



ASSESSMENT OF MOTHERS' KNOWLEDGE OF HOME MANAGEMENT OF CHILDHOOD DIARRHEA IN A NIGERIAN SETTING

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Abstract

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Diarrhea can be defined as passage of loose or watery stool more frequently than normal for the age of the individual. Diarrhea continues to be a major cause of morbidity and mortality in the developing countries. The role of mothers in the care of a child cannot be overemphasized. This study was a descriptive cross sectional study conducted among mothers of child bearing age in Ilorin West Local Government, Nigeria to determine the knowledge of mothers on oral rehydration therapy (ORT) in the management of childhood diarrhea. Two hundred mothers participated in the study and were chosen using systematic sampling technique. Data collection was by the use of Interviewer administered questionnaire. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 14. Result showed that a large percentage of mothers used for the study had good knowledge about diarrhea. Most (78.5%) of them were able to define diarrhea correctly as passage of watery stool with more frequent times than normal. The number of respondents that were able to identify contaminated foods and drinks as one of the causes of diarrhea was above average (55.5%).

A large percentage (71.5%) of the respondents was also able to identify increased frequency of stooling as a symptom of diarrhea. As regards prevention of diarrhea, the mothers were able to mention preventive methods like good mother/ child environmental hygiene, provision of adequate health care delivery services and prompt treatment of infection. Respondents' method of sewage disposal was found to have an influence on whether or not their children have experienced diarrhea ($p=0.004$). Similarly, respondents' level of education was found to have an influence on the substances used to treat diarrhea in children under five and also their knowledge of food restriction in a child with diarrhea ($p=0.000$ and 0.018 respectively). Respondents' knowledge of Oral Rehydration Therapy was generally average: although 70.1% of total respondents identified the oral rehydration salt (ORS) sachet correctly, only 55.5% said it was used to replace lost fluids/ electrolyte; 41% gave correct response as regards the preparation of sachet ORS and 40% were able to mention correctly the components of homemade ORS. There was an association between respondents' knowledge of the importance of ORS and their ability to list components of homemade ORS. ($p=0.002$).

The respondents' knowledge of diarrhea was good, but majority lacked knowledge of ORT. Efforts should be made at the community level to improve the knowledge of mothers towards self care of diarrhea using ORT.

INTRODUCTION

Gastrointestinal (GI) infections are among the most common causes of morbidity and mortality around the world. Most are caused by viruses and some are caused by bacteria or other organisms¹. In underdeveloped and developing countries, acute gastroenteritis involving diarrhea is the leading cause of mortality in infants and children younger than 5 years of age¹. Diarrhea is a serious problem in many areas of the world and is especially lethal when superimposed on malnutrition. Diarrhea results in large losses of water and electrolytes, especially sodium and

potassium, and frequently is complicated by severe systemic acidosis².

Diarrheal disease remains a leading cause of mortality and morbidity of children in Sub-Saharan Africa. Diarrheal disease alone is responsible for 27% of all infant morbidity and 24% of all infant mortality in Nigeria. More than 1.5 million children under five continue to die each year as a result of acute diarrhoea. In 1998, diarrhoea was estimated to have killed 2.2million people, most of whom were under 5 years of age³. Approximately four

billion cases of diarrhoea occur each year and cause 2.2million deaths, mostly among children under the age of five³. This is equivalent to one child dying every 15 seconds, or 20 jumbo jets crashing every day. These deaths represent approximately 15% of all child deaths under the age of five in developing countries³. Although diarrhea kills about four million people in developing countries each year, it remains a problem in developed countries as well. In the United States, each child will have had 7-15 episodes of diarrhea by the age of 5 years, 9% of all hospitalizations of children less than 5 years old are associated with diarrhea, and 300-500 children die each year from this potentially preventable condition⁴.

