



## ORIGINAL RESEARCH

# Knowledge of Prevention and Management of Childhood Diarrhoea among Nigerian Mothers: A Public Health Survey

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### ABSTRACT

**Background:** Diarrhoea accounts for 1,300 deaths every day globally. Mothers' knowledge of preventive measures and practices in the management of childhood diarrhoea influences the disease's morbidity and mortality.

**Objectives:** This study assessed the knowledge of, and practices mothers adopt in childhood diarrhoea prevention and management.

**Methods:** A cross sectional study was carried out among mothers in five rural communities in South-Eastern Nigeria using pretested questionnaires. Completed questionnaires were subjected to descriptive and associative analysis.

**Results:** Two thirds of the mothers surveyed (N=374; 67.9%) had poor knowledge of diarrhoea. Less than half mentioned a good hygienic environment (33.5%) as being essential to keeping diarrhoea at bay, 16.5% boiled their drinking water while 70.9% could not prepare a simple oral rehydration solution (ORS) correctly. Two out of ten mothers (20.6%) used an antibiotic in the treatment of diarrhoea and 27% visited the hospital only when the child became very weak. Mother's occupation (P = 0.002) and her monthly income (P = 0.004) significantly affected their knowledge while age, monthly income and level of education significantly influenced their practices (P<0.05). A higher knowledge of diarrhoea was significantly associated with better feeding practice (P = 0.0001) and correct actions taken to treat diarrhoea (P = 0.003).

**Conclusion:** Most of the mothers surveyed had poor knowledge about diarrhoea prevention and management and also exhibited poor practices. Educational strategies aimed at improving parental knowledge and practices towards diarrhoea in their children could produce better gains in reducing the menace of poorly treated diarrhoea.

**Keywords:** Diarrhoea, Prevention, Management, Mothers, under-five children

### INTRODUCTION

Diarrhoea is a leading cause of illness and death among children in developing countries, accounting for approximately 5.4 million deaths among children under age 5 years worldwide in 2017. Invariably, this

translates to over 1,300 young children dying each day, or about 480,000 children a year, despite the availability of simple effective treatment<sup>1</sup>. Most deaths from diarrhoea occur among children less than 2 years of age living in sub-Saharan Africa and South Asia<sup>1</sup>.

In Nigeria, childhood diarrhoea is ranked as the fourth leading cause of mortality among under five children<sup>2</sup> with 18.8% prevalence and mortality rate of 16% in both urban and rural areas<sup>3</sup>. Annually, Nigeria loses about 150,000 under-five year children to diarrhoea, a making the country the second largest contributor to the under-five mortality rate in the world<sup>3</sup>. Due to the yet-to-fully-develop immunological system in children under five years and poor sense of hygiene among the parents, these children are prone to many infections, the commonest among them being diarrhoea. UNICEF and the World Health Organization<sup>4</sup> have recommended that childhood diarrhoea be treated by replacing lost fluids through oral rehydration therapy and zinc supplements with continued feeding. Preventive strategies for eliminating diarrhoea includes: access to safe drinking-water; use of improved sanitation; hand washing with soap; exclusive breastfeeding for the first six months of life; good personal and food hygiene; health education about how infections spread; and rotavirus vaccination<sup>5</sup>.

Beside the above guideline, previous research has shown that there are inherent beneficial or harmful cultural practices for management of diarrhoea at the domestic level<sup>6</sup>. Beneficial practices are food-based fluids such as gruels made by boiling ground or powdered cereals (the gruel should be thick but drinkable), rice water or water in which other cereals have been cooked, home-made soups, and yoghurt-like drinks. These can either be prepared in a traditional way or be slightly modified by changing the amount of water used or adding a small amount of salt<sup>7</sup>. However, such modifications may increase the risk of over concentrated or over diluted meal which will further worsen the diarrhoea. Harmful practices include restriction of fluids, breast milk and/or food intake during diarrhoea episodes, and incorrect use of modern medicines<sup>8</sup>. Home treatment is an essential part of the correct management of

