Original Research Article

Home Management of Childhood diarrhoea: A survey of mothers in Uyo, Southern Nigeria.

ABSTRACT

Background: Diarrhoea is a leading cause of under–five morbidity and mortality. Diarrhoeal deaths can be prevented by adequate case management of diarrhoeal episodes in children. With majority of cases being treated initially or completely in the home and community, the level of awareness of diarrhoea and simple home management practices among caregivers are key determining factors to reducing diarrhoea morbidity and mortality in children.

Objective: This study was aimed at assessing the knowledge, perception and practice of home management of diarrhoea of children under five years of age by mothers in Uyo.

Method: The study was carried out in two selected primary health centres in Uyo, Akwa-Ibom State, Nigeria from December, 2015 to March, 2016. A structured pre–tested questionnaire was used to interview 351 mothers of under five children visiting the selected primary health centres for child immunization within the study period. Data obtained were analyzed using Statistical Programme for the Social Science (SPSS) version 16. The responses of our respondents were graded into high, average and poor knowledge of childhood diarrhea and its management at home.

Results: Of the 351 mothers interviewed, only 21.3% of the respondents had high level of knowledge of childhood diarrhea and its management at home, while a higher proportion of the respondents (30.4%) had poor knowledge of childhood diarrhoea and its management at home. 17.9% of the respondents reported to have never used Oral Rehydration Therapy (ORT) in managing childhood diarrhea at home. Moreover, 70.37% of the respondents reported that they have never used zinc tablet in the management of childhood diarrhoea at home. A higher knowledge grade was significantly associated with the age, parity and educational level of the mother.

Conclusion: The level of knowledge of childhood diarrhoea and its management at home in Uyo is less than optimal. There is need for increased awareness of childhood diarrhoea and its management at home among mothers in Uyo.

Key words: Knowledge, Perception, Diarrhoea, Home management.

INTRODUCTION

Diarrhoea is characterized by passing three or more loose or watery stools per day. Acute diarrhoea persists for one to two days. The tendency of passing well-formed stools more frequently than normal, is not diagnosed as diarrhea. Also, the passing of loose, pasty stools in breastfed babies is not considered as diarrhoea [1]. In developing countries, children under the age of three years suffer from an average of three episodes of diarrhoea per year [2]. Each episode of diarrhoea worsens the nutritional status of the body necessary for growth and development of the child. Consequently, it is a major cause of malnutrition and malnourished children are highly susceptible to further attacks of diarrhoea [2].

This disease is a manifestation of gastro-intestinal infection induced by bacteria, predominantly, *E. coli, Salmonella paratyphii* and *Shigella species*. Infection is spread

through contaminated food or drinking water or from person-to-person contact as a result of poor hygiene [3].

Diarrhoea deteriorates the immunity of children, specifically in the age group of two to three and is responsible for worldwide mortality of 1.5 to 5 million children per year under the age of five years [4]. It undermines the resistance of the body, coupled with dehydration and viciously depreciates the nutritional status of children aged below five years.[5].

Diarrhoeal disease mostly results from contaminated food and water sources. Worldwide, 780 million individuals lack access to improved drinking-water and 2.5 billion lack improved sanitation [2].

It is believed that diarrhoeal diseases form major public health problems in children under 5 years of age, especially in developing countries. In 2002, an estimated 1.6 million children died as a consequence of diarrhoeal disease in developing countries. The diarrhoeal morbidity in India in the year 2005 stood at 1.07 million cases and mortality stood at 2,040 in these children [6].Diarrhoeal disease is one of the diseases leading to two out of three deaths among children and young adults in Africa and South-East Asia [7]. In Nigeria, diarrhoeal diseases are the third leading cause of death in children below 5 years, accounting for 16% of the Nigerian under 5 mortality rate [8]. Most of these deaths are as a result of severe dehydration, which could have been prevented by oral rehydration therapy (ORT) using Salt Sugar Solution (SSS) or Oral Rehydration Salt (ORS) [9].

International efforts to combat this worldwide problem include the Diarrhoeal Disease Control Programme, whose objectives are to reduce diarrhoeal morbidity and mortality.

Diarrhoea dehydrates the body, weakens the immunity and impedes the body's ability to absorb nutrients from diet. These events set forth a vicious circle, wherein, the children become malnourished, which further enhances their bodies' susceptibility to infections [10].

Childhood is a period of rapid physical growth, including the development of the brain almost to its full adult size, and is also a critical period for the development of cognitive functions. The key factors for child growth and development are adequate care, good health, nutrition and stimulation [11].