Twenty-four years ago, oral rehydration therapy was first proven to be effective in the outpatient management of patients with severe dehydrating diarrhea caused by cholera. The development of this simple therapy for the treatment of diarrhea, one of the most common illnesses of mankind, was heralded as one of the great medical achievements of the 20th century. Oral Rehydration Therapy has now become the mainstay of the World Health

Organization's efforts to decrease diarrhea morbidity and mortality, and Diarrheal Disease Control Programs have been established in more than 100 countries worldwide⁴. Oral rehydration therapy adopted by the UNICEF and WHO in the late 1970s have been successful in helping manage diarrhea among children. It is estimated that in 1990s, more than 1 million deaths related to diarrhea may have been prevented each year, largely attributed to the promotion and use of these therapy. Today, however, there are indications that in some countries knowledge and use of appropriate home therapies to successfully manage diarrhea including ORT may be declining.⁵

Appropriate healthcare-seeking behavior could prevent a significant number of child deaths and complications due to ill health. Improving mothers' care-seeking behavior could also contribute in reducing a large number of child morbidity and mortality in developing countries. Between 1990 and 2000, diarrhea-related deaths decline by half thereby achieving World Summit Goal. While the cause- specific mortality is difficult to measure, it is estimated that more than one million child deaths per year

have been prevented⁶. This research work therefore assesses the knowledge of mothers on home management of childhood diarrhea.

MATERIALS AND METHODS

Setting

Ilorin West Local Government Area (LGA) is one of the LGA's that make up Ilorin metropolis, capital city of Kwara State in Nigeria. The Local Government is made up of four districts. Major sources of water are pipe-borne, borehole, well and stream. Major refuse disposal methods are through water closet, pit latrine and in the bush. Methods of waste disposals are use of dustbin, burning and incinerators planted at strategic sites in the area. The area is relatively neat at all times as there are Government employed workers who ensure that the streets and gutters are always clean. The area has one tertiary health institution, two state owned secondary health centers and numerous primary health care centers.

Study population

Mothers of under-five children resident in the LGA were included in the study.

Households without at least one under-five child in the study areas were excluded.

Study design

This was a descriptive cross sectional study.

Sampling technique

- Ten out of the 12 political districts of Ilorin West LGA were selected using simple random sampling by simple balloting.
- Twenty households that met the inclusion criteria in each of the selected district were selected using systematic sampling technique as follows:
- Households were sampled at interval of three household until a total of 20 households meeting the inclusion criteria was sampled.
- Only one member of the household meeting the inclusion criteria was sampled.
- The index house was determined using Grid method in which a bottle was spun in the centre of the district. The direction of the bottle after been spun determined the starting point of the sampling.

Data Collection and analysis

Interviewer administered questionnaire was used to collect data. The data from questionnaire was sorted out and analyzed using SPSS version 14 results were presented in form of frequency tables and p-values < 0.05 were considered significant.

RESULTS AND DISCUSSION

A total of 200 mothers of under fives were sampled using Fisher's formula. 112 (56%) of respondents were Muslims while 88 (44%) were Christians. Majority of the respondents had tertiary education 116 (58%), followed by those with secondary education 67 (33.5%), and primary education 10 (5%). Those that had no formal education were 7 (3.5%).

Among the 200 respondents, 116 (58%) got their source of water supply from tap, 32 (16%) from wells and 52 (26%) from boreholes. Respondents' method of sewage disposal included use of water closet 160 (80%), use of pit latrine 34 (17%) and open defecation 6 (3%). Table 1 shows the age distribution of respondents. From the result obtained, The youngest respondent was 21years of age while the oldest was 50 years of age. The age range therefore was 29.

Out of the 200 respondents interviewed, 186 (93%) respondents said that they are aware of diarrhea while the remaining 14 (7%) said they are not aware. Table 2 shows the respondents knowledge of the characteristics of diarrhea. When questioned on their sources of information, 60 (30%) of them said it was through the mass media, 74 (37%) through the hospital, 14 (7%) through friends, 23 (12.5%) through Pharmacists and 15 (7.5%) through relatives.

