

# Home management of childhood diarrhoea: Need to intensify campaign

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## Abstract

A review of home management of childhood diarrhea in under-five children among 203 Nigerian mothers was carried out over a period of 3 months in order to ascertain how effectively they manage their children with diarrhea outside a hospital setup (infrastructural health facility). Mothers whose children had diarrhea, with or without other symptoms, and presented at the Children's Out Patient unit (CHOP), of the UNTH over the study period were consecutively interviewed through a questionnaire designed for the study. The questionnaires were designed and administered by the authors. There were 30 mothers in social class 1; 59 in social class 2; 52 in social class 3; 13 in social class 4, and 7 mothers in social class 5. Information was obtained on the method of detection, causes of diarrhea, and treatment including their knowledge and use of oral rehydration salts with or without anti diarrheal and antibacterial agents. Out of the 203 mothers interviewed, 140 (71%) correctly defined diarrhea. 112 (55.2%) could identify correct causes of childhood diarrhea. Only 80 (39.4%) could correctly manage diarrhea at home. About 76% (154 mothers) knew that they should use an oral rehydration salt; of this number, 56 (27.6%) could correctly prepare SSS, while 29 (14.3%) could do the same for the UNICEF ORS. In addition, anti bacterial, anti-diarrheal, and/or herbal preparations were used by 38 (18.7%) of the mothers. The level of knowledge of oral rehydration therapy has dropped in our locality since its inception in the early 1990s. There is need to intensify maternal education in this area since we now have a new generation of mothers who were not there during the inception of the program.

**Key words:** Diarrhea; Dehydration

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## Introduction

Childhood diarrhea is caused by many organisms, mainly viral, bacterial, and protozoan. When associated with passage of blood in stool, this is referred to as dysentery.

Diarrhea can also be due to intolerance of some types of food especially lactose containing milk. Infections in other parts of the body can lead to parenteral diarrhea.

By far the foremost cause of diarrhea leading to death and morbidity worldwide in childhood is rotavirus infection. It is only second to pneumonia as a killer in children.<sup>[1]</sup> It derives its name from the wheel-like shape of the organism when

viewed under the electron microscope. There are many strains of this virus, some of which can also infect birds and other animals, but the main types that cause disease in man (children mainly) belong to the Group A. Occasional human infections by Groups B and C have also been seen. These groups are important because they can induce antibody production against the virus, thereby leading to immunity against the virus.

All over the world, the number of cases of rotavirus infection leading to diarrhea annually is estimated at

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125 million in children under the age of 5 years.<sup>[2,3]</sup> Out of this number, almost 20 million cases have severe diarrhea, while over ½ million lose their lives to dehydration. Since most of these estimates are made by research bodies in Europe and America, it is believed that the actual figures in Africa including Nigeria could be much higher, because of poverty, ignorance, malnutrition, and some other social factors.

Before the age of 5 years, practically every child in the African environment has had at least one episode of childhood diarrhea with some having up to three episodes per year.<sup>[1]</sup>

The introduction of oral rehydration therapy (ORT) in 1975 has significantly reduced the mortality from this disease condition.<sup>[4]</sup> This mode of treatment is cheap, acceptable, affordable, safe, and can be applied in virtually any environment.

ORT which consists of rehydration, continued feeding of normal diet, and replacement of continuous fluid loss, now saves more than 1 million children annually.<sup>[5]</sup>

Since this treatment can be successfully applied at home, it is necessary to reassess the knowledge and practice of ORT by mothers in our locality since its campaign was launched in Nigeria in 1985.<sup>[5]</sup> This will help ascertain whether the gains made after the introduction of this mode of therapy in Nigeria in the late 1980s and early 1990s is being sustained.

### Definition

Diarrhea is defined as passage of three or more loose or watery stools in a 24-h period, a loose stool being one that would take the shape of the container.

In exclusively breastfed infants it is an increase in stool frequency or liquidity that is considered abnormal by the mother or care giver.