The knowledge and practice of adequate and quality childhood care could promote the health of the child in terms of prevention of early childhood diseases while lack of knowledge and poor practices increase the chances of a high prevalence of childhood diseases. The main concerns of mothers and other care-givers with respect to feeding, hygiene in the home and the prevention, diagnosis and response to illness in young children should be adequate knowledge and quality practices. Reports indicate that in spite of the recommendation of exclusive breast feeding for newborn, the practice is still very low in Nigeria, indicating that the great majority of mothers have little knowledge of nutritional value of breast milk or of the health risks of early exposure to other liquids and solids, leading to one of the main causes of diarrhoea in young children that ultimately results in illness and malnutrition [12].

In May 2004, WHO and UNICEF released a joint statement to reduce diarrhoeal deaths among the world's most vulnerable children [1]. This statement recommended the use of low osmolality ORS that reduces the need for intravenous fluids, and the use of Zinc supplementation as an adjunct therapy that decreases the duration and severity of the diarrhoea episode and the likelihood of subsequent infection in 2 to 3 months following treatment [13]. WHO and UNICEF recommend 20 mg of zinc per day for 10 – 14 days for infants and children, and 10 mg for infants under six months of age, while the low osmolar ORS is given according to the child's dehydration status and treatment plan [8]. Despite the

evidence of benefits, there has been little progress on the widespread use of ORS and Zinc for diarrhoea treatment. The situation is even worse in Nigeria where the use of Oral Rehydration Therapy (ORT) is 38% out of which Oral Rehydration Solution (ORS) use is only 34%, which means that Nigeria is still far from achieving the initial target of 80% ORT coverage [8]. With Nigeria's exclusive breast feeding rate at 17%, and with 16% of infants under 2 months of age still being bottle fed, and bottle feeding being a major risk factor for diarrhoeal diseases, the under 5 years aged children in Nigeria may still be in danger of diarrhoea morbidity and mortality [8].

The 2013 Nigeria Demographic and Health survey has put the country's under-five mortality rate at 128 deaths per 1,000 live births, implying that one in every 8 children born in Nigeria may die before their 5th birthday [8]. Though the level has dropped significantly from the 201 deaths per 1000 live birth recorded in 2003 [9], Nigeria still has a long way to go and most probably did not achieve the Millennium Development Goal (MDG) target of 64 deaths per 1000 live births by 2015.

It is important to note that adequate knowledge of the concepts, causative agents, manifestation, mode of transmission, preventive measures and management of childhood diarrhoea is a major step in the identification of the diseases and their prevention and management practices. Numerous factors affect the health seeking behaviour of mothers and caregivers of children.

Cultural beliefs and attitudes affect how a family perceives a child's illness and the treatment options available to them [14]. Cultural attitudes and beliefs affect use of health services by a given population and might also affect the management practice of mothers regarding childhood diarrhoea [15].

A study reporting on the factors affecting the use of ORT in India, claimed that many people did not know the cause of diarrhoea. They often believe teething was responsible. It was also their belief that giving a child more drinks would increase diarrhoea [20]. In Brazil, Zoysa (1992) reported that mothers out of ignorance, perceived diarrhoea as a variety of folk maladies, evil eye, fright disease, spirit intrusion, intestinal heat or sunken fontanel and as a result did not use ORT [17]. Studies conducted in Cross River, Nigeria revealed that the under-utilization of ORT was due to ignorance and lack of faith in the solution [18].

In South Africa, effective management of childhood diarrhoea has been limited due to misunderstanding or misconceptions on the part of the caregivers [19]. The reasons for this limitation as stated by health workers include lack of time to explain the management practices especially the preparation of ORT to mothers and caregivers. The beliefs concerning the cause of diarrhoea vary widely in different cultures. Diarrhoea may be considered to result from normal developmental events in young children (e.g. teething, crawling) or from eating certain foods, perhaps because of the special properties of those foods, intestinal worms, spiritual attacks or bewitchment [20].

Diarrhoea is an illness of public health concern. The perception of mothers/caregivers regarding the cause of diarrhoea in children determines its timely and proper management at home and subsequent referral to health care facilities. Proper home management of diarrhoea significantly reduces morbidity and mortality related to diarrhoea and its complications [21].

There is lack of sufficient information on the home management of childhood diarrhoea in Uyo and other districts in Nigeria. If obtained, such information may be useful in better directing health promotion efforts that will aid in reducing morbidity and mortality due to childhood diarrhoeal illness in the country. Moreover, such information will be helpful in

developing targeted interventions for improving home management of childhood diarrhoea by mothers and caregivers. This study is therefore aimed at determining the home management of childhood diarrhoea by mothers of children under five years old in Uyo, Southern Nigeria.