Out of the 186 respondents that are aware of diarrhea, 120 (64.5%) of them said increase fluid and food intake in a child with diarrhea is important, 57 (30.6%) said it is not and 9 (4.8%) said they do not know. Also, 61 (32.8%) agreed that diarrhea is a normal process when a child is growing up while 125 (67.2%) of them did not agree. The respondents also listed four symptoms necessitating the treatment of diarrhea outside the home namely: passage of blood/mucoid stool (52; 30.4%), fever (31; 18.1%), vomiting (42; 24.6%) and presence of signs of dehydration (89; 52%).

Table 3, 4 and 5 show the respondents' knowledge on the cause of diarrhea, signs

of diarrhea and ways of preventing diarrhea respectively. Substances used by mothers for their child during diarrhea episode include Antibiotics (26 (17.2%), packet ORS 50 (33.1%), Herbal medicine 4 (2.6%), salt and sugar solution 33 (21.9%) and general self medication to stop the stooling 47 (31.1%). Three (2%) said they use nothing to stop or reduce the episode of diarrhea.

Of the 200 mothers sampled for the study, 170 said they are aware of ORS. One hundred and thirty six of this claimed to have the knowledge of preparing the ORS sachet, out of this, 82 corresponding to 60.3% of them gave a correct response as to the preparation of ORS (that is, one ORS sachet + one liter of boiled and cooled water) while 54 (39.7%) gave incorrect responses. Their sources of information on preparation include Doctor (41; 30.1%), Pharmacist (43; 31.6%), Nurses (40; 29.4%), Neighbors' (3; 2.2%), Friends (5; 3.7%), Mass media (2; 1.5%) and reading of the instruction on the sachet (2; 1.3%).

Of the 170 respondents who were aware of ORS, 119 (70%) said they could mention the components of homemade ORS also known as salt sugar solution (SSS) while 51 (30%)

said they could not. Out of 119 mothers who claimed that they could mention the components of homemade ORS, 80 (67.2%) of them were able to mention the components correctly (that is, 10 level teaspoonful of sugar or 5 cubes of sugar + 1 level teaspoonful of salt + 1 liter of boiled and cooled water). The rest of them (39; 32.8%) gave wrong responses. Majority (80%) said administration of homemade ORS should be with cup and spoon, 12% believes feeding bottle is the best while 8% did not give any response.

On restriction of food during diarrhea, 54.3% of mothers used to continue usual feeding and increased fluid while 45.7% believed some food should be restricted. Majority of those that believed food should be restricted were based on personal views while some claimed they had their information from nurses. Table 6 shows summary of the statistical analysis done on relationship of some variables on others.

DISCUSSION

The respondent's age range cut across the child-bearing age range for a woman which is from 15 to 49 years. The modal age for the respondent also fell mid-way between

the child bearing ages. In general, the age distribution of respondents gives a good representation of the reproductive age range for women in the locality. All forms of educational status were represented in this study; ranging from those who had no form of formal education to those who had tertiary education. The religion distribution showed a higher predominance of Muslims (56%) with the Christians constituting 44% of the respondents. The predominance of Muslims may be as a result of Ilorin town being a predominantly Islamic town.

The respondents' sources of water supply generally indicate that most of the respondents had good source of water supply. The major method of sewage disposal by the respondents was through water closet. This accounts for 80% of total of 200 respondents. Open defecation was the least accounting for 3% while pit latrine method was 16%. The high use of water closet may be because Ilorin town is an urban area depicting that majority of houses being modern in nature, have good sewage disposal method.