The major types are:

- Acute watery
- Persistent
- Intractable
- Toddler's diarrhea and
- Dysentery.<sup>[6]</sup>

## Materials and Methods

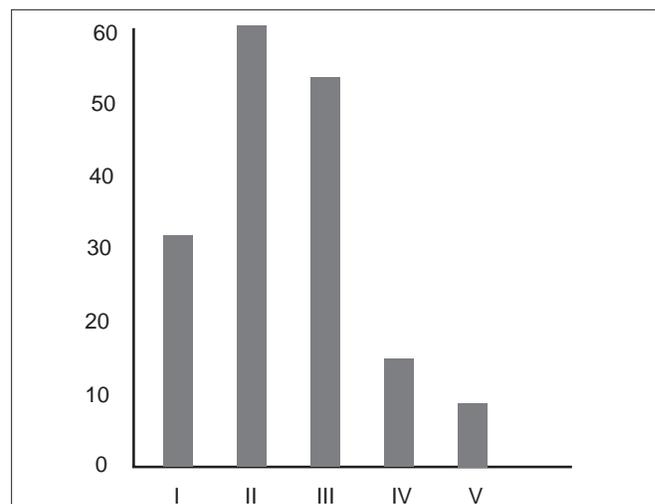
This study was carried out in the Children's Out Patient Clinic (CHOP), of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu (UNTH). The UNTH is a tertiary institution which receives referrals from all the states in the Eastern part of Nigeria. However, most of the patients seen in the CHOP are mainly from the city of Enugu and Enugu State who come on their own to receive medical attention.

For a period of 3 months, 203 consecutive mothers who brought their children for consultation at the clinics for complaints of diarrhea with or without other symptoms were subjected to a questionnaire designed and administered by the authors, after obtaining their informed consents. Ethical clearance was obtained from the Health Research and Ethics Committee of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu.

The questionnaires were administered by the authors and some nursing staff who had been trained for the purpose in both English and Vernacular (Igbo) languages. The questions were open-ended and designed to obtain information on the age of the mothers and their babies, parity, area of domicile, social class, and marital status of the mothers. Information on knowledge of diarrhea as a disease, causes and prevention, and treatment using the oral rehydration therapy (ORT) with either the salt sugar solution (SSS) or UNICEF oral rehydration solution (ORS) were obtained using the questionnaire. Other modes of therapy which the mothers may have adopted for treating diarrhea were also inquired for. The social class of the women was determined using the Oyediji method of social Classification.<sup>[7]</sup> The data collected were analyzed using the SPSS software version 10.

## Results

The total number of mothers interviewed during the period of the study was 203. Out of this number, 30 mothers were of social class 1 (14.77%), 59 were of social class 2 (29.06%), 52 of social class 3 (25.61%), 13 (6.40%) in social class 4, and 7 (3.45%) in social class 5. The social class of 42 mothers (20.68%) could not be determined since they were not sure of their husbands' educational level. This is illustrated in Figure 1.



**Figure 1:** Social class of mothers: Class I 14.77%, Class II 29.06%, Class III 25.61%, Class IV 6.40%, Class V 3.45% 42 respondents (20.68 %) did not know their husband's level of education and therefore could not be classed

Table 1 shows the response of the mothers to the definition of diarrhea, or how they knew that their babies had diarrhea. A larger percentage of the mothers (69%) had an accurate understanding of what diarrhea was. 18.7% of the mothers had a combination of correct and incorrect symptoms as an understanding of what diarrhea was. Only 1.5% of the mothers were completely wrong in their understanding of what diarrhea was.

Table 2 shows that most of the mothers (53%) had a poor understanding of what caused diarrhea. Only 31% had a combination of correct causes of diarrhea. 11.3% said 'bad water' was the cause while 24.1% blamed contaminated food for causing diarrhea and these were accepted as correct answers.

In Table 3, 22.7% of mothers would use salt sugar solution (SSS) to treat their children who had diarrhea, while 9.9% of them would use UNICEF oral rehydration salt (ORS) for the same purpose. Seventy-five of the mothers (36.9%) combined both incorrect and correct methods for management of diarrhea. Most of the mothers used

antibiotics, anti diarrheals, herbal preparations for treating their babies for diarrhea at home, a practice that should be discouraged.