METHODS

This study is a descriptive cross-sectional study using structured, validated questionnaires to interview mothers of children under five years who attended selected primary health centres in Uyo for child immunization within the study period. Each of the respondents was interviewed on a one on one basis by the researcher with the assistance of a trained research assistant.

Mothers who declined participation were excluded from this study.

The two Primary Health Centres used for this study were:

a. Primary health care base, Wellington Bassey Way, Uyo.
b. Primary health centre Abak road, opposite Federal Secretariat, Uyo.

Uyo Local Government is a creation of the Federal Government of Nigeria. Uyo was first created as a province in 1959 by the colonial masters. It is by creation, one of the 31 local government councils that make up Akwa-Ibom State. Uyo serves the dual role of State capital as well as Local Government Headquarter and is bounded by Abak, Itu, Uruan, Ibesikpo-Asutan, and Etinan Local Government Areas. With the emergence of various educational institutions in Uyo, there has been an influx of indigenes into these institutions for formal education. The indigenous people of Uyo are of the Ibibio stock and speak Ibibio language.

Sample selection was done on set inclusion criteria. The sample size (n) was calculated according to the formula described by Yamane; 1967 [22]. The calculated sample size was 154 respondents for Primary Health Care Base Wellington Bassey Way and 172 respondents for Primary Health Centre Abak Road. However, 164 respondents were interviewed at Primary Health Care Base Wellington Bassey Way, while 187 respondents were interviewed at Primary Health Centre Abak road making a total of 351 respondents interviewed. Data was collected from respondents in each primary health center for six weeks. Measures were taken to ensure that data were not collected from a respondent more than once. The responses obtained were evaluated and graded into poor, average and high knowledge grades based on the percentage of correct answers given by the respondent. The study period was between December 2015 and March 2016. Quantitative data was analyzed using Statistical Program for the Social Science (SPSS) version 16.0 computer package with descriptive statistics. A prior level of significance $P<0.05$ was used for all comparisons.Ethical clearance and formal approval for this research was obtained from the Akwa-Ibom State Ministry of Health.

RESULTS

Socio-demographic characteristics of respondents

Three hundred and fifty-one mothers of children under five years of age were interviewed. The socio-demographic data of the respondents is as presented in Table 3.1. 71.8% (252) of the respondents claimed that their spouses/partners had attained tertiary level of education, while 25.1% (88) reported that their spouse/partner had attained only secondary level of education and 3.1% (11) reported that their spouse/partner had attained only primary level of education.

Level of mothers' knowledge of childhood diarrhoea and its management

Two hundred and ninety-six respondents (84.3%) correctly defined diarrhoea in children as the passage of three or more watery/loose stool within 24 hours. However, 15.7% (55) of the respondents could not correctly identify what diarrhoea in children is, with many claiming that diarrhoea is the passage of greenish stool, mucoid stool or bloody stool without reference to stool consistency and frequency.

Table 3.1: Sociodemographic data of respondents

	Frequency	Proportion (%)
Age Distribution		
18-30yrs	201	57.26
31-40yrs	129	36.75
41-50yrs	14	3.99
>50yrs	7	1.99
Educational Level		
No Formal Education	3	0.9
Primary	9	2.6
Secondary	126	35.9
Tertiary	213	60.7
Marital Status		
Single	35	10
Married	312	88.9
Separated	4	1.1
Number of Children		
1 child	89	25.4
2 children	125	35.6
3-4 children	129	36.8
>4 children	8	2.3
Monthly Family Income		
20,000-40,000NGN	53	15.1
41,000-60,000NGN	82	23.4
61,000-80,000NGN	114	32.5
>80,000NGN	91	25.9
Declined to Reveal Monthly Income	11	3.1

Two hundred and sixty-two respondents (74.6%) believed that diarrhoea is a serious medical condition. However, 10.3% (36) of the respondents didn't perceive diarrhoea as a serious medical condition while 15.1% (53) did not know if diarrhoea was a serious medical condition or not. Only 17.6% (46) of the 262 respondents who believed that diarrhoea is a serious medical condition could identify dehydration and loss of electrolyte as fatal complications of diarrhoea.

From our assessment, 48.1% (169) of all the respondents had average knowledge of diarrhea and its management at home, while 30.5% (107) had poor knowledge, and only 21.4% (75) of the respondent had relatively high/good knowledge of diarrhea in children and its home management.

Relationship between the sociodemographic characteristics of mothers and their knowledge of the home management of childhood diarrhoea

The demographic characteristics of the respondents with poor, average and high/good knowledge of the home management of childhood diarrhoea is presented in Table 2, 3 and 4 respectively.