acute diarrhoea. This is because diarrhoea begins at home and children seen at a health facility may continue to have diarrhoea after returning home. Children must receive proper treatment at home if dehydration and nutritional damage are to be prevented. Most of the Diarrhoeal episodes are first treated in the home by mothers, therefore the mothers' knowledge of preventive measures and practices in the management of diarrhoea could be related to its mortality and morbidity; hence the need for this study. Very little literature exists on the level of knowledge and practices caregivers and mothers actually possess regarding diarrhoea in rural Nigeria. This study was aimed at assessing mothers' knowledge and practices on the prevention and management of diarrhoea in children living in rural Nigeria.

## METHOD

### Study Site

The study was conducted in five rural communities in four different Local government Areas of situated in Enugu North senatorial zone of Enugu State. These communities were sampled by a multi-stage design considering the cluster (at least each local government from the possible four was represented) and randomly from a total of 35 communities. The State has 17 Local Government Areas with a population of 4,411,100, Enugu North accounts for nearly 43% of its population<sup>9</sup>. The five communities selected i.e. Obollo and Nsukka are in sub-urban areas while Orba, Enugu Ezike and Ede-Oballa are in rural areas.

### Study design

A descriptive cross sectional, community-based survey design was adopted for this study.

### Inclusion Criteria

Women of all ages who have at least one child aged below five years old whose child had suffered at least one Diarrhoeal episode

in the past one year, and gave consent to participate in the survey were enrolled. Women or caregivers that have taken care of a child who had suffered from diarrhoea were all included. Young caregivers (that are not mothers) who are below 16 years of age were excluded.

### **Study instrument**

The questionnaire adopted for this study was developed from two questionnaires earlier employed in two related studies<sup>10,11</sup>. The final questionnaire was slightly modified to cover the objectives of this particular study. The questionnaire had 3 sections; Section 1 had 6 questions that assessed the demographic data of the respondents, Section 2 had 11 questions that assessed the respondents' knowledge of diarrhoea and its prevention and section 3 had 8 questions that assessed the respondents' care practices taken in management of diarrhoea.

### **Pre-testing of questionnaire**

A pilot study was carried out using 20 randomly chosen women within the environs of a community not selected for the study. The average time taken for each mother or caregiver to answer the questions was noted. Feedback was received on any ambiguity in understanding questions asked. These observations were used to evaluate and modify the questionnaire into a final well-constructed tool.

### **Data collection**

The survey was conducted as a house to house survey. Eighty questionnaires were administered in each community. These eighty houses or hamlets as the case maybe were selected in a systematic manner such that the total number of houses/hamlets was noted before systematically choosing the representative houses.

The eligible participants were given brief education on the benefit of the study but not on diarrhoea disease before being enrolled. Questionnaires were administered to the consenting participants that fulfilled the

inclusion criteria and adequate time was allowed them to complete them. Questionnaires were collected immediately after filling.

### **Data analysis**

Data processing and statistical analysis were performed using Statistical Package for Social Sciences (SPSS) software version 21. The respondent's responses were graded as good and poor score based on their ability to answer 7 out of 9 questions correctly. Scores below 7 were graded as poor.

Descriptive statistics (frequency, percentages, mean and standard deviation) were used to describe the distribution of the variables in the questionnaires. Inferential statistics (chi-square) was used to determine the association between the dependent and independent variables. All P-values of <0.05 were considered statistically significant.

### **Ethical considerations**

All mothers/caregivers who participated were given a brief explanation on the aim of the research. They were also assured of the anonymity of their responses were. The data obtained were all used for research purposes only.

## **RESULTS**

### **Socio-demographic information of respondents**

Four hundred and ten questionnaires (i.e. 80 questionnaires from each community and extra 2 questionnaires each were overage) were administered. Three hundred and seventy-four (374) were completed and returned (participation rate 91.2%). Of all the respondents, 357 (95.2 %) of them were mothers while seventeen (4.8 %) were caregivers. One hundred and seventy-seven (47.3 %) of them were aged between 31-40 years while two hundred and fifty-six (68.4 %) of them were business women. The socio-demographic characteristics of the respondents are shown in Table 1.