Among the mothers who used SSS and UNICEF ORS to treat their children at home 31% and 38.9% respectively, would use either of the solutions. 5.9% would use any of the two solutions if available [Table 4].

However, 51(63.8%) of the mothers described methods that would correctly prepare the UNICEF ORS for use while 29(14.3%) did not. A hundred and twenty-three mothers would not know what to do with the UNICEF ORS sachet [Table 5].

Table 6 shows the knowledge of the mothers on how to use the SSS when their children developed diarrhea at home. 56(27.6%) of the mothers knew how to prepare the SSS correctly before giving it to their children at home. 74(36.5%) mothers did not know how to prepare the SSS correctly while 73(36%) mothers did not know about the use of SSS for the treatment of their children.

## Discussion

The findings from this study leave a lot of room for concern for the appropriateness of the first line management of diarrhea in children which is usually at home and most often administered by the mothers. A survey carried out

**Table 1: Identification of diarrhea by the mothers**

	Frequency	Percent
Frequent watery stools	140	160.0
Frequent non-watery stools	3	1.5
Bloody stools	5	2.5
Mucoid stools	4	2.0
Greenish stools	1	.5
Any other	3	1.5
Combination of correct & incorrect symptoms	38	18.7
Incorrect symptoms	3	1.5
Total	197	97.0
Invalid entries	6	3.0
Total	203	100.0

Only frequent watery or non-watery stool were accepted as correct identification of diarrhea by the mothers

**Table 3: Mothers' method of treatment of diarrhoea at home**

	Frequency	Percentage
Sugar salt solution (SSS)	46	22.7
UNICEF ORS	20	9.9
Diastop (antidiarrhoeal)	2	1.0
Tetracycline	3	1.5
Flagyll (metronidazole)	14	6.9
Diapec (antidiarrhoeal)	10	4.9
Herbal preparations	1	0.5
Any other	8	3.9
ORS and SSS	14	6.9
ORS or SSS with any other remedy	75	36.9
Invalid entries	10	4.9
Total	203	100

**Table 2: Identified causes of diarrhea by mothers**

	Frequency	Percent
Bad water	23	11.3
Teething	8	3.9
Sugary food	2	1.0
Contaminated food	49	24.1
Normal development	2	1.0
Any other	8	3.9
Correct & incorrect causes	63	31.0
Combination of correct causes	40	19.7
Total	195	96.1
Invalid entries	8	3.9
Total	203	100.0

Only "bad water" and contaminated food were accepted as correct causes of diarrhea

**Table 4: Rehydration solution usually used by the mothers at home**

	Frequency	Percentage
Salt sugar solution (SSS)	63	31
UNICEF ORS	79	38.9
None	3	1.5
SSS and UNICEF ORS	12	5.9
Invalid entries	46	22.7
Total	203	100

**Table 5: Mothers' method of preparing UNICEF oral rehydration solution**

	Frequency	Percentage
Correct method	29	14.3
Incorrect method	51	63.8
Don't know/not sure	123	60.6
Total	203	100

**Table 6: Mothers' method of preparing salt sugar solution (sss)**

	Frequency	Percentage
Correct method	56	27.6
Incorrect method	74	36.5
Don't know/not sure	73	36
Total	203	100

in 1989 by WHO in 47 countries world-wide showed that ORS usage in Africa was only 10%.<sup>[8]</sup> In 1996 (seven years later), Okoro and Itombra-Okoro in a study sponsored by the UNICEF in the Cross River State of Nigeria reported a usage rate of ORT in different forms of 72%.<sup>[11]</sup> In their study, 82.9% of the mothers prepared ORS correctly, while 96% prepared SSS correctly. This study was carried out in the period when the ORT campaign of 1991-95 by the National Diarrheal Diseases Program (NCDDP) was going on. The result was similar to the findings in another part of the country during the same period.<sup>[9]</sup>

In our study, most of the mothers (71%) had an accurate understanding of what diarrhea is and could therefore either start treatment at home immediately or take their children to a hospital, health centre, or clinic for treatment [Table 1]. 18.7% of them had a combination of right and wrong symptoms as their definition of diarrhea. This smaller group is more likely to take the right step in the treatment of their babies. Only 1.5% did not have any understanding of what diarrhea is. However, in contrast to the 1996 study by Okoro and Itombra-Okoro where 82% and 96% of mothers prepared SSS and ORS correctively, respectively, our study had 27.6% and 14.3%, respectively.

