

## Brief Report

# Knowledge, Attitude and Practice of Home Management of Childhood Diarrhoea among Caregivers of Under-5 Children with Diarrhoeal Disease in Northwestern Nigeria

by Olufemi G. Ogunrinde,<sup>1</sup> Tajudeen Raji,<sup>2</sup> Olumuyiwa A. Owolabi,<sup>3</sup> and Kola M. Anigo<sup>3</sup>

<sup>1</sup>Department of Paediatrics, Ahmadu Bello University, Zaria, Nigeria

<sup>2</sup>Department of Paediatrics, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria

<sup>3</sup>Department of Biochemistry, Ahmadu Bello University, Zaria, Nigeria

Correspondence: Olufemi G. Ogunrinde, Department of Paediatrics, Ahmadu Bello University, Zaria 2222, Nigeria.

E-mail: <femiogunrinde@hotmail.com>.

### Summary

**Objectives:** Diarrhoeal diseases (DDs) constitute public health problem. Reduction in related mortality and morbidity hinges on active participation of home caregivers. It is pertinent to determine the degree of their empowerment.

**Design:** Cross-sectional study.

**Setting:** Randomly selected community primary health centres in northwestern Nigerian.

**Subjects:** Home caregivers presenting with children aged 1–59 months having DD. **Outcome measures:** Knowledge, attitude and practice regards home management of DD.

**Results:** Less than 1% of caregivers was knowledgeable about home management of DD. Antibiotics and anti-diarrhoeal agents use was common at 36%. ORS use was abysmally low at 8.6%. Only 32% of caregivers were aware of the use of zinc in the management of DD. Adherence to 10-day zinc supplementation was encouraging at 75.5%.

**Conclusion:** There is an urgent need to scale up educational and promotional activities with regards to the home management of DD if the millennium development goals are to be met.

**Key words:** zinc, diarrhoea, knowledge attitudes practice.

### Background

Diarrhoeal disease (DD) remains a significant health problem globally [1], coming second only to pneumonia as a cause of death in under-5 children [2]. It presently accounts for approximately 1.5 million deaths annually worldwide [2] compared to 3–4 million in the 1980s [3]. In 2004, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) jointly recommended the use of newly formulated low osmolarity oral rehydration salts (ORS) and zinc supplementation in the treatment of childhood DD [4]. About 159–300 mg/kg/day of zinc is lost in diarrhoeal

stools by children [5] and zinc supplementation has been shown to reduce duration of diarrhoeal episodes by 9–23% [5,6], stool frequency by 18–39%.

Families and communities are key to achieving the goals set for managing DD by making the new recommendations routine practice in the home and health facility [4]. This study, therefore, aimed to determine the knowledge, attitude and practice of caregivers of under-5 children with diarrhoea about the home management of DD. This is particularly important in Nigeria, which carries one of the heaviest burdens of DD [2].

### Subjects and Methods

A cross-sectional descriptive study of caregivers of children aged 1–59 months with DD presenting at 90 randomly selected Primary Health Care Centers (PHCs) in three northwestern Nigeria states (Kastina, Kebbi and Zamfara) was undertaken.

### Funding

United Nations Children's Fund (grant number NCO/SECC/08/795).

The PHCs were randomly selected from nine pre-determined UNICEF focus local government areas (LGAs), three per state. A list of PHCs that attend to at least 5 childhood DD cases per week was generated per LGA and 10 were randomly selected. All eligible caregivers that presented at the selected PHCs were enlisted. Study-specific questionnaire was used to collect relevant data from each consenting caregiver by trained resident community health workers. Caregivers' practice was assessed by their administration of supplied 10-day supplementation of zinc gluconate dispersible tablets to their wards. Ethical approval was obtained from Ahmadu Bello University Teaching Hospital, Zaria. Data entry and analysis was by Epi info version 3.2.2. Excluded from the study were caregivers of children with severe dehydration, already on zinc supplement, and visitors (staying for less than 10 days) to the particular community.

### Results

Studied were 4386 caregivers. Their mean age was  $31.9 \pm 9.2$  years ( $\pm 1SD$ ). The male:female ratio was 1:1.2. More than 70% of male caregivers were farmers while a significantly higher proportion of females were housewives (Table 1). There is low literacy rate (<30%) in both groups (Table 1).

Fifty-nine percent of these caregivers associated diarrhoea with suboptimal hygienic conditions, contaminated food and water. A further 10% linked diarrhoea with various infections including measles, malaria and human immunodeficiency virus (Table 2).

Less than 1% of caregivers (2/4386) were able to correctly state the four rules of home management of childhood DD [7]; the majority of caregivers (56.7%) were totally ignorant of the rules with the proportion being significantly higher in males. Awareness of the four rules tends to improve with increasing level of formal education (Fig. 1). The use of antibiotics and anti-diarrhoeal agents constituted the first line of action in 36.1% of caregivers with only 8.6% employing ORS in the treatment of DD while a further 45.7% gave no treatment prior to presentation (Table 3). Significantly more female (156/2309, 6.8%) than male caregivers (75/1871, 4.0%) used ORS in DD (Table 4).

Thirty-two percent of caregivers have heard of the use of zinc in children, 84.3% of caregivers knew it was for the treatment of diarrhoea. Significantly more male (630/1871; 33.7%) than female caregivers (681/2309; 29.5%) were aware of the use of zinc in DD. Female caregivers with tertiary education were significantly more likely to be aware of the use of zinc than their male counterparts (Table 5).