Table 2: Sociodemographic profile of respondents with poor knowledge of the home management of childhood diarrhoea

SOCIO-DEMOGRAPHIC PROFILE	FREQUENCY	(%)	Proportion (%)
AGE (YEARS)	**(N = 107)**		
18 – 30	78	72.9	38.8
31 – 40	24	22.43	18.6
41 – 50	02	1.87	14.3
>50	03	2.8	42.9
LEVEL OF EDUCATION	**(N = 107)**		
No formal education	03	2.8	100
Primary	03	2.8	33.3
Secondary	56	52.34	44.4
Tertiary	45	42.06	21.1
MARITAL STATUS	**(N = 107)**		
Single	15	14.02	42.9
Married	92	86.0	29.5
Separated	--	--	--
NUMBER OF CHILDREN	**(N = 107)**		
1	39	36.45	43.8
2	32	29.91	25.6
3 – 4	36	33.65	27.9
>4	--	--	---
FAMILY INCOME (NAIRA)	**(N = 107)**		
20,000 – 40,000	23	21.5	43.4
41,000 – 60,000	22	20.5	26.8
61,000 – 80,000	36	33.65	31.6
>80,000	19	17.76	20.9
Declined to reveal	07	6.54	63.6

Table 3: Sociodemographic profile of respondents with average knowledge of the home management of childhood diarrhoea

SOCIO-DEMOGRAPHIC PROFILE	FREQUENCY	(%)	Proportion (%)
AGE (YEARS)	**(N = 169)**		
18 – 30	99	58.58	49.3
31 – 40	63	37.28	48.8
41 – 50	06	3.55	42.9
>50	01	0.59	14.3
LEVEL OF EDUCATION	**(N = 169)**		
No formal education	--	--	--
Primary	05	2.96	55.6
Secondary	52	30.77	41.3
Tertiary	112	66.27	52.58
MARITAL STATUS	**(N =169)**		
Single	14	8.3	37.1
Married	151	89.4	48.7
Separated	04	2.4	100
NUMBER OF CHILDREN	**(N = 169)**		
1	44	26.04	49.43
2	66	39.05	52.8
3 – 4	54	31.95	41.9
>4	05	2.96	62.5
FAMILY INCOME (NAIRA)	**(N = 169)**		
20,000 – 40,000	24	14.2	45.28
41,000 – 60,000	39	23.08	47.6
61,000 – 80,000	58	34.32	50.9
>80,000	44	26.04	48.4
Declined to reveal amount	04	2.37	36.4

Table 4: Sociodemographic profile of respondents with high knowledge of the home management of childhood diarrhoea

SOCIO-DEMOGRAPHIC PROFILE	FREQUENCY	(%)	Proportion (%)
AGE (YEARS)	**(N = 75)**		
18 – 30	24	32.0	11.9
31 – 40	42	56.0	32.6
41 – 50	06	8.0	42.9
>50	03	4.0	42.9
LEVEL OF EDUCATION	**(N = 75)**		
No formal education	---	--	--
Primary	01	1.33	11.1
Secondary	18	24.0	14.3

Tertiary	56	74.67	26.3
MARITAL STATUS	**(N = 75)**		
Single	06	8.0	17.1
Married	69	92.0	22.1
Separated	--	--	--
NUMBER OF CHILDREN	**(N = 75)**		
1	07	9.33	7.9
2	27	36.0	21.6
3 – 4	38	50.67	29.5
>4	03	4.0	37.5
FAMILY INCOME (NAIRA)	**(N = 75)**		
20,000 – 40,000	06	8.0	11.3
41,000 – 60,000	21	28.0	25.6
61,000 – 80,000	20	26.67	17.5
>80,000	28	37.33	12.1

Methods used for Home Management of Childhood Diarrhoea

Although 82.9% (291) of the respondents claimed to use UNICEF ORS/SSS in managing childhood diarrhoea at home, only 43.3% (152) had relatively good home management of childhood diarrhoea as these respondents could state correctly how the solution is prepared and administered. Sixty of the respondents (17.1%) reported to have never used UNICEF ORS/SSS in the management of diarrhoea. Reasons given for the non-use of UNICEF ORS/SSS were: lack of awareness of its existence 55% (33), unavailability of UNICEF ORS in their locality 18.3% (11), not familiar with its use 18.3% (11), high cost 6.7% (4), and the belief that antibiotics is more effective and suitable for childhood diarrhoea 1.7% (1).