**TABLE 1: Socio-demographic information of respondents**

Variables	Frequency (%)
<b>Relationship to child</b>	
Mother	356 (95.2)
Care giver	18 (4.8)
<b>Age</b>	
< 20	5 (1.3)
20-30	135 (36.1)
31-40	177 (47.3)
41-50	50 (13.4)
>50	7 (1.9)
<b>Occupation</b>	
Business woman	256 (68.4)
Civil servant	42 (11.2)
Self employed	48 (12.8)
Housewife	17 (4.5)
Farmer	11 (2.9)
<b>Educational Level</b>	
Primary	69 (18.4)
Secondary	210 (56.1)
Undergraduate	47 (12.6)
Postgraduate	7 (1.9)
NCE	22 (5.9)
HND	3 (0.8)
No education	16 (4.3)
<b>Marital status</b>	
Single	22 (5.9)
Married	316 (84.5)
Divorced	7 (1.9)
Widowed	28 (7.5)
<b>Monthly income</b>	
>5,000	92 (24.6)
5,000-15,000	149 (39.8)
16,000-30,000	74 (19.8)
31000, -50,000	37 (9.9)
>50,000	22 (5.9)

### Knowledge of respondents on Diarrhoeal prevention and management

Regarding knowledge of the Diarrhoeal disease, one hundred and ninety-seven (52.7 %) of the respondents were unable to describe it correctly. On the aetiology of diarrhoea, 258 (69 %) of respondents were not able to correctly identify the causes. Other questions and the responses by respondents are shown in Table 2. When they were asked how diarrhoea could be prevented,

125 (33.3%) chose maintaining hygienic environment as a preventive measure while 21 (5.6 %) did not have an idea of how to prevent diarrhoea disease. Other preventive measures taken by respondents are as shown in Table 2. Analysis revealed that 120 (32.1 %) had good knowledge while 254 (67.9 %) had poor knowledge of prevention and management of diarrhoea.

### Association between knowledge score of respondents and their demographic characteristics

The knowledge scores of respondents were compared using their demographic characteristics. Analysis revealed that the type of occupation ( $p=0.002$ ) and amount of income received by the respondents ( $p=0.004$ ) were significantly associated with their knowledge of prevention and management of diarrhoea. Other demographic characteristics and their association are represented in Table 3.

### Care practices carried out by the respondents for the management of diarrhoea

When respondents were asked the diet, they gave to a child having diarrhoea, 174 (46.5 %) showed good care practice. Three hundred and eight (82.4 %) of the parents constituted ORS at home but only 109 (29.1 %) prepared it correctly. The distribution of different practices mothers and caregivers engage in with their children suffering with diarrhoea are as shown in Table 4.

### Association of knowledge score of respondents and their care practices for management of diarrhoea

Analysis revealed that the knowledge score of respondents regarding diarrhoea was significantly associated with the type of food given to a child having diarrhoea ( $p=0.0001$ ) and time it took to take a child having diarrhoea to hospital ( $p = 0.005$ ). Likewise, the right action taken with a child with diarrhoea was associated with respondents possessing higher knowledge of the disease ( $p = 0.003$ ). Association with care practices towards management of diarrhoea are as shown in Table 5 below.