The results obtained from analysis of the questionnaire on the respondents'

knowledge of diarrhoea disease showed that 146(78.5%) of the respondents defined diarrhoea as passage of watery stool with more frequent times than normal. Of the 186 that responded to the question, 13(7%) believed that there should be presence of stool and mucus, while 8(4.3%) defined diarrhoea as a disease that results from contaminated food and drink. This shows that majority had good understanding of what diarrhoea is and also shows that mothers will be able to identify episodes of diarrhoea when their children have one. The result obtained here is similar to that obtained in a similar study carried out in Ajasse Ipo area of Kwara state where 95.5% of respondents were able to give correct definition of diarrhoea⁷. On their awareness on the causes of diarrhoea, most mothers; 111 of the 186 respondents who were aware of diarrhoea believed diarrhoea is caused by contaminated food and drink. Mothers who could identify the causes of diarrhoea may be able to avoid such causative factors that may reduce incidence of diarrhoea among their children. This response is similar to a result of the study done in Haiti; Dominican Republic where water, food and microbes were identified as

the major causes of diarrhea.⁸ Teething condition has been identified by 3% of the respondents. This is in contrast to a study carried out in Enugu where results among market women showed that 71% of the mothers perceived that diarrhea was caused by teething.⁹ This assumption is also related to cultural issues among the Bangladeshi that diarrhea in children during teething may be regarded as normal¹⁰. However, a few of the respondents believe that constipation and/or worm infestation can also cause diarrhea while heat especially during summer can lead to diarrhea in children as indicated by 6.5% of the respondents. In general, the majority of mothers used in this study were able to identify the correct causes of diarrhea which is good as regards its prevention and treatment. This may in turn help in morbidity and mortality reduction among children showing symptoms of diarrhea.

The knowledge of mothers was also assessed on the recognition, use and preparation of ORS/SSS. Most mothers were able to recognize packet of ORS but not all of them were able to correctly name it as Oral Rehydration Salt (ORS). More than

half of the respondents knew the function of ORT in replacing lost fluid and electrolytes. This level of awareness is high. ORS has been found to be very useful in reducing morbidity as a result of diarrhea, therefore the high awareness among mother will aid in taking the right step in the treatment of childhood diarrhea at home. However, when these mothers were asked on the correct preparation of ORS, only 82 mothers were able to give correct responses. This value is just 41% of the entire study group. Their knowledge concerning this is quite low as it is below average despite the fact that their sources of information were more from the right sources: Pharmacists, Doctors and Nurses. This value is also lower than value obtained from similar study in Ajasse Ipo, Kwara state⁷; two markets in Ibadan¹¹ and Enugu urban⁹ where 97.5%, 80% and 77% of respondents were able to prepare it correctly respectively; but higher when compared to a study carried out in Dharan, Nepal, where only 36.3% of the respondents knew oral rehydration fluid but only 6.1% knew complete procedure for its preparation¹².

Similar result as with preparation of ORS was obtained in this study when the respondents were asked on the preparation of homemade ORS-Salt Sugar Solution(SSS) as only 80 respondents corresponding to 40% of the entire study group were able to mention correct components of Salt Sugar Solution. Though this result is more impressive than that obtained in Ikara L.G.A in Kaduna where only 14% of mothers could prepare the mixture correctly, the figure can still be considered as relatively low.¹³ Despite the low knowledge of mothers on its preparation, majority (135) agreed that homemade ORS should be administered to a child using clean cup and spoon which happens to be one of the best ways for its administration because it avoids contamination as much as possible. Possible intervention in this area need to be looked at. SSS contains of components which may be readily available in most homes in Nigeria. It may even be more readily available than sachet ORS. Therefore, mothers' knowledge on SSS is very important when it comes to home treatment of diarrhea and methods of enhancing their knowledge on this must be taken paramount.

Restriction of some groups of food was advocated by majority of the respondents in order to control the progression of diarrhea. According to another study conducted in Nigeria, foods were implicated in diarrhea causation if they were considered contaminated, excessively sweet or having the ability to dirty the stomach. Beans was noted for dirty stomach while sugary foods and overripe fruits caused "Jedi jedi".¹⁴ (a local name for diarrhea) The result obtained here was also in line with that obtained in the study conducted in Ajasse Ipo where beans was also the most implicated food.⁷ The approach of withholding food had previously been the standard procedure for some.