Only 29.6% (104) of the respondents reported to have used zinc tablet in managing childhood diarrhoea at home while 70.4% (247) of our respondents said they have never used zinc tablet in managing childhood diarrhoea at home. The reasons given for the non-use of zinc tablet in managing childhood diarrhoea at home by the 247 respondents who reported to have never used zinc tablet in the home management of the disease were: lack of awareness of its existence - 89.1% (220), unavailability in their locality - 7.3% (18), lack of awareness of how it is prepared and administered - 2.8% (7) and high cost of zinc tablets - 0.8% (2).

DISCUSSION

Mothers' knowledge and their perception of childhood diarrhoea

Diarrhoea continues to substantially contribute to the high rate of mortality among young children globally [8]. Many of the reported cases of diarrhoea are severe in nature resulting in high mortality due to dehydration [23]. The result from this study has shown that majority of the respondents could identify diarrhoea in children as a passage of three or more watery/loose stool within 24 hours. This is commendable and the result is relatively higher than those of previous reports from Ilorin and Enugu where 78.5% and 69.0% of mothers/caregivers of under-five year old children respectively could correctly identify childhood diarrhoea [7, 24]. It is necessary that mothers have sufficient knowledge to correctly identify childhood diarrhoea as this will enhance their ability to manage the condition appropriately at home. Correct identification is actually the first step in the management of any condition.

Diarrhoea was not perceived as a serious medical condition by about 10.4% of the respondents while 10.6% did not know whether it is a serious medical condition or not. Diarrhoea can result in fatal consequences, especially if it is not treated promptly. The main fatal consequences of the disease are the risk of dehydration and electrolyte imbalance. Dehydration is a serious threat posed by diarrhoea. It takes its heaviest toll on infants and children under-five years of age. Victoria *et al.* (2000) asserted that signs of dehydration are not evident until there is acute fluid loss of approximately 4-5 per cent of body weight [25]. The signs and symptoms of dehydration include sunken fontanel, dry mouth and throat, fast and weak pulse, loss of skin elasticity and reduced amount of urine. This loss may lead to shock and untimely death of under-five children.

The proportion of the respondents who had a good understanding of the causes of diarrhoea is higher than the one reported by Adimora*et al.* in 2011, where only 47% of the respondents in Enugu could identify the causes of diarrhoea [17]. It is believed that mothers with a good knowledge of the causes of diarrhoea will be able to provide preventive measures that may reduce the incidence of this disease among their children. Diarrhoea could be a symptom of infection caused by a host of bacterial, viral and parasitic organisms most of which can be spread by contaminated water. All over the world, viruses especially rotavirus has been identified as the major cause of acute diarrhoea in children. Studies in Nigeria also found viruses to be the major causes of diarrhoea in 60 per cent of cases with bacteria being responsible for only 3-20 per cent of cases [26]. Most of these pathogens are transmitted through the faeco-oral route via contaminated food and water, dirty feeding utensils (especially feeding bottles and teats) and the faecally contaminated fingers of the infants or the mother [27].

Young children are frequently infected with enteric pathogens and their stools are important source of infection for others especially children with diarrhoea [28]. Therefore, hygienic disposal of the faeces of all young children is an important aspect of diarrhoea prevention. Proper hand washing according to Partnership for Transforming Health Systems (PATHS) is among the universal hygienic precautions that should be adopted by women to prevent occurrence of diseases [29].

Relationship between demographic characteristics of mothers and their knowledge and home management of childhood diarrhoea

The relationship between age and the knowledge level of the respondents shows that respondents within the age range of 41-50 years and respondents older than 50 years of age had the highest proportion of respondents with relatively high knowledge of childhood diarrhoea and its home management [Table 4]. This may be an indication that the older the mother is the more knowledgeable she will be in the management of childhood diarrhoea at home. Studies have found a U-shaped relationship between the age of mothers and the knowledge of childhood diarrhoea and its home management; in these reports, child health outcomes were better in children whose mothers were in their twenties or early thirties and poorest in children of very young and old mothers [30, 31]. In another study by Negussie and Chepngeno, maternal age was found to be a strong predictor of health care seeking behaviour with older mothers being less likely to seek care for their children [32].

