

What is New about Home Treatment of Children with Diarrhea in North Western Nigeria?

Garba D Gwarzo*

Department of Paediatrics, Bayero University Kano, Nigeria

***Corresponding Author:** Garba D Gwarzo, Department of Paediatrics, Bayero University Kano, Kano State, Nigeria.

Received: March 21, 2018; **Published:** April 13, 2018

Abstract

Background: Diarrheal diseases remain a major cause of morbidity and mortality in children especially in developing countries. Home management of diarrhea with oral rehydration salts (ORS) and zinc is effective in children. Treatment of diarrhea with antibiotics, anti-motility drugs and kaolin does not replace water and electrolytes being lost, and may be harmful but is still being practiced. Knowledge of what mothers give to children with diarrhea at home is important.

Method: This cross-sectional study was conducted at Murtala Mohammed Specialist hospital Kano, a health centre in north-western Nigeria. Questionnaire was administered to consecutive mothers and their sick children. Data on diarrhea and its treatment at home were obtained. The children were examined and treated based on the hospital's treatment protocols. Ethical clearance for the study was obtained.

Result: Fifty-eight (27.4%) of 212 children who were brought by their mothers had diarrhea. All the children who had diarrhea received home treatment; 55 (94.8%) had polypharmacy; 48 (82.8%) were given antibiotics. Only 2 (3.4%) were given ORS and zinc only. At arrival in the hospital 23 (39.7%) of them had severe dehydration.

Conclusion: Mothers in this study commonly used many drugs in treating children with diarrhea at home. ORS solution was also used. Administering harmful drugs and antibiotics in treating children with acute diarrhea should be discouraged.

Keywords: *Diarrhea; home treatment; ORS; children; Nigeria*

Abbreviation

ORS: Oral Rehydration Salt

Introduction

Diarrhea is the passage of unusually loose or watery stools, usually at least three times in a 24 hour period [1]. It remains a major cause of morbidity and mortality in children [2-4]. Despite efforts to control it, such as proper refuse disposal and safe drinking water, it is still prevalent in the developing countries [3-5]. Home management of diarrhea in children using oral rehydration salts (ORS) solution and zinc have been effective in replacing fluid and electrolytes losses [1,6,7]. Many lives were saved by appropriate usage of ORS solution in children with diarrhea [2,3,5,7].

However, children with acute diarrhea are still being given unnecessary and often harmful remedies at home [8-16]. These include antibiotics, anti-motility drugs and kaolin, which may lead to complications [1,6-8]. To address this problem, it is important to know what home treatment is given to under-5 children who have diarrhea in north western Nigeria. Knowledge of this will assist in formulating appropriate intervention strategies to reduce morbidity and mortalities from diarrhea in children.

Subjects and Method

This cross-sectional descriptive study was conducted at Murtala Mohammed Specialist hospital Kano, a tertiary health centre in north western Nigeria from June to September 2016. Its objectives were to determine what home treatment was given to under-5 children who had diarrhea, and the clinical feature of these children at the time they arrived at the hospital. The subjects were children with diarrhea who were brought to the Paediatrics department of the hospital for medical care during the study period, and their mothers. Questionnaire was used to obtain the relevant data from the mothers who gave informed consent. Their bio-demographic data, and data on the onset, duration, frequency and home treatment of diarrhea were obtained. Acute diarrhea was defined as passing of loose or watery stools three times or more in 24 hours and lasted for less than 14 days. Diarrhea that lasted for 14 days or more was regarded as persistent diarrhea. Dysentery was when the stool had blood visible to the naked eyes. The children were examined and treated based on the hospital’s treatment protocols. Ethical clearance was obtained from the hospital before commencement of the study.

Statistical Analysis

The data was entered in Excel 2016 (Microsoft Corporation) and analysed with Statistical Package for Social Sciences (SPSS) software version 20.0. Means (SD) for continuous variable and proportions for categorical variables were calculated. Chi-squared (X²) test was used to compare proportions. The statistical significance level was defined as $p \leq 0.05$. The result was presented as tables and figures.

Results

Two hundred and twelve children were brought to the Paediatrics department of the hospital by their mothers for medical consultations during the study period. Fifty-eight (27.4%) of them had diarrhea while the remaining did not have diarrhea. The demographic data of 58 children who had diarrhea are shown in table 1.

Variable	Frequency	%
Gender		
Male	29	50
Female	29	50
Age (months)		
Less than 60	38	65.5
60 or more	20	34.5
Place of residence		
Urban	44	75.9
Rural	14	24.1
Mother’s education level		
Less than secondary school	30	51.7
Secondary school or more	28	48.3
Father’s education		
Less than secondary school	14	24.1
Secondary school or more	44	75.9
Sewage disposal		
Pit latrine	17	29.3
Water closet	41	70.7

Table 1: Socio-demographic variables of 58 children with diarrhea.