**Table 2: Mother's specific responses to knowledge questions on prevention and management of diarrhoea**

<b>Knowledge questions</b>	<b>Frequency (%)</b>
<b>What is diarrhoea?</b>	<b>197 (52.7)</b>
Passing watery stool	90 (24.0)
Passing watery stool 3 or more times a day	197 (52.7)
Painful stooling	50 (13.4)
Passing blood in stool	30 (8.0)
Passing fatty stool	7 (1.9)
<b>What is your means of information about diarrhoea?</b>	<b>210 (56.1)</b>
Friends	16 (4.3)
Health professional	210 (56.1)
Mass media	28 (7.5)
Past experience	120 (32.1)
<b>What causes diarrhoea?</b>	<b>116 (31.2)</b>
Contaminated water and food	138 (34.4)
Teething in children	75 (20.0)
Poor hygiene	158 (42.2)
Bacteria and virus	13 (3.4)
<b>What are the signs of diarrhoea (increased thirst, sunken eyes, weakness, dry skin, stomach ache)</b>	<b>129 (34)</b>
Identified all	0 (0)
Identified 4 signs	81 (21.7)
Identified 3 signs	122 (32.6)
Identifies 2 signs	161 (43.0)
No idea	10 (2.7)
<b>How many times will a child stool in a day to be termed diarrhoea?</b>	<b>65 (17.4)</b>
Once	1 (0.3)
Two times	40 (10.6)
3 times	65 (17.4)
4 times	85 (22.7)
5 times and above	183 (49.0)
<b>Do you know how to prepare ORS</b>	
Yes	<b>342 (91.4)</b>
No	32 (8.6)
<b>For how long should the prepared ORS be used before discarding it?</b>	<b>239 (63.9)</b>
Less than 24 hours	45 (12.0)
For 24 hours	239 (63.9)
More than 24 hours	64 (17.1)
As long as it lasts	6 (1.6)
Do not know	20 (5.3)
<b>How do you prevent diarrhoea</b>	<b>154 (41.2)</b>
Access to safe drinking water	41 (11.0)
Proper covering of food	40 (10.7)
Maintaining a hygienic environment	158 (42.2)
Washing hand before preparing any meal	29 (7.8)
Washing had after using the toilet	12 (3.2)
Identified 3 measures correctly	41 (11.0)

Identified 4 measures correctly	40 (10.6)
Do not know	13 (3.5)
<b>What is the first management approach for diarrhoea in children?</b>	<b>262 (70.0)</b>
Give ORS,	262 (70.0)
Give IV infusion	4 (1.0)
Give oral drugs	89 (24.0)
Use of herbal drugs	19 (5.0)

**\*Frequency and percentage in bold signify distribution of correct responses**

**Table 3: Association between knowledge score of mothers and their demographic characteristics**

Variables	Sum of knowledge score		<i>p</i> -value
	Poor knowledge Frequency (%)	Good knowledge Frequency (%)	
<b>Education</b>			
Primary	64 (75.3)	21 (24.7)	
Secondary	142 (67.6)	68 (32.4)	
Tertiary	48 (60.80)	31(39.2)	0.13
<b>Marital status</b>			
Single	17 (77.3)	5 (22.7)	
Married	207 (65.5)	109 (34.9)	
Divorced	29 (82.9)	6 (17.1)	0.07
<b>Relationship with child</b>			
Mother	242 (68.0)	114 (32)	
Caregiver	12 (66.7)	6 (33.3)	0.54
<b>Age (years)</b>			
<20	2 (40)	3 (60)	
20-30	93 (68.9)	42 (31.1)	
31-40	120 (67.8)	57 (32.2)	
41-50	33 (66.0)	17 (34.0)	
>50	6 (85.7)	1 (14.3)	0.56
<b>Occupation</b>			
Civil servants	19 (45.2)	23 (54.8)	
Business women	182 (71.1)	74 (28.9)	
Self employed	31 (64.6)	17 (35.4)	
Farmer	11 (100)	0 (0)	
Housewife	11(64.7)	6 (35.3)	0.002*
<b>Income</b>			
<5,000	65(70.7)	27 (29.3)	
5,000 – 15,000	110 (73.8)	39(26.2)	
16,000-30,000	44 (59.5)	30 (40.5)	
31,000-50,000	27 (73.0)	10 (27)	
>50,000	8 (36.4)	14 (63.6)	0.004*