The relationship between educational level of the respondent and their knowledge of childhood diarrhoea and its home management shows that respondents with tertiary level

of education had the highest proportion with relatively high knowledge of childhood diarrhoea and its home management [Table 4]. This may be an indication that the higher the educational level of a mother is, the more knowledge she will have of childhood diarrhoea and its home management. Educational level of a mother may influence her perception and the home management practices of the disease. Education empowers an individual's intellectual capacity to understand seemingly perceived difficult concepts, more especially when such concepts are practicable. Educational status significantly influences health behavior. This is because an educated mother might use health information more than their uneducated counterparts [33]. Our finding is in line with studies carried out by Rao *et al.* in 1998, which revealed that more educated women were more likely than less educated ones to manage diarrhoea in children [34]. Surprisingly, a significant proportion (42.06%) of the respondents with poor knowledge of childhood diarrhoea and its home management had tertiary level of education.

The effect of maternal education on utilization of health services has been found to have mixed results. Some studies found a positive effect, others found a negative effect, and yet others found no effect at all [35]. Researchers have argued that education influences mothers' health-seeking behavior, both at home and at health facilities, and this in turn has an impact on child health [36]. Education empowers women with knowledge and it is this knowledge that drives them to take certain actions when faced with a health issue. Feyisetan*et al.* in 1997 found that mother's education was positively correlated with knowledge on the aetiology of childhood illnesses and consequently on utilization of appropriate child health services [30]. In other studies, it was revealed that the relationship between maternal education and child health is not necessarily direct but rather it is moderated by other factors such as regional differences [37]. According to Njeri and Muriithi maternal educational level is more important for child health in poor rural areas than in prosperous urban areas [35].

The mothers who were separated from their spouses did not have a good knowledge of childhood diarrhoea and its home management, whereas, those who were married or single had a significant proportion with good knowledge of the disease and its home management [Table 2-4]. This representation is an indication that there may be no defined relationship between marital status and knowledge of the home management of childhood diarrhoea.

Respondents whose spouses had attained tertiary level of education had the highest proportion of those with good knowledge on childhood diarrhoea and its home management. This may be an indication that there is a relationship between a woman's spouse's level of education and her knowledge of the disease and its management at home.

There seem to be a correlation between a mother's knowledge of childhood diarrhea and its home management and the number of children she has. For instance, Tables 2-4 above show that the higher the number of children a mother has, the more knowledge of childhood diarrhoea and its home management she will have, with mothers with only one child having the least proportion of those with the good knowledge of childhood diarrhea, while mothers with greater than 4 children had the highest proportion of those with a good knowledge of childhood diarrhoea and its management at home.

It is clear from this study that there is no direct relationship between a family's monthly income and the knowledge of childhood diarrhoea and its home management. However, a previous study assessing the effect of family income on a child's health found that household income was significantly associated with seeking child healthcare but only to a certain threshold after which its impact is normalized [32].

Mothers home management of childhood diarrhoea

A good percentage of the respondents reported to have used ORT for the management of the disease. The reasons given by the 17.09% of the respondents who reported that they have never used UNICEF ORS/SSS in the management of childhood diarrhoea include lack of awareness of its existence, lack of availability in their locality, unfamiliarity with the mode of preparation and use as well as high cost. Unawareness of the existence of such preparation was the most prevalent reason. This finding is worrisome.

More than half of the respondents (77.78%) knew the function of ORT in replacing lost fluid and electrolytes. This level of awareness is high. ORS (oral rehydration solution) has been found to be very useful in reducing morbidity as a result of diarrhea. Therefore, the high awareness among mothers will aid in taking the right step in the treatment of childhood diarrhoea at home. However, 52.1% of the entire study population could not state correctly how UNICEF ORS is prepared. Also 74.4% of our total number of respondents could not state correctly how to prepare salt sugar solution. This indicates the need for increased public awareness campaign. Mothers should be educated on the importance of ORS/SSS as well as its preparation. The proportion of the respondents who knew how to accurately prepare UNICEF ORS and SSS was quite low (47.9% and 25.6% respectively). This is in contrast to a 1996 study by Okoro and Itombra-Okoro where 82% and 96% of mothers knew how to accurately prepare SSS and ORS respectively [38]. However, another study in Enugu reported that only 27.6% and 14.3% of mothers knew how to accurately prepare UNICEF ORS and SSS respectively [7]. These different rates may be a reflection of the extent of ORT (oral rehydration therapy) campaign in the various areas where such studies were undertaken.

UNICEF ORS is prepared by dissolving ready-made packet of the salts into a litter of clean drinkable water. SSS is the home version of ORS, involving the use of common salt, white sugar and water. The content is 3 g (half of level standard or 5 ml teaspoon of salt), five cubes of sugar or 10 level tea spoon of granulated sugar mixed in a litre of clean water or its equivalent of one beer bottle or two bottles of coca-cola (35cl). It should be stressed that the water for preparing salt sugar solution must be clean but not necessarily boiled [39]. The use of SSS for oral rehydration appears to be the most commonly taught method by health educators to mothers attending antenatal clinics in Nigeria. The reason for this might be that the ingredients can easily be found in the home and may also be cost effective and acceptable.

