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Childhood Morbidity from Diarrhoea and its Home Management

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Summary

Okoro BA, Itombra-Okoro J. Childhood Morbidity from Diarrhoea and its Home Management. *Nigerian Journal of Paediatrics* 1996; **23:** 85. A household study on the prevalence and management of diarrhoeal disease was undertaken in Ogoja Local Government Area (OLGA) of Cross River State. A total of 4161 children under the age of five years from 36 clusters, formed the study sample. In the study, 286 children had diarrhoea during the 24-hour period preceding the study, giving a point prevalence of 6.9 percent. The annual diarrhoea incidence was 3.3 episodes per child, per year. The use rate of Oral Rehydration Solution (ORS) was 14.0 percent, its average intake was 970ml per child in 24 hours and 82.9 percent of mothers prepared the solution correctly. Salt Sugar Solution (SSS) use rate was 21.0 percent with an average of 308ml being consumed in 24 hours per child and 96.7 percent of mothers prepared it correctly. Continued breast feeding and continuing feeding by mothers recorded 93.8 percent and 96.3 percent, respectively. Drugs were used in 74.5 percent of the cases, with about 50 percent polypharmacy. Among identified drugs, antibacterials and antidiarrhoeals accounted for 31.4 and 23.0 percent respectively. Mothers' knowledge of the three rules of home care was 63.0 percent while 66.7 percent of the total number of children received increased fluid and continuing feeding. Access to ORS was 45.1 percent.

Introduction

DIARRHOEAL diseases have a serious health impact on morbidity and mortality in children in many developing countries. Acute diarrhoea is still a leading cause of childhood mortality and morbidity and it is also second to pneumonia as a killer of children.[1,2] With over a decade of the practice and promotion of Oral Rehydration Therapy (ORT), diarrhoea is now in the second position among the causes of child death.[2] The National Control of

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Diarrhoeal Diseases Programme (NCDDP) was launched in Nigeria in 1985. Using the results of the CDD/EPI Programme in-depth study of 1989,[3] the NCDDP developed a five-year plan (1991-95) with the following targets namely: to reduce diarrhoeal disease mortality to 35 per cent and morbidity by 20 percent in children under the age of five years, to provide correct case management to 40 percent of the children seen in health facilities and provide proper home treatment to 60 percent of children with diarrhoea. Other targets included the use of ORT in 80 percent of cases of diarrhoea, access to Oral Rehydration Solution (ORS) by 80 percent of the population and knowledge of home management of diarrhoea by 80 percent of mothers by 1995.

A household study on diarrhoeal disease morbidity and home management was therefore conducted in Ogoja Local Government Area (OLGA) in Cross River State. OLGA is one of the UNICEF-supported model LGAs under the UNICEF and Federal Government of Nigeria Programme of collaboration, 1991-95. The study was undertaken from January 10-15, 1994. The objective of the study was to determine the prevalence of diarrhoea in children under five years of age and also examine home-care management of this disease by mothers.

Subjects and Methods

The study was carried out, using the WHO/CDD diarrhoea case management and morbidity methodology described in CDD Household Survey Manual (WHO/CDD/SER 86.2 Rev 1, 1989) and WHO/UNICEF indicators for mothers. The minimum sample size which would ensure reasonable limits of precision, was based on the estimated point prevalence of diarrhoea and Salt Sugar Solution (SSS) use rate that were established in a study undertaken in the Plateau State .[4] Point prevalence and SSS use rate are two important parameters in any study of diarrhoeal morbidity and home management and these have been used in the CDD/EPI Programme in-depth study of 1989,[3] from which other national household studies have been designed.

A sample size of 3896 children under the age of five years, approximately 109 children in each of the 36 selected clusters, was calculated and used in the present study. A list of all the communities in OLGA was used to select the 36 required clusters. The selection was done according to the cluster sampling technique called 'probability proportionate to size' as described in the survey manual. All children under the age of five years in the selected households were eligible for inclusion in the study. The study, carried out in January 1994, was at the peak of the dry season when most surface water supply had dried up; this was also the peak period for diarrhoea in childhood.