\*value is significant at  $P < 0.05$

**Table 4: Different individual care practices by the respondents towards management of diarrhoea**

Care Practices	Frequency (%)
<b>Type of food given during diarrhoea episode</b>	<b>174 (46.5)</b>
Well-made pap	150 (40.0)
Breast milk	51 (13.0)
Solid food	100 (27.0)
Pap and breast milk	73 (20.0)
<b>When do you take a child having diarrhoea to see a doctor?</b>	<b>158 (42.0)</b>
As soon as diarrhoea starts (within 24 hours)	158 (42.0)
2 days after the onset of diarrhoea	115 (31.0)
When the child gets weak	101 (27.0)
<b>What is the first action you take when a child has diarrhoea</b>	<b>246 (64.7)</b>
Use drug to treat	92 (24.6)
Take child to health facility	106 (28.3)
Use herbs	10 (2.7)
Use ORS	44 (11.8)
Use drug and ORS	122 (32.6)
<b>Which drug do you use to treat Diarrhoea?</b>	<b>282 (75.4)</b>
Metronidazole	274 (73.3)
Antibiotic (ampicillin, tetracycline, ampiclox)	80 (21.4)
Zinc	8 (2.1)
Kaolin	12(3.2)
<b>Do you use ORS to manage diarrhoea</b>	<b>322 (86.0)</b>
Yes	322 (86.0)
No	52 (14.0)
<b>Which ORS do you use</b>	<b>321 (85.8)</b>
Salt-water solution	29 (7.8)
Sugar-salt solution	321 (85.8)
Ordinary water	12 (3.2)
Sprite drink and salt	3(0.8)

\*Frequency and percentage in bold signify distribution of correct responses.

## DISCUSSION

The principal findings of this research suggest that over two-thirds of the mothers surveyed had poor knowledge of diarrhoea aetiology and prevention, which was mainly affected by their occupation and income earnings. These mothers also exhibited poor practices towards the management of diarrhoea in their ill children.

## *Demographic data*

Majority of the mothers and caregivers surveyed in this study were aged between 20 and 40 years and had only basic post primary education. These demographic characteristics are similar to a study conducted in Odeda, Ogun state, which reported that majority of respondents were between 20-40 years, 79.1% attended at least a primary school while 20.9% had no formal education<sup>12</sup>.

**Table 5: Associations of respondents' knowledge with their care practices**

Questions	Poor knowledge	Good knowledge	p-value
<b>Which food do you give to a child having diarrhoea?</b>			
Wrong	197 (75.8)	63 (24.2)	<b>0.0001*</b>
Correct	57(50.0)	57 (50.0)	
<b>When do you take a child having diarrhoea to see a doctor?</b>			
Wrong	139 (74.3)	48 (25.7)	<b>0.005*</b>
Correct	115 (61.5)	72 (38.5)	
<b>What is the first action you take when a child has diarrhoea</b>			
Wrong	102 (77.3)	30 (22.7)	<b>0.003*</b>
Correct	152 (62.8)	94 (37.2)	
<b>Which drug do you use to treat diarrhoea?</b>			
Wrong	53 (68.8)	24 (31.2)	0.84
Correct	201 (67.7)	96 (32.3)	
<b>Which oral solution do you use?</b>			
Wrong	40 (75.5)	13 (24.5)	0.13
Correct	214 (66.7)	107 (33.3)	
<b>How many cubes of sugar and spoons of sugar do you use to prepare ORS?</b>			
Wrong	183 (69.1)	82 (30.9)	0.46
Correct	71 (65.1)	38 (34.9)	

\*values are significant at  $P < 0.05$

More than half of them earned less than sixteen thousand (₦16, 000.00) naira monthly (44 USD). This shows that a large percentage of the mothers surveyed were earning below the national minimum wage, and this could contribute to their struggle in taking care of their children. Almost all of them had a means of livelihood; just very few were house wife unlike the report from a study by Suganya *et al.*<sup>13</sup>, where 86.7 % of mothers were house wives.