Home treatment was offered to all the 58 children who had diarrhea. Fifty-five (94.8%) of them received more than one treatment during the course of the illness. Only 1 (1.7%) child was not given oral rehydration salt (ORS) solution at all. Three (5.2%) were given ORS solution only, while 2 (3.4%) were given ORS and zinc only. Antibiotics were given to 48 (82.8%) of them. Other home interventions offered are shown in figure 1.

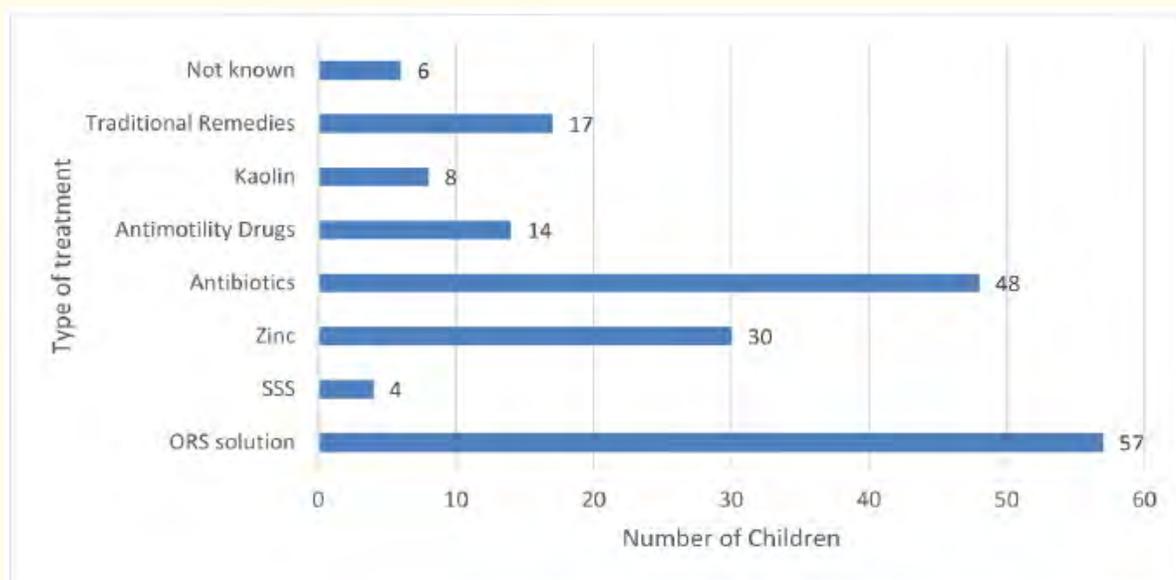


Figure 1: Home treatment administered to 58 children with diarrhea before seeking medical care in the hospital.

The duration of diarrhea among 58 children at the time of presentation to the hospital was 3 to 90 days (median 6 days). Fifty-one (87.9%) of them had acute diarrhea, while 7 (12.1%) had persistent diarrhea. Dysentery was observed in 15 (25.9%) of all children with diarrhea. The mean frequency of diarrhea was 7.45 ± 2.09 bouts per day with a range of 3-20 bouts per day. Twenty-three (39.7%) of 58 children with diarrhea had severe dehydration. Other features elicited in these children are shown in table 2.

Clinical feature	Frequency	Percent
Vomiting		
Yes	23	39.7
No	35	60.3
Total	58	100
Temperature at presentation		
Below 37.5°C	23	39.7
37.5°C and above	35	60.3
Total	58	100
Hydration status		
No dehydration	5	0.86
Mild dehydration	13	22.4
Moderate dehydration	17	29.3
Severe dehydration	23	39.7
Total	58	100
Sewage disposal type		
Open defecation	0	0
Pit latrine	17	29.3
VIP latrine	0	0
Water closet	41	70.7
Total	58	100

Table 2: Clinical features observed in 58 children with diarrhea at the time of arrival in the hospital VIP latrine means Ventilation Improved Pit latrine.

There was no significant difference in age, place of residence, parents’ educational level and method of refuse disposal between children who had diarrhea and those who did not have as shown in table 3.