A relationship was determined between the level of education and the substance used in the treatment of diarrhea. It was found that the level of education strongly affected the choice of substances ($p < 0.01$). More mothers who had tertiary education use pre packaged ORS while those with no formal education or primary education did not use ORS at all. The incidence of use of self-medication was less in those with tertiary education compared to those with primary

and secondary education (Appendix I). Education is a vital tool when it comes to health information. The result seem to show that the higher the level of education of the mothers, the better their knowledge on the substance that should be used in diarrhea treatment. Education has also been found to influence the knowledge of mothers on food restriction in a child with diarrhea (Table 6).The result also showed that more than half of the respondents with tertiary education did not support food restriction in a child with diarrhea while all the respondents with no formal education agreed that food should be restricted (Appendix II).

Also, there was association between respondents' method of sewage disposal and whether or not respondents' children have experienced diarrhea. All those who defecate openly said their children had experienced diarrhea before and almost those entire using pit latrine also responded the same way. Lesser percentage of respondents' children who use water closet had experienced diarrhea. This shows that

better sewage disposal system may reduce the incidence of diarrhea in children because better system can reduce direct contact between the sewage and the child. Sewage contains harmful microorganisms which may have the ability of precipitating diarrhea in children.

Lastly, majority of those who agreed that ORS was necessary in the treatment of diarrhea were able to give the correct components of homemade ORS ($p= 0.002$). Knowing the importance of an item may enhance seeking for more information about that item.

CONCLUSION

The respondents in this study had a good knowledge of diarrhea but lacked knowledge of ORT and its use. Efforts to improve their knowledge at the community level may have a positive impact in their knowledge and practice of oral rehydration therapy.

TABLE 1
AGE DISTRIBUTION OF RESPONDENTS

AGE IN YEARS	FREQUENCY (%)
21-25	49 (24.5)
26-30	71 (35.5)
31-35	64 (32)
36-40	10 (5)
41-45	3 (1.5)
46-50	3 (1.5)
TOTAL	200 (100)

TABLE 2
RESPONDENTS' KNOWLEDGE OF THE CHARACTERISTICS OF DIARRHEA

RESPONDENTS' UNDERSTANDING OF DIARRHEA	FREQUENCY (%)
Disease as a result of contaminated food and water	8 (4.3)
Disease as a result of eating what the body dislikes	2 (1.1)
Disease as a result of food poisoning	3 (1.6)
Disease characterised by frequent watery stooling for more number of times than normal	146 (78.5)
Disease characterized by frequent vomiting	66 (35.5)
Disease resulting from dehydration as a result of loss of body fluid	11 (5.9)
Disease as a result of frequent stooling with presence of mucous	9 (4.8)
Disease as a result of infection	3 (1.6)
Disease as a result of frequent stooling with presence of blood	4 (2.2)

TABLE 3

RESPONDENTS' KNOWLEDGE ON THE CAUSES OF DIARRHEA

CAUSES OF DIARRHEA	FREQUENCY (%)
Contaminated food and drinks	111 (59.7)
Sugar and sugary food	17 (9.1)
Milk and milk products	12 (6.5)
Unhygienic environment	20 (10.8)
Heat	12 (6.5)
Uncooked or poorly cooked foods	3 (1.6)
Mother's non-challant attitude towards child care	7 (3.8)
Constipation	3 (1.6)
Child teething period	6 (3.2)
Worm infestation	3 (1.6)

TABLE 4

RESPONDENTS' KNOWLEDGE ON THE SIGNS OF DIARRHEA

SIGNS OF DIARRHEA	FREQUENCY (%)
Frequent loose stooling more than usual number of times	143 (76.9)
Child becomes generally weak	25 (13.4)
Vomiting	23 (12.4)
Paleness	6 (3.2)
Loss of appetite	5 (2.7)
High body temperature	7 (3.8)
Stomach ache	11 (5.9)
Presence of mucous in the stool	7 (3.8)
Child's teething period	3 (1.6)
I don't know	3 (1.6)