### **Knowledge**

Slightly above half of the mothers and caregivers were able to define diarrhoea as stooling three times or more but majority of them consider a child to be having diarrhoea only when he/she stools for 5 times and above in a day. Generally, they showed poor knowledge of diarrhoea. This

finding is consistent with the research carried out in India which reported that 55 % of mothers surveyed had inadequate knowledge regarding management of Diarrhoea<sup>13</sup>; and in Iran which reported that 71 % of their mothers had poor or inadequate knowledge of diarrhoea management<sup>14</sup>. However, this observation is in contrast with some studies carried out in Ethiopia which revealed that mothers had a higher knowledge on the management of diarrhoea 63.6 %<sup>15</sup> and in Oyo state, Nigeria<sup>10</sup> where majority of the mothers were able to define diarrhoea correctly.

When mothers were asked for the aetiology of diarrhoea, less than half knew that contaminated water, food and poor hygiene were causes of diarrhoea and only a few of them knew that bacteria and virus could cause diarrhoea. The knowledge of

mothers on the causes of diarrhoea in a study at Ethiopia<sup>15</sup> was higher than as seen in this study, as 66.6% were able to identify poor hygiene as a cause and in Lesotho<sup>16</sup> where majority of the respondents identified unclean water as a cause. With regards to cause of diarrhoea, previous studies in Nigeria have shown that poor hygiene and sanitation condition at home are risk factors for Diarrhoea<sup>2,3</sup>.

For prevention, almost half of the mothers identified maintaining a hygienic environment as a way to prevent diarrhoea but were unable to identify washing of hand after using toilet and before preparing food as a preventive measure. This lack of knowledge of aetiology and prevention of diarrhoea observed is of paramount importance as this implies that such mothers from the setting in this study might not be able to take proper preventive measures to avoid diarrhoea. This observation is of clinical significance because since mothers are the major caregivers to children, such poor knowledge will translate to poor practices like feeding a child or preparing meals without washing their hands after the use of toilet, which will expose a child to greater risk of being infected/re-infected and developing diarrhoea.

More than half of them got information about diarrhoea from health professional (nurses, doctors, pharmacists, laboratory scientist). None of the mothers were able to completely identify the five signs of diarrhoea (loose watery stool, abdominal pain/cramp, dizziness/weakness, fever and increased thirst), while only a few were able to identify between 3 and 4 signs correctly. Most of them were accustomed to increased thirst and dry skin as major signs of diarrhoea. This observation differs from reports from Ethiopia<sup>17</sup> where most of the respondents identified weakness as the major sign of under-five Diarrhoeal disease and Lesotho<sup>16</sup> where very few identified dry skin and sunken eye as danger signs for diarrhoea.

This poor knowledge of causes, signs and prevention of diarrhoea observed among mothers in this study could have arisen from the study findings on the effect of occupation and income earnings of these mothers. Their source of information on diarrhoea suggests that most of them may not have been taught in very simple and clear terms thus the poor knowledge.

Concerning preparation of ORS, almost all of them claimed they knew how to prepare ORS while almost half of them could not state correctly how long a prepared ORS should last. The good knowledge of ORS preparation by mothers was not a true positive knowledge as it did not translate to good practice in diarrhoea management. Our finding presents lower percentage knowledge of ORS preparation compared to another work<sup>17</sup> where 67% of its respondents were able to identify the correct volume of water recommended for reconstituting a sachet of ORS. More than half of the mothers in response to the first action they would take in treating diarrhoea correctly chose administering ORS; one quarter of them will give drug orally while very few will give herbs or intravenous fluid. ORS has been the first line treatment for diarrhoea both in children and adult, the administration of oral drugs through self is not encouraged as in most cases patient complicates the health condition in the course of this practice.

### *Practices*

In the actual action taken in management of diarrhoea, specific results showed that two thirds of them had poor practice in feeding a child with diarrhoea. Less than half gave breast milk as a necessary feeding in diarrhoea while one third gave well-made pap. For the first action to be taken when child develops diarrhoea, one third of them used drugs while more than half will use both drugs and ORS. Most mothers prepared and used ORS but more than half of the mothers did not use the correct quantity of salt and sugar in preparing oral rehydration solution. A few of them use salt

and water solution or ordinary water in diarrhoea management. The clinical implication of using ORS beyond 24 hours which could also constitute a potential source of bacterial infection exacerbating presenting symptoms. Inappropriate preparation of ORS as observed among them will result in administration of hypertonic or hypotonic solution depending on the concentration of solution prepared. Solution with greater quantity of salt and sugar will lead to hypertonic solution resulting in further collapse of the cells and blood vessel as fluid will move from intracellular to extracellular and vice versa for hypotonic.