It is expected that almost two decades after the introduction of ORT in the country, a much higher or at least a similar percentage of the mothers should not only be able to recognize and initiate treatment of diarrhea in their children at home, but also correctly prepare the fluids they would use for rehydration.

Most of the mothers had different understandings of what the cause of diarrhea was as shown in Table 2. Apparently, very few, if any understood that the most common cause of diarrhea was viral and therefore would not respond to antibiotic or anti-diarrheal therapy. Others thought that diarrhea was caused by teething, sugary food, bad water,

or is part of normal development of the child. This type of knowledge lays a foundation for either wrong intervention or non-intervention by the mothers when their children develop diarrhea with sometimes disastrous consequences. This understanding gives rise to higher mortality and morbidity rates in any community since the necessary early and accurate intervention for the proper management of childhood diarrhea is not applied.

In this study, only 22.7% of the mothers would use SSS for the management of their children who had diarrhea at home, while 9.9% used the UNICEF ORS [Table 3]. This finding is not very encouraging coming about 15 years after the introduction of ORT into the country by UNICEF in the late eighties. The target of the then NCDDP was to achieve an 80% coverage of the country in knowledge and application of the ORT by the end of 1995. From the studies cited above, it can be seen that this target was already being achieved in some parts of the country. What can be the reason for the very low figures seen in our study?

The data collected show that the knowledge of treatment of childhood diarrhea at home did not necessarily follow the social class lines [Figure 1]. The social class that had the best knowledge of treatment of diarrhea was social class 3 followed by social class 5. The least score was by social class 4. Educational level was not therefore a very important factor in the knowledge of home management of childhood diarrhea in this study.

The reason for the low level of knowledge of the use of ORT as shown by our study is most likely to be a drop in the level of education and awareness of the mothers on diarrheal management due to poor public enlightenment on this topic. Two decades after the introduction of ORT in Nigeria and some other African countries, the level of awareness may be on the decline due to the lack of consistency in maternal education on this issue.

While most of the mothers knew the potential seriousness of diarrhea, many used inappropriate methods to manage their children's problems [Tables 5 and 6]. This implies that since they knew the potential dangers they would have applied the correct modes of intervention if properly educated.

Most of the women who were nursing mothers when this practice was introduced are now much older and we most likely have another generation of young mothers who have not been schooled on how to handle their young infants with diarrhea.

One of the major problems encountered with these young mothers who have some knowledge of the home management

of childhood diarrhoea is the use of incorrect volume of water for the SSS and ORS, or the use wrong quantities of the sugar and salt in the preparation of the SSS [Tables 5 and 6]. This will no doubt lead to an increased morbidity among the children being treated with such solutions<sup>[10]</sup>.

## Conclusions

The low proportion of mothers that know how to prepare and administer ORT at home is an indication that impartation of knowledge of this simple mode of intervention in children with diarrhoea needs to be intensified. Apparently, after the early laudable advances in the education of mothers on management of diarrhoea at home, efforts in this direction have been relaxed. The result is that mortality and morbidity from childhood diarrhoea may also be on the increase. There is need for a fresh campaign on the home management of ORT. Our findings may not be representative of what may be the case in other centers or countries it still calls for a review of the knowledge and practice of ORT at the family level, especially in developing countries.

Although vaccines for immunization against Rotavirus diarrhoea are now available in the country, they are still too expensive for the average family. One of two current rotavirus vaccines is now licensed in more than 80 countries and is incorporated into childhood immunization schedules in the Americas and Europe.<sup>[11]</sup> These vaccines are not yet available in the National Immunization Scheme in Nigeria hence the need to sustain or intensify the ORT campaign so as to reduce both morbidity and mortality.

Education and preventive care remain vital and are still very important in keeping many severe situations and possible mortalities from occurring.

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