 \times 0.8 \times 0.2}{0.05 \times 0.05}$$

n= 246

But since the target population is less than 10,000, we calculate again using

nf = n / (1+n/N) where

nf=sample size to be used for the population N that is less than 10000

N=target population (1086) the estimated number of households in the Gomma sub-county, Mukono district (Mukono District Statistical Report (2020)

nf= 246/ (1+246/1060) = 200 respondents.

Therefore, the study targeted 200 caregivers.

Sampling procedure

The sub-county was purposely selected due to the reportedly high prevalence of under-five children presenting with diarrhoea at the nearby health facility from the same village. From the chosen sub-county 2 parishes were selected by simple random and from each parish 5 villages were also selected by simple random sampling. From each village, a list of households was got from the chairperson LCI used to obtain the 20 households that were involved in the study using a table of random numbers. From the households selected, only one member per household, preferably the mother of the child was enrolled to participate in the study. In situations where the mother was not available or unwilling to take part, any other adult present was included. Preference for inclusion in the study was given to the older family members such as the spouse of the household head or oldest child. This was considered since the health-seeking behaviour of older members of a family is more likely to influence that of other members because of their authority and experience.

Inclusion Criteria

- Being a permanent resident of Gomma sub-county, Mukono district
- Being adults of sound mind and able to answer questions in the questionnaire.
- Having a child under five years of age

Exclusion Criteria

- Visitors, non-permanent residents,
- Young children and adults with mental disorders

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- Adults without under-five year aged children

Definition of variables

For this study, the following variables were considered;
The dependent variable was the use of ORS in the management and prevention of dehydration among under-five-year-old children.

Independent Variables

- Caregivers' sociodemographic characteristics including age gender, education monthly income
- Knowledge about the signs symptoms and management of dehydration
- Attitude towards management of dehydration

Data collection tool

A structured interviewer-administered questionnaire was used to collect data for the study. The questionnaire had different parts including (Sociodemographic characteristics, Knowledge, and attitude towards the use of ORS in managing childhood diarrhoea). The questionnaire was pre-tested on 20 adult residents of Ishaka Bushenyi Municipality to check its validity and the necessary adjustments were made following the pre-test.

Data Management and Analysis

The filled questionnaires were serialized to avoid double entry and were checked at the end of each day to ensure completeness and no additional information is added to the questionnaire after data collection. The questionnaires were kept under lock and key after analysis of data for future reference. Data were analyzed using the Microsoft Excel program and presented in percentage frequency distribution tables, pie charts and bar graphs.

Ethical considerations

Prior to data collection ethical clearance was obtained from the dean faculty of clinical medicine and dentistry KIU-Western Campus who gave the researcher an introductory letter, the basis of which the researcher was allowed to conduct the study. Participants were informed about the purpose of the study and their full right not to be interviewed at all or at any time while the interview is going on. Informed written consent from every participant was obtained before conducting the interview. The address and names of the respondents were not included for the sake of confidentiality. The participants' privacy was ensured by interviewing the respondents in privacy. The participants were assured that there were no rewards/incentives for participating in the study or harm for not participating or refusing to participate in the study.

RESULTS

Socio–Demographic characteristics of caregivers.

Table 1: Socio-demographic characteristics of caregivers (N=200)

Characteristic	Alternative (s)	n(%)
Gender	Male	8(4)
	Female	192(96)
Highest education level	No education	16(8)
	Primary	54(27)
	Secondary	88(44)
	Tertiary	42(21)
Occupation	Peasant farmer	102(51)
	Petty trader	52(26)
	Salaried / formally employed	46(23)
Occupation of spouse	Peasant farmer	82(41)

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	Petty trader	61(30.5)
	Salaried / formally employed	57(28.5)
Marital status	Married	128(64)
	Single	32(16)
	Divorced /separated	29(14.5)
	widowed	11(5.5)
Average monthly income	< 50,000	28(19)
	50,000 – 250,000	108(54)
	250,000 – 500,000	44(22)
	>500,000	20(10)
Residence	Rural	148(74)
	Urban	52(26)
Age	15 – 19	15(7.5)
	20 -24	43(21.5)
	25 – 49	122(61)
	>50	20(10)
Religion	Catholic	94(47)
	Protestant	75(37.5)
	Moslem	7(3.5)
	Pentecostal	24(12)

The majority of the caregivers, 192(96% were females, 122(61%) were aged 25 – 49 years, 88(44%) had attained secondary education, about one half, 102(51%) were peasant farmers while 128(64%) were married. Regarding their average monthly income, the majority, 108(54%) were earning 50,000 – 250,000. The details of the caregiver's socio-demographic characteristics are as shown in the table above.