TABLE 5

RESPONDENTS' KNOWLEDGE ON WAYS OF PREVENTING DIARRHEA

PREVENTION OF DIARRHEA	FREQUENCY (%)
Adequate health care delivery services	3 (1.6)
Use of clean and treated water or avoidance of contaminated water	51 (27.4)
Good mother, child and environmental hygiene	67 (36)
Eat well cooked food and avoid contaminated food	53 (28.5)
Prompt treatment of infection	3 (1.6)
Reduction of sugar and sugary food intake	4 (2.2)
Regular use of Oral Rehydration Salt (ORS)	18 (9.7)
I don't know	3 (1.6)

TABLE 6

SUMMARY OF VARIOUS FACTORS INFLUENCING MOTHERS' KNOWLEDGE ON DIARRHEA TREATMENT

ASSOCIATIONS	P VALUE
Relationship between respondents' level of education and substance used to treat diarrhoea for children under five	0.000
Relationship between respondents' level of education and their knowledge on food restriction in a child with diarrhoea	0.018
Relationship between respondents' method of sewage disposal and whether or not their children has experienced diarrhoea	0.004
Relationship between respondent knowledge on the importance of ORS and their ability to list component of Homemade ORS	0.002

APPENDIX

APPENDIX I

RELATIONSHIP BETWEEN RESPONDENTS' LEVEL OF EDUCATION AND SUBSTANCE USED TO TREAT DIARRHEA FOR THEIR CHILDREN UNDER FIVE

LEVEL OF EDUCATION	SUBSTANCE USED FOR TREATMENT OF DIARRHEA						TOTAL
	Herbal medicine (%)	Antibiotic (%)	Self medication (%)	Packet ORS (%)	Salt and sugar solution (%)	Nothing	
Primary	0	3 (30)	7 (70)	0	0	0	10 (100)
Secondary	0	13 (24.5)	20 (37.7)	8 (15.1)	12 (22.6)	0	53 (100)
Tertiary	2 (2.1)	10 (10.5)	20 (21.1)	42 (44.2)	18 (18.9)	3 (3.2)	95 (100)
None	2 (40)	0	0	0	3 (60)	0	5 (100)

p= 0.000

APPENDIX II

ASSOCIATION BETWEEN RESPONDENTS' LEVEL OF EDUCATION AND THEIR KNOWLEDGE ON FOOD RESTRICTION IN A CHILD WITH DIARRHEA

LEVEL OF EDUCATION	IT IS NECESSARY TO RESTRICT FOOD INTAKE IN A CHILD WITH DIARRHEA		TOTAL
	Yes	No	
Primary	4 (57.1)	3 (42.9)	7 (100)
Secondary	33 (50)	33 (50)	66 (100)
Tertiary	43 (39.8)	65 (60.2)	108 (100)
None	5 (100)	0	5 (100)

p= 0.018

APPENDIX III

RELATIONSHIP BETWEEN RESPONDENT' METHOD OF SEWAGE DISPOSAL AND WHETHER OR NOT THEIR CHILDREN HAS EXPERIENCED DIARRHEA

MEHTOD OF SEWAGE DISPOSAL	HAS YOUR CHILD EVER EXPERIENCED DIARRHEA			TOTAL
	Yes	No	I don't know	
Pit latrine	33 (97.1)	0	1 (2.9)	34 (100)
Open defecation	6 (100)	0	0	6 (100)
Water closet	116 (72.5)	40 (25)	4 (2.5)	160 (100)

p= 0.004

APPENDIX IV

ASSOCIATION BETWEEN RESPONDENTS' KNOWLEDGE ON THE IMPORTANCE OF ORS AND THEIR ABILITY TO LIST COMPONENT OF HOMEMADE ORS

ORS IS NECESSARY IN THE TREATMENT OF DIARRHEA	RESPONSES ON COMPONENTS OF HOMEMADE ORS		TOTAL
	Correct responses (%)	Wrong responses (%)	
Yes	80 (70.8)	33 (29.2)	113 (100)
No	0	6 (100)	6 (100)

p= 0.002

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