

## MATERNAL KNOWLEDGE OF PRACTICES THAT CAUSE DIARRHOEA AND DIARRHOEAL DISEASE PREVENTION

Iduoriyekemwen N. J., Osarogiagbon O. Wilson

Department of Child Health,  
University of Benin/ University of Benin Teaching Hospital, P.M.B. 1111, Benin City.

*Correspondence and reprint request to:* Iduoriyekemwen N. J., Lecturer/ Consultant paediatrician  
Department of Child Health, University of Benin/ University of Benin Teaching Hospital,  
P.M.B. 1111, Benin City. Phone number:- +2348023287095, eMail:- [nosaiduos2006@yahoo.com](mailto:nosaiduos2006@yahoo.com)

### ABSTRACT

**Background:** Despite the remarkable reduction in global diarrhoeal disease (DD) mortality, it still remains the second major cause of childhood illness especially in developing countries. Prevention is key to sustained reduction of the disease burden, thus information which caregiver possess is vital.

**Objective:** The aim of this study is to ascertain maternal knowledge of practices that cause diarrhoea and diarrhoea prevention measures in order to assess current health knowledge of mothers.

**Method:** Mothers, whose children had diarrhea presenting in the Children's Emergency rooms or in- patient wards of the Stella Obasanjo Hospital and University of Benin Teaching Hospital, Benin city, were interviewed using a pretested semi-structured questionnaire designed for the study.

**Results:** A total of 104 mothers aged 15 to 41 years participated in the study. Majority were young mothers age  $\leq 30$  years, who had secondary level of education and were in the lower social class. Only 27 (26%) of the mothers' had correct knowledge of the definition of diarrhoea. Majority 78 (75.0%) of the mothers' had limited knowledge on the practices that cause diarrhoea. Also majority 65 (62.5%) of the mothers in the study did not know that diarrhoea could be prevented. Of the few mothers that knew that diarrhoea could be prevented only 6 (15.4%) had good knowledge of diarrhoea prevention. Majority 77 (74.7%) of mothers also admitted that they had no formal health education on diarrhoea.

**Conclusion:** This study reveals that the present generations of mothers are not sufficiently health educated on the issues of diarrhoea as mothers were 20 years ago during the ORT campaign era. Thus emphasizing the need for intensive health education of mothers on diarrhoea and its prevention.

**Keywords:** Diarrhoea, Prevention, Health education.

### INTRODUCTION

In recognition of the high morbidity and mortality from diarrhoeal diseases, World Health Organization (WHO) and United Nations Children's Fund (UNICEF) have worked tenaciously to reduce the disease burden worldwide through the WHO's global programme for the Control of Diarrhoea

Disease (CDD).<sup>1,2,3</sup> The gain of their efforts was the reduction of the global diarrhoeal mortality from 4.5 million deaths yearly in the 1980s to 1.5 million deaths per year by 2000.<sup>4</sup> Despite this remarkable reduction in diarrhoeal disease (DD) mortality, it still remains the second major cause of childhood illnesses especially in developing countries.<sup>5,6</sup>

Although, Oral rehydration therapy (ORT) which has improved case management of DD and has been the cornerstone intervention responsible for the success of the CDD program,<sup>1,2,5-7</sup> integrating other interventions geared towards preventing diarrhoea with ORT have also been recognized as essential complementing strategies. Implementation of these preventive interventions have been recommended in studies<sup>8,9,10</sup> as vital for the sustenance of the reduced mortality, but more importantly to achieve reduction in the incidence of diarrhoeal disease, which has remained unchanged through the years.

In line with the above, more recently WHO introduced the 7 point plan for comprehensive diarrhoeal control.<sup>11</sup> The strategy is based on multiple interventions drawn from different sectors that have demonstrated potentials for child survival. They include the treatment package - Oral rehydration therapy and Zinc treatment and the preventive package -Promotion of rotavirus and measles immunization, promotion of exclusive breast feeding, proper infant nutrition and Vitamin A supplementation, promotion of hand washing with soap, improved water supply quantity and quality and community wide sanitation promotion.

The knowledge an individual possesses about the practices that propagate a disease and how to avoid the occurrence of the disease, significantly influence what they actually practice. Therefore, instrumental to the success of the comprehensive diarrhoeal control plan is that the interventions become routine practice in homes and communities; this in turn is reliant on how much information individual families are empowered with. Since mothers are usually the primary caregivers of children in the home, we conducted this study to ascertain maternal knowledge of practices that cause diarrhoea and diarrhoea prevention measures in order to assess current health knowledge of mothers.