Most of them had used oral drugs correctly, while few used antibiotics. The most common antibiotics used by mothers were ampicillin/cloxacillin, ampicillin and tetracycline. There was a prevalent use of tetracyclines (TCN) among these mothers for the management of diarrhoea. TCNs are deposited in the skeleton during gestation and throughout childhood and may depress bone growth in premature infants. It also causes decrease in fibula growth rate in premature babies<sup>18</sup>, which could be reversed if the period of exposure to the drug is short; hence tetracyclines are not recommended for treatment in children younger than 8 years of age<sup>19</sup>. However, use of tetracyclines is recommended only in infections where the benefits outweigh the risks of adverse events. These include rickettsial infections such as Rocky Mountain Spotted Fever (RMSF) or ehrlichiosis, and other infections such as cholera and anthrax<sup>20</sup>.

Mothers in this study took their children child to the hospital too late especially after the child was weak; this practice is risky as it will complicate the management in terms of drugs to be administered, number of days spent in hospital and eventual cost of the health care to be received.

The result regarding practices towards diarrhoea management obtained in this study is not in agreement with a study conducted at India, where 77.9 % of

mothers used antibiotics to treat Diarrhoea<sup>21</sup>, but is similar to reports from Nigerian studies that reported between 43.5 %<sup>12</sup> and 34 %<sup>22</sup> antibiotic use. Their performance with ORS preparation though poor is better than what was reported in Nepal where none of the mothers knew how to prepare ORS<sup>23</sup>. This result is in congruence with another report from Ethiopia where 2.7 % of the mothers used salt and water solution in management of diarrhoea<sup>15</sup>. In another study at India reported very lower (8.4 %) use of ORS by their mothers compared to this study<sup>21</sup>. This observation differs from the result of another study which reported a significant association between mother's knowledge and age, education and occupation<sup>14</sup>. A study by Suganya and colleagues reported association between income, education and age with the mother's knowledge of diarrhoea<sup>13</sup>.

The relationship between demographic characteristics and mothers' knowledge was assessed and result revealed that the type of occupation engaged by the mothers and their monthly income was associated with mothers' knowledge. Their level of education, marital status and age was not associated with their knowledge. Mothers who were civil servants had better knowledge than others while those earning above ₦50,000.00 (three times the national minimum wage of ₦18,000.00) showed better knowledge than others. Mothers who possessed good knowledge of diarrhoea practiced proper feeding for their children, visited the hospital early and took correct action towards management of diarrhoea.

This study has emphasized the need for public health education among mothers on causes, preventive measures and management of diarrhoea. There is need to explain in details what practices are required to achieve good hygiene and sanitation. The practices involved should be spelt out to mothers during antenatal care, community outreach or any health talk program. Health talk should also involve practical sessions where ORS is physically

prepared to the view of all mothers with emphasis on quantity of water, sugar and salt used.

#### **Limitations of study**

Our study has some inherent limitations. Our result may not generalize to all mothers and care givers as our sample size (participants) constitute 7% of the entire study population. It has been shown that self-reported practices can be misleading since some participants might not respond to the survey questions as they would act in real settings<sup>24</sup>. Finally, the random selection method employed, may have excluded, participants, both mothers and care givers who could be more interested in diarrhoea management than those who participated into the study.

#### **CONCLUSION**

Most of the mothers surveyed had poor knowledge about diarrhoea prevention and management and this translated significantly to poor feeding of child, late visit to hospital for treatment and incorrect preparation of ORS. Strategies to improve parental knowledge about diarrhoea could have better gains in reducing the menace.

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