One supervisor and six interviewers received a three-day intensive training (conducted by BAO) prior to the study. Information was obtained from mothers, by means of questionnaires. Mothers were asked if they had children under the age of five years and if so, whether or not any of these children had had diarrhoea starting in the 24 hours or two weeks preceding the study. If this was the case, the mother was requested to supply detailed information on the child's food and fluid intake before and during the period of the diarrhoea, type of treatment given and her own knowledge of when to take her child with diarrhoea to a health care facility. Mothers who used ORS

and SSS were asked to prepare these solutions in the presence of the interviewers and the correctness of the method of preparing the solutions was evaluated there and then. The drugs that were used to treat the diarrhoea were verified and all available drugs were presented for identification to the researchers. ORS access rate (proportion of children who live within 5km radius of trained health workers, with regular supply of ORS) was evaluated.

Data analysis was undertaken by using a standard Lotus 1-2-3 spreadsheet [5] developed by the WHO/CDD Programme and EPI Info [6] WHO Global Programme on aids, Geneva and CDC Epidemiology Programme Office, Atlanta, Georgia, USA.

Results

In the 36 clusters studied, there were 4161 children under the age of five years. Of this number, 286 had diarrhoea during the preceding 24 hours, giving a point prevalence of 6.9 percent.

Nine hundred and fifty seven subjects had diarrhoea during the two weeks preceding the survey; thus there was a two-week incidence rate of 23 percent. This incidence rate was then used to calculate the annual incidence rate which was 3.3 percent after adjusting for seasonal variation, according to the 1993 monthly figures for diarrhoea in OLGA.

For oral rehydration therapy, ORS, SSS and other fluids (water, *'Akamu* , pap, and orange juice etc) were used. The use rate of SSS was 21.0 percent, while that of ORS was 14.0 percent. Water use rate was 49.0 percent, *'Akamu* (pap from maize) rate was 15.4 percent, orange juice rate 6.0 percent, coconut water and pawpaw fluid rate 3.8 percent each and watery yam porridge rate 1.4 percent. A total of 206 mothers used ORT in its different forms, giving an ORT use rate of 72 percent. Among those who used the fluids, 82.9 percent of the mothers prepared ORS correctly, while 96 percent prepared SSS correctly. The average amounts of ORS and SSS taken per child were 970ml and 308ml respectively, within 24 hours.

Breast-feeding was continued in 93.8 percent of the children who were on the breast prior to the onset of diarrhoea. About 96.3 percent of mothers continued to give the same amount of, or more food during diarrhoea episode. Increased fluid intake was recorded in 37.1 percent of cases. More food was given to 36 percent, the same quantity of food was given to 60.3 percent and less quantity to 3.7 percent of the children as compared to the intake of solids and semisolids prior to the onset of diarrhoea.

Of the 286 children with diarrhoea in the previous 24 hours, 213 had received drugs, a drug-use rate of 74.5 percent. Of the drugs used, tablets and capsules accounted for 51 percent, syrups 47.0 percent, traditional mixtures 18.8 percent and injections 15.5 percent. Monotherapy was found among 51.1 percent of drug users, while multiple-drug therapy was used by 48.9 percent. About 60 percent of all drugs given were identified; these included antibacterials in 31.3 percent, antiprotozoals in 26.0 percent, antidiarrhoeals in 23.0 percent, analgesics in 7.9 percent, haematinics in 7.4 percent and antiemetics in 4.4 percent. The antibiotics were mainly tetracycline and ampicillin; antiprotozoals were metronidazole and chloroquine, while the antidiarrhoeals were kaolin with or without pectin and non-absorbable sulphonamides.

Two hundred and fifty eight mothers were interviewed on their reasons for taking their children to a health care facility.