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Knowledge about Oral Rehydration Salt

Table 2: knowledge about oral Rehydration salt (N= 200)

Variable	Response(s)	Frequency	Percentage (%)
Ever heard about ORT	Yes	200	100.0
	No	00	0.0
Content of ORT (N=200)	Salt and sugar	130	65
	Salt only	16	08
	Sugar only	14	07
	Don't know	40	20
Use of ORS (N=200) (more than one response possible)	Treat/ prevent dehydration	30	15
	Treat/ prevent diarrhoea	130	65
	Kill microorganisms	06	03
	Don't know	34	17
Amount of water used to mix one sacket of ORS	½ Litre	16	08
	1 Litre	124	62
	2 Litres	14	07
	More than 2 litres	06	03
	Don't know	40	20.0
Length of time prepared ORS should be kept for use	24 hours	92	46
	2 days	20	10
	More than 2 days	08	04
	Don't know	80	40.0

An overwhelming majority, 180(90.0%) had reportedly ever heard about ORS. When asked about the contents of ORS, only two-thirds, 130(65.0%) mentioned all the components of ORS while about a quarter, 34(17.0%) did not know them. About the use of ORS, 130(65.0 %) mentioned treatment or prevention of diarrhea with only 30(15.0%) mentioning treatment/ prevention of dehydration. The majority, 124(62.0 %) knew the correct amount of water used to mix one sachet of ORS while slightly less than one-half, 80(40.0 %) knew the correct length of time that prepared Oral Rehydration Solution should be kept.

Attitude towards the use of ORS in the management of childhood diarrhoea

The majority, 167(83.5%) agreed that ORS is very important in the treatment of diarrhoea, with 123(61.5%) agreeing that all under five-year-old children with diarrhoea must receive ORS as part of treatment for diarrhoea while 106(53%) were of the view that even if ORS is not given in health facilities, they ought to have to try and buy it to treat childhood diarrhoea. Details of the attitude towards ORS are in the table below.

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Table 3: Attitude towards ORS (N=200)

Attitude towards ORS	Alternative	n(%)
ORS is very important in the treatment of diarrhoea	Yes	167(83.5)
	No	20(10)
	Not sure	23(11.5)
All under five-year-old children with diarrhoea must receive ORS as part of treatment for diarrhoea	Yes	123(61.5%)
	No	10(5.0)
	Not sure	67(33.5)
As a mother/caregiver, I need to know how to prepare and administer ORS	Yes	46(23)
	No	23(11.5)
	Not sure	131(65.5)
Without preprepared ORS a caregiver can still prepare Salt sugar water as a substitute	Yes	116(63)
	No	(1%)
	Not sure	67((33.5)
Even if ORS is not given in health facilities, I have to try and buy it to treat childhood diarrhoea	Yes	106(53)
	No	12(6)
	Not sure	82(41)

The proportion of caregiver's knowledge and attitude towards the use of ORS

Table 4: Proportion of caregiver's knowledge and attitude towards the use of ORS

Variable	Frequency(N=200)	Percentage (%)
Knowledge		
Good	96	48.0
Poor	104	52.0
Attitude		
Favourable	142	71.0
Unfavorable	58	29.0

From Table 4 above, only 48.0% of caregivers had good knowledge and the majority (71.0%) had a favourable attitude towards the use of ORS.

DISCUSSION

Knowledge of caretakers about the use of ORT in managing childhood diarrhoea

In the current study, it was found that all the respondents, 100 (100.0 %) had ever heard, about ORT. This is consistent with similar reports in rural Zimbabwe [13], in whose study 88.8% of the respondents had heard about ORS but disagrees with results from another study [14], where only 45.6% of the caregivers had heard about it. Regarding the content of ORS, the majority, 130(65.0%) were able to list all the contents, including Sugar and salt with a significant number of 60(30.0%) mentioning wrong contents. Worse still, slightly more than one-third of the respondents, 80(40.0%) did not know the correct volume of water for mixing one sachet of ORS. However, despite the reportedly huge awareness, it was surprising that the majority of the caregivers did not know the exact function of ORS and why it should be given in diarrheal illnesses. From all the respondents, the most mentioned role of ORS was that it prevents/treats diarrhoea according to the majority of the respondents (65.0%). Very few (15%) knew that it stops/prevents dehydration, which is the major pathophysiological pathway that prevents shock and eventual death from diarrhoea. These findings contradict another study on diarrhoea management by [15], [16], [17], [18],

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[19] where it was found that nearly all the mothers interviewed knew that ORS could replace lost fluids. The implication of this finding is that more needs to be done to strengthen the quality of ORT promotional messages and education given to caregivers in terms of the actual function of ORT so that they can appreciate why it is critical to use it with the onset of diarrhoea. Worse still more than one-half of the respondents, 54% didn't know the length of time prepared ORS should be kept for use meaning that some of the respondents may use expired ORT which is detrimental to child health.

Attitude towards the use of ORT in managing childhood diarrhoea

The majority, 167(83.5%) agreed that ORS is very important in the treatment of diarrhoea, with 123(61.5%) agreeing that all under five-year-old children with diarrhoea must receive ORS as part of treatment for diarrhoea. This means that if availed in health facilities most caregivers would use it in managing childhood diarrhoea.

CONCLUSION

The knowledge about ORS among participants was below average. Almost three-quarters of the participants had a favourable attitude towards the use of ORS.

RECOMMENDATIONS

There is a need to strengthen caregivers' awareness of the use of ORS among children under five years.

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