The rate of adherence to 10-day zinc supplementation in DD was 75.5%; the rate was higher in male (1444/1871; 77.2%) than in female caregivers

TABLE 1  
*Occupation and Level of education of caregivers of under-5 children with diarrhoea*

Characteristic	Male (N = 1871) n (%)	Female (N = 2309), n (%)
Occupation		
Artisan	68 (3.6)	42 (1.8)
Business/trader	112 (6.0)	127 (5.5)
Farming	1414 (75.6)	66 (2.9)
Civil servant	235 (12.6)	19 (0.8)
Housewife	0 (0.0)	2035 (88.1)
Others	42 (2.2)	20 (0.9)
Education		
Nil formal	1340 (71.6)	1964 (85.1)
Primary/secondary	429 (22.9)	302 (13.1)
Tertiary	102 (5.5)	43 (1.9)

TABLE 2  
*Causes of diarrhoea suggested by caregivers of under-5 children with diarrhoea*

Suggested causes of diarrhoea	Frequency (%)
Contaminated food/water	649 (29.9)
Poor hygiene/sanitation	615 (28.4)
Teething	411 (19.0)
Infection (viruses and bacteria)	215 (9.9)
Inadequate breastmilk/malnutrition	146 (6.7)
Malaria	121 (5.6)
Houseflies	11 (0.5)
Total	2168 (100.0)

(1715/2309; 74.3%). Those who had no formal education adhered better than literate caregivers ( $\chi^2 = 140.6$ ;  $p < 0.001$ ).

### Discussion

Community and caregivers' awareness of causes and knowledge of home management of childhood DD are critical in the reduction of diarrhoea-related morbidity and mortality, which are, at present, unacceptably high. Our study has demonstrated a low level of knowledge of causes of diarrhoea among caregivers in northwestern Nigeria. This is in sharp contrast to situations in other studies [8–10] where majority of the caregivers has some knowledge about the causes of DD probably because of higher literacy level. Also in contrast to the studies of Ellis *et al.* [8] and Uchendu *et al.* [9], teething was not the commonest event associated with childhood diarrhoea in our study. Mustapha *et al.* [11] from Maiduguri, Nigeria, also reported that only 20% of mothers had good knowledge of home management of acute watery diarrhoea, evidently without zinc. It has been



Fig. 1. Caregivers' knowledge of home management of diarrhoea by sex and level of formal education.

TABLE 3  
*First-line action of caregivers of under-5 children with diarrhoea*

Treatment	Frequency (%)
No treatment	2003 (45.7)
Antibiotics	1037 (23.6)
Anti-diarrhoeal	547 (12.5)
ORS	259 (5.9)
Herbal medicine	223 (5.1)
Others	166 (3.8)
ORS + antibiotics	123 (2.8)
Anti-malarial + antibiotics + anti-diarrhoeal	23 (0.5)
ORS + anti-diarrhoeal	5 (0.1)
Total	4386 (100.0)

TABLE 4  
*Caregivers' first-line action disaggregated by sex*

Treatment given	Female (%)	Male (%)	Total (%)	$\chi^2$	<i>p</i> -value
Antibiotics	435 (18.8)	554 (29.6)	989 (23.7)	66.38	<0.001
Anti-diarrhoeal	318 (13.8)	212 (11.3)	530 (12.7)	5.56	0.018
Anti-malarial + antibiotics + anti-diarrhoeal	19 (0.8)	4 (0.2)	23 (0.6)	7.01	0.008
No treatment	1075 (46.6)	824 (44.0)	1899 (45.4)	2.64	0.104
ORS	156 (6.8)	75 (4.0)	231 (5.5)	14.94	<0.001
ORS + antibiotics + anti-diarrhoeal	62 (2.7)	65 (3.5)	127 (3.0)	2.18	0.139
Others	111 (4.8)	55 (2.9)	166 (4.0)	9.45	0.002
Herbal medicine	133 (5.8)	82 (4.4)	215 (5.1)	4.02	0.045
Total	2309 (100.0)	1871 (100.0)	4180 (100.0)		

TABLE 5  
*Caregivers' awareness of the use of zinc disaggregated by sex and formal education*

Educational level	Aware of zinc use (%)		Difference (95% CI)
	Female	Male	
Nil formal	562 (28.6)	432 (32.2)	0.04 (0.008, 0.064)
Primary/secondary	96 (31.8)	163 (38.0)	0.06 (0.033, 0.091)
Tertiary	23 (53.5)	35 (34.3)	-0.19 (-0.221, -0.162)
Total	681 (29.5)	630 (33.7)	0.04 (0.013, 0.07)

demonstrated that with caregiver education and proper introduction of zinc supplementation the use of antibiotics and anti-diarrhoeal agents will decrease [12]. We, therefore, make bold to suggest that efforts directed at increasing literacy levels in Nigeria will contribute to reduction in prevalence of and morbidity associated with diarrhoea in Nigerian children.

The study population presented an abysmally low usage rate of ORS. This finding is similar to that of other studies [13–16] from developing countries, where less than a third of parents used ORT when their children were ill with diarrhoea. The 32% caregiver awareness rate of zinc use in the treatment of diarrhoea leaves much to be desired and would need to be improved upon if the health-related Millennium Development Goals are to be actualized; however, the high adherence (75.5%) in this study is a promising sign. With a balanced promotion strategy it is expected that the combination of zinc and low osmolarity ORS will meet the expectations of caregivers resulting in better home management of childhood diarrhoea.

Our study concludes that a lot of gap still exists in the knowledge, attitude and correct practice of home management of DD in northern Nigeria. Promoting the use of ORT and zinc supplementation in childhood DD is therefore recommended.

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