The main reasons given (Table) showed that passage of many watery stools (70.9 percent) and development of fever (59.7 percent) were the commonest. About 59.3 percent of mothers knew at least, three major signs for referral. The most commonly recognized signs were increased amount and frequency of stools, development of fever and inability to eat or drink as before.

Table
Reasons given by 258 Mothers for taking their Children to a Health-care Facility

Reason	*No. of Responses*	*Percent of Total*
Passage of many watery stools	183	70.9
Development of fever	154	59.7
Unsatisfactory eating or drinking	76	29.5
Repeated vomiting	68	26.4
Not getting better	45	17.4
Presence of blood in stools	26	10.1
Others	15	5.8

The results of WHO/UNICEF monitoring of CDD indicators were as follows: mother's knowledge of the three rules of home care (transfer to health facility, increased fluid and continuing feeding) was 63.0 percent of the total number of cases who received increased fluid and continuing feeding, was 66.7 percent and ORS access in the community was 45.1 percent. Access to ORS was determined by the proportion of mothers who gave positive answer to the question, 'can you get ORS in the community if you need it and where?'

Discussion

In the present study, the diarrhoea point prevalence was 6.9 percent, a rate lower than the 8.6 percent reported in a similar study in the Plateau State, using the same survey methodology, but studied during the wet season. [4] The annual incidence of 3.3 episodes per child per year in our study was lower than those reported in some other studies carried out in Nigeria [3,4] and in Uganda; [7] the incidence was similar to those earlier reported in Malaysia. [10] Oral Rehydration Therapy is one of the key factors in both home and institutional management of diarrhoea. The SSS use rate of 21 percent in our study was higher than the rates in Plateau State, [4] Uganda [7] and North East Brazil, [11] but less than those observed previously in Nigeria. [12] These different rates may be a reflection of the extent of ORT campaign in the various areas where such studies were undertaken. The 14.0 percent ORS use rate in the present study was higher than the 1.5 percent in a previous study in the country, [4] but similar to that in another part of the country. [13] The 72 percent use rate of ORT was close to the 80 percent target aimed at, by the NCDDP for the 1991-95 period. Low utilization of ORT has been reported from Uganda, [7] Malaysia. [10] India, [14] and South Africa. [15] In the present study, the use rate of *'akamu'* (pap), a local readily available, cheap and easily prepared maize porridge, was about the same as that of

ORS. It should be noted that a study of this pap-salt-solution (PSS) has been reported from elsewhere in the country.[16]

Continued breast-feeding is a life-saving device for under-five children with diarrhoea. This has been supported by various studies in Peru[17] and Bangladesh.[18] Nearly all the mothers (93.8 percent) in our study continued to breastfeed their children and the target set by NCDDP for the current programme cycle was exceeded. Increased fluid intake, one of the key indicators of proper diarrhoea management at home was 37.1 percent in the present study as compared with a rate of 21.9 percent that was reported from Plateau State.[4] This may be attributable to the intensive health campaign in Ogoja LGA. It is important to note the high rates of 82.9 percent and 96.7 percent respectively, in the correct preparation of these fluids by mothers in the present study. Much lower rates have been reported elsewhere.[4 10 12] The finding of 93.8 percent rate for continued feeding during diarrhoea in the present study was very encouraging, as this practice is an important preventive measure against malnutrition that may complicate diarrhoea in childhood. The high rate of drug usage and polypharmacy as revealed in our study, have been reported from many other developing countries. This finding is at variance with the rational use of drugs in the management of acute diarrhoea in children.[19]

ORS availability in our study was 45 percent. In order to improve this rate, Ogoja Local Government Area has to step up its institutional capacity to generate more public demand for ORS. There should be properly organized training of health workers and such training should include focus on the rational use of drugs in diarrhoea. Increased awareness by mothers on the recognition of important signs in diarrhoea for referral to health-care facilities should also be strongly emphasized.

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