Variable	Diarrhea		Total	X ²	p value
	Yes (%) n = 58	No (%) n = 154			
Gender					
Male	29 (25.4)	85 (74.6)	114	0.445	0.500
Female	29 (29.6)	69 (70.4)	98		
Age (months)					
Less than 60	38 (27.5)	100 (72.5)	138	0.006	0.937
60 or more	20 (27.0)	54 (73.0)	74		
Place of residence					
Urban	44 (27.5)	116 (72.5)	160	0.007	0.936
Rural	14 (26.9)	38 (73.1)	52		
Mother’s education level					
Less than secondary school	30 (27.0)	81 (73.0)	111	0.013	0.910
Secondary school or more	28 (27.7)	73 (72.3)	101		
Father’s education					
Less than secondary school	14 (20.6)	54 (79.4)	68	2.298	0.130
Secondary school or more	44 (30.6)	100 (69.4)	144		
Sewage disposal					
Pit latrine	17 (20.5)	66 (79.5)	83	3.230	0.072
Water closet	41 (31.8)	88 (68.2)	129		

Table 3: Comparing socio-demographic variables of children who had diarrhea and those who did not have diarrhea.

Discussion

Diarrhea is a common presenting symptom in children attending this city hospital. The prevalence of diarrhea among these children in this study was 27.4%. This value is higher than that reported in 2013 in the north-western Nigeria (9.2%) and in Kano state (6.5%) [17]. Similarly the prevalence is higher than reported from other parts of Nigeria [17,18] and from other developing countries [4,8,18]. This is because the present study was hospital based. However, the high prevalence in the present study may be due worsening economic and leaving condition in the study area in the last few years. Moreover the study was conducted during the rainy season when the sources of water in the area (ponds, rivers and open shallow wells) were contaminated.

Acute watery diarrhea was the commonest (87.9%) type. This is not surprising because children in this area were not immunized against rotavirus, which is the commonest cause of acute diarrhea in children. Previous studies collaborated this finding [14,18]. Dysentery constituted 25.9% of all cases of diarrhea in the children studied. This high rate may be due to poor environmental sanitation and contamination of water sources due to flooding in the study area.

All the children with diarrhea received some form of treatment at home. It is commendable that 98.3% of all the children in this study received ORS solution at home before coming to the hospital. In contrast, earlier studies reported lower usage of ORS in the treatment of diarrhea in children at home [14,19-25]. The rate of ORS usage as low as 4% and 14.3% were reported in the Gambia and in Edo, southern Nigeria respectively [14,24]. However, 94.8% of children in the present study had multiple drugs including unneeded and dangerous drugs

such as kaolin, anti-motility drugs and antibiotics. This polypharmacy reflected inadequate knowledge of treatment of diarrhea at home in the area. Oral rehydration salt solution and zinc are the recommended treatment of diarrhea in children. The practice of polypharmacy in the treatment of diarrhea in children has been reported in other parts of Nigeria [19,20] and in other developing countries [8,11,21].

The use of antibiotics in the treatment of diarrhea at home is particularly worrisome. Although only 25.9% of the children had dysentery, the study revealed that 82.8% of all the children with diarrhea received antibiotics at home before coming to the hospital. Mothers in the area wrongly believed that antibiotics are needed for treatment of diarrhea. Antibiotics were readily available to people without prescription in the area, and were used indiscriminately for many illnesses including acute diarrhea. This practice is harmful because it may lead to adverse effects including worsening of the diarrhea itself. It may also cause the problem of bacterial antibiotics resistance. The use of antibiotics in the treatment of acute diarrhea in children was reported from many developing countries [10,18,22,23] but the rate was much lower than what was found in the present study.

Anti-motility drugs and kaolin were still being used in children with diarrhea in this area. These drugs do not prevent fluid and electrolytes loss in diarrhea, neither do they actually stop diarrhea in children. Similar drugs usage was also reported [23].

Despite administering ORS solution to these children at home, up to 39.7% of them presented to the hospital with severe dehydration. This may be due to wrong usage of the ORS solution even though it was given to the majority of them. Many of those who received ORS solution also received other unnecessary drugs such as antibiotics. Furthermore, vomiting which was concurrently present in 39.7% of them may also contribute to dehydration.

Conclusions

In conclusion, the mothers of these children knew about ORS. Almost all the children who had diarrhea were given ORS at home before coming to the hospital. However, the mothers need to be further educated that ORS solution and zinc are effective and adequate in treating acute diarrhea. More work need to be done to discourage use of harmful drugs and unnecessary use of antibiotics in treating children with acute diarrhea.

Acknowledgement

I acknowledge Dr. Safiya Gambo, the head of Paediatrics department of Murtala Mohammed Specialist hospital for her support during the execution of this research.

Conflict of Interest

None.

Bibliography

1. World Health Organization. "The treatment of diarrhoea. A manual for physicians and other senior health workers". WHO/CDD/SER/80.2 (2005).
2. Bhutta ZA., *et al.* "Global burden of childhood diarrhea and pneumonia: what can and should be done?" *Pediatrics* 131.4 (2013): 634-636.
3. Black RE., *et al.* "Where and why are 10 million children dying every year?" *The Lancet* 361.9376 (2003): 2226-2234.
4. Tambe AB., *et al.* "Childhood Diarrhea Determinants in Sub-Saharan Africa: A Cross Sectional Study of Tiko-Cameroon". *Challenges* 6.2 (2015): 229-243.
5. Murray C., *et al.* "The global burden of disease. A Comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020". Summary. World Health Organisation (1996).