Only a very small proportion of the respondents (4.3%) believed that diarrhoea could not be prevented while 8.3% did not know whether it could be prevented or not. Diarrhoea can be prevented through adequate hygienic practices and the use of rotavirus vaccines. Rotavirus vaccine is used to give protection against rotavirus infections which are the leading cause of severe diarrhoea among young children. The vaccines prevent severe diarrhoea and also appear to decrease the risk of death among young children due to diarrhea. It is recommended that rotavirus vaccine be included in routine vaccinations especially in areas

where the disease is common. This should be done along with promoting breastfeeding, hand washing, use of clean water and good sanitation [2].

A significantly high proportion of the total respondents do not use zinc in the management of childhood diarrhoea at home. Reasons given for the non-use of zinc tablet included: lack of knowledge on its mode of administration, lack of availability in their locality and high cost. Furthermore, as high as 89% of these respondents claimed not to be aware of the existence and the use of zinc tablet in the management of childhood diarrhoea. Again, this is an indication for enhanced public awareness campaign on the use of zinc in the management of childhood diarrhoea. Zinc is one of the micro nutrients our bodies require in small amounts in order to stay healthy. Roy and Tomkins in 1994 enumerated the importance of zinc to include: normal growth and development of children, fighting infections and repair of damaged tissue, synthesis of the lining of the intestine as well as its functioning, enabling the body to use vitamin A, which is another key micronutrient that increases children's ability to fight infection, and enabling malnourished children to recover from diarrhea [40]. The best sources of zinc are meat, fish, breast milk, cereals. Zinc supplementation in combination with ORT has been shown to significantly reduce the duration and severity of acute and persistent diarrhoea and to increase survival in a number of randomized control trials [12].

Conclusion

Although an impressive proportion of the studied population have a good understanding of the definition and manifestation of this medical condition, the knowledge of its home management is less than optimal and hence justifies the need for enhanced public health education on the home management of childhood diarrhoea amongst mothers in Uyo. There is a significant relationship between the age, educational level, and parity level of the mothers in Uyo and their knowledge of diarrhoea and its management at home. Furthermore, there is a significant relationship between the educational level of a woman's spouse and her knowledge of the disease and its home management. However, there is no significant relationship between the marital status and family income of the mothers and their knowledge of diarrhoea and its management at home.

REFERENCES

1. National Digestive Diseases Information Clearing house (NDDI); 2013. *Diarrhoea*.
2. WHO; 2013. *Diarrheal disease fact sheet*; No.330.
3. Jill WA, Wenjing T, Lofgren J, Forsberg B.; 2010. Diarrhoeal diseases in low and middle income countries, incidence, prevention and management. *Infectious Diseases Journal*. 4 (133): 113-124.
4. Bern C, Martines J, De Zoyas I, Glass RL. (1992). The magnitude of the global burden of diarrhoeal disease. *PLoS One*, 8 (5): e64713.
5. WHO/UNICEF Joint Statement. (2010). Clinical management of acute diarrhea. Geneva: World Health Organization.
6. Government of India: Ministry of Health & Family Welfare, New Delhi. (2006). Health information of India; 2005.