6. World Health Organization. "A manual for the treatment of diarrhoea". Geneva, World Health Organization Programme for the Control of Diarrhoeal Diseases 80.2 (1990) (WHO/CDD/SER 80.2 Rev 2.): 3.
7. Guarino A., *et al.* "European Society for Pediatric Gastroenterology, Hepatology, and Nutrition/European Society for Pediatric Infectious Diseases evidence-based guidelines for the management of acute gastroenteritis in children in Europe: update 2014". *Journal of Pediatrics Gastroenterology and Nutrition* 59.1 (2014): 132-152.
8. Carter E., *et al.* "Harmful practices in the management of childhood diarrhea in low- and middle-income countries: a systematic review". *Bio Medical Central Public Health* 15 (2015): 788.
9. Okoro BA., *et al.* "Pattern of Drug Therapy in Home Management of Diarrhoea in Rural Communities of Nigeria". *Journal of Diarrhoeal Diseases Research* 13.3 (1995): 151-154.
10. Ikpatt NW., *et al.* "Preliminary study on the attitude of people in two states of Nigeria on diarrhoeal disease and its management". *East African Medical Journal* 69.4 (1992): 219-222.
11. Ansari M., *et al.* "A survey of mothers' knowledge about childhood diarrhoea and its management among a marginalised community of Morang, Nepal". *Australasian Medical Journal* 4.9 (2011): 474-479.
12. Adimora GN., *et al.* "Home management of childhood diarrhea: Need to intensify campaign". *Nigerian Journal of Clinical Practice* 14.2 (2011): 237-241.
13. Ogunrinde OG., *et al.* "Knowledge, attitude and practice of home management of childhood diarrhoea among caregivers of under-5 children with diarrhoeal disease in Northwestern Nigeria". *Journal of Tropical Pediatrics* 58.2 (2012): 143-146.
14. Sillah F., *et al.* "The use of oral rehydration salt in managing children under 5 y old with diarrhea in the Gambia: Knowledge, attitude, and practice". *Nutrition* 29.11-12 (2013): 1368-1373.
15. Bentley ME. "The household management of childhood diarrhea in rural North India". *Social Science and Medicine* 27.1 (1988): 75-85.
16. Othero DM., *et al.* "Home management of diarrhea among underfives in a rural community in Kenya: household perceptions and practices". *East African Journal of Public Health* 5.3 (2008): 142-146.
17. National Population Commission Federal Republic of Nigeria Abuja, Nigeria. "Diarrhoeal Disease". Nigeria Demographic and Health survey (2013): 165-173.
18. Yilgwan CS., *et al.* "Prevalence of diarrhea disease and risk factors in Jos University Teaching Hospital, Nigeria". *Annals of African Medicine* 11.4 (2012): 217-221.
19. Ajuwon AJ., *et al.* "Knowledge and Use of Oral Rehydration Therapy among Mothers of under-five children in a Military Barrack in Ibadan, Nigeria". *African Journal of Biomedical Research* 18.1 (2015): 237-248.
20. Agbede CO., *et al.* "Diarrhea Treatment Behaviour among Mothers of Under-five Children Attending Primary Health Care Clinic in Ibadan, Oyo State, Nigeria". *British Journal of Medicine and Medical Research* 17.1 (2016): 1-7.
21. El-Gilany AH., *et al.* "Epidemiology of diarrhoeal diseases among children under age 5 years in Dakahlia, Egypt". *Eastern Mediterranean Health Journal* 11.4 (2005): 762-775.
22. El-Khourya M., *et al.* "Improved childhood diarrhea treatment practices in Ghana: a pre-post evaluation of a comprehensive private-sector program". *Global Health Science Practice* 4.2 (2016): 279-290.

23. Kudlova E. "Home management of acute diarrhoea in Czech children". *Journal of Pediatric Gastroenterology and Nutrition* 50.5 (2010): 510-515.
24. Tobin EA., *et al.* "Caregivers' knowledge about childhood diarrhea management in a rural community in South-south Nigeria". *International Journal of Community Research* 3.4 (2014): 93-99.
25. Osonwa KO., *et al.* "Utilization of Oral Rehydration Therapy in the Management of Diarrhea in Children among Nursing Mothers in Odukpani Local Government Area of Cross River State, Nigeria". *American Journal of Public Health Research* 4.1 (2016): 28-37.

Volume 7 Issue 5 May 2018

©All rights reserved by Garba D Gwarzo.