7. Adimora GN, Ikefuna AN, Ilechukwu G. (2011). Home management of childhood diarrhoea: Need to intensify campaign. *Nigerian Journal of Clinical Practice*; 14: pp237 – 41.
8. Borah H, Gogai G, Saikia H. (2014). Prevalence of Diarrhoea among Under-Five children and Health Seeking Behavior of their Mothers in Slums of Dibrugarh Town, Assam. *Indian Journal of Scientific Research and Technology*. 2(1): pp16-19.
9. Ahmad SF, Farheen A, Muzaffar A, Mattoo GM. (2008). Prevalence of Diarrhoeal disease, its seasonal and age variation in under-fives in Kashmir. *India International Journal of Health Science* 2*:* pp126-133.
10. Gupta A. (2014). Study of the prevalence of diarrheoa in children under age of five years: its association with wasting. *Indian J.Sci.Res*. 7 (1): 1315-1318.
11. Hodges A. (2001). Children's and women's right in Nigeria: A wake up call, Abuja: National Planning Commission UNICEF.
12. Park K. (2009). Park's Textbook of Preventive and social medicine. India: Ms Banarsidas Bhanot Publishers.
13. Boschi C, Velebit L. (2008). Estimating child mortality due to diarrhoea in developing countries. *WHO Bulletin.* 86: pp710-717.
14. Parades P. (1992). When do people seek help and from who? *Dialogue on Diarrhoea issue* 42-1.
15. Malantinema TN. (1994). The Importance of nutrition in socioeconomic development. *Afro – Technical Paper, (12), 73.*
16. Roy JK. (1990). Local beliefs. *Dialogue on Diarrhoea, Issue no. 48*.
17. Bern C, Martines J, de Zoysa I, Glass RI. (1992). The magnitude of the global problem of diarrhoeal disease: a ten-year update. *Bull World Healthorgan;* 70(6): 705 – 714.
18. UNICEF Nigeria. Situation Analysis of Children and Women. 2011 Update. (www.unicef.org/nigeria/SITAN_UNICEF_Nigeria_2011_FINAL_2012_Sept.pdf). Assessed on May 15, 2017.
19. Khnor M. (2002). ORT corners and the management of Diarrhoea illness in children. *Home about us Publications 2.*
20. Jelliffe DB, Jelliffe EF. (1996). Child nutrition in developing countries. 2nd ed. Washington D.C: USAID.
21. Doreen MO, Alloys SS, Ted G, Dan OK, Otengah PA. (2008). Home management of diarrhea among under-fives in a rural community in Kenya: Household perceptions and practices. *East African Journal of Public Health.* Volume 5 number 3.
22. Yamane T. (1967). Statistics: An Introductory Analysis, 2nd Edition, New York: Harper and Row.
23. Patel MM, Hall AJ, Vinje J, Parashar, UD. (2009). Noroviruses: a comprehensive review. *Journal of Clinical Virology* 44 (1): pp1–8.
24. Abu-saeed K, Olakunle JM, Odilli VU, Abu-saeed MB. (2012). Assessment of mothers' knowledge of home management of childhood diarrhea in a Nigerian setting. *IJPRBS*; Volume 1(4):168-184.
25. Victoria GC, Bryce J, Fountaine O, Monasch R. (2000). Reducing deaths from diarrhoea through ORT. *Bulletin of the World Health Organization*. 78 (10) pp1246 – 1255.
26. Lucas AO, Gilles HM. (2009). A new short Textbook of Preventive Medicine for the Tropics. Ibadan: Bounty Press Limited.

27. Spradely BW, Allender TA. (1998). Community health nursing concepts and practice, Philadelphia, Lippincolt.
28. WHO (2001). The treatment of Diarrhoea. A manual of physicians and other Health workers. Geneva: World Health Organization.
29. Partnership for Transforming Health Care Systems (PATHS) (2005). Facilitator's guide training manual for nurses/midwives. Federal Ministry of Health. Abuja: Nigeria.
30. Feyisetan BJ, Asa S, Ebigbola JA. (1997). Mothers' management of childhood diseases in Yoruba land: The influence of cultural beliefs. *Health Transition Review, 7*(2), pp221- 234.
31. Kosimbei G. (2005). Child healthcare seeking behavior in Kenya. KIPPRA Discussion Paper no. 50.
32. Negussie T. Chepngeno G. (2005). Determinants of healthcare seeking for childhood illnesses in Nairobi slums. *Tropical Medicine and International Health, 10* (3), pp240-245.
33. Okafor RU. (1993). Health education in the Nigerian home: The mother's role. Omega Publishers.
34. Rao KV, Vinod KM, Mishra AC, Rutherford RA. (1998). knowledge and use of ORT for childhood diarrhoea in India: Effects of Exposure to mass media. *National family Health survey Reports*, (10). pp27.
35. Njeri G, Muriithi M. (2013). Household choice of diarrhea treatments for children under the age of five in Kenya: evidence from the Kenya demographic and health survey 2008 - 2009. *Nutr*.36:385-91.
36. Joshi AR. (1994). Maternal schooling and child health: Preliminary analysis of the intervening mechanisms in rural Nepal. *Health Transition Review*. *4*(1), pp1-28.
37. Shin H. (2007). Child health in Peru: Importance of regional variation and community effects on children's height and weight. *Journal of Health and Social Behavior.*48(4): pp418- 433.
38. Okoro BA, Itombra-Okoro J. (1996). Childhood Morbidity from Diarrhoea and its Home Management. *Nigerian Journal of Paediatrics*; 23: pp85.
39. Cutting WA. (1994). Ideal way forward. *Dialogue on Diarrhoea Issues;* 55.4.
40. Roy S, Tomkins A. (1994). The important role of zinc in building resistance to and recovery from infections such as diarrhoea. *Dialogue on diarrhoea, issue no*. 56. AHRTAG Publishers.