## MATERIALS AND METHOD

This cross-sectional study was carried out at the Children's Emergency rooms and in-patient wards of Stella Obasanjo Women and Children's Hospital and University of Benin Teaching Hospital (UBTH), Benin City. Benin City, the Capital of Edo State is in the South-South geopolitical Zone of Nigeria and it consists of three Local Government Areas (LGAs); - Oredo, Ikpoba-Okha and Egor. It is a cosmopolitan city, situated in the rainforest belt 122 metres above sea level with an estimated population of 1,085,675.<sup>12</sup>

University of Benin Teaching Hospital and Stella Obasanjo Women and Children Hospital are the largest hospitals in Benin City where children's health care needs are catered for. UBTH is a tertiary health care facility located in Egor Local Government Area (LGA) in Benin City, serving Edo State and neighbouring States in the South-South, and some part of the South-West and South-East states. Stella Obasanjo Women and Children's Hospital is a secondary facility in Ikpoba-Okha LGA.

Participants of the study were mothers of children presenting with acute diarrhoea with or without other symptoms to the Children's Emergency rooms and in-patient wards of the Stella Obasanjo Women and Children's Hospital and University of Benin Teaching Hospital, Benin City. Diarrhoea was defined as passage of three or more watery or loose stools in 24 hours.<sup>13</sup>

Ethical clearance was obtained from UBTH ethics committee. Permission was sought from the administrative heads of the hospitals and the heads of the Children's Emergency Room and in-patient wards of both hospitals. Verbal consent was also obtained from each mother after due explanation of the nature and purpose of the study.

There was no preset sample size, consecutive mothers whose children had acute diarrhea

with or without other symptoms presenting during the period of the study were recruited.

A semi-structured and validated questionnaire designed for the study was administered to these mothers. The questionnaire comprised of 3 sections. Section A, was on biodata, information obtained include; mother's age, occupation, educational status, father's educational status and occupation. Socioeconomic class of the family was derived by the method described by Olusanya et al.<sup>14</sup> Section B obtained information on the knowledge of; the definition of diarrhea, the practice that can cause and diarrhea prevention. In order to determine the knowledge of mothers concerning behavioral practices that can cause diarrhoea, mothers were asked a set of 12 questions and instructed to respond either true or false depending on what they knew about each of the questions. Correct answers were given a score of 1 while incorrect answers were scored 0. Cumulative Correct responses were graded as follows;  $\leq 5$  poor, 6-9 fair  $\geq 10$  good. Also in respect to the question on prevention, mothers who acknowledged that they knew how to prevent diarrhoea were instructed to state four ways of diarrhoea prevention. If all four answers were correct it was reported that mother had Good knowledge of diarrhoea prevention, if they answered 2-3 correctly were recorded as having some knowledge on diarrhoea prevention. If only one answer was correct or all were wrong it implied poor knowledge of diarrhoea prevention. Section C obtained information on health education of mothers. Mothers were asked if they had received any formal education on diarrhoea and its prevention, the duration since they received it and the source.

**Data Analysis:** Data was analyzed using IBM SPSS package version 26 statistical software. Categorized data were represented as proportions.

## RESULTS

**Socio-demographic characteristics of the mothers:** A total of 104 mothers aged 15 to 41 years participated in the study. The age group distribution of the mothers, their educational status and socioeconomic class are presented in Table 1. Majority 75 (72.1%) were young mother age  $\leq 30$  years. Most 52 (51%) of the mothers had secondary level of education while 24 (23.5%) and 26 (25.5%) of the mother had primary and tertiary level of education respectively. Majority 64 (62.1%) of these mothers were from the lower social class, 21 (20.2%) from the middle social class and the remaining 18 (17.8%) were from the upper social classes.

**Knowledge of diarrhea definition:** Majority, 63 (60.6%) of the mothers stated that they did not know the definition of diarrhoea. Only 29 (27.9%) correctly defined it as frequent passage of watery stools, 12 (11.5%) mothers provided an incorrect definition. Of the mothers who gave an incorrect definition, 9 defined diarrhoea as vomiting and diarrhoea, one each as taking excessive sugar, infection due to flies and stomach pain.

**Knowledge of practices that can cause diarrhoea:** Majority 78 (75.0%) of the mothers had some knowledge about the practices that can cause diarrhoea, only 21 (20.2%) of the mothers had good knowledge while 5 (4.8%) mothers had poor knowledge of the practices that can cause diarrhoea. Figure 1 shows the degree of mothers' knowledge of practices that result in diarrhoea. Table 2 shows the response of mothers to the specific practices that can cause diarrhoea.

**Knowledge of diarrhea prevention:** Majority 65 (62.5%) of the mothers in the study did not know that diarrhoea could be prevented. Only 39 (37.5%) of the mothers were aware that diarrhoea could be prevented. Of the 39 mothers aware of diarrhoea prevention, when asked to mention four specific means of prevention, only 6 (15.4%) of the mothers had good knowledge, majority 19 (48.7%) had some

knowledge, while 14(35.9%) of the mothers had poor knowledge. Figure 2 shows mothers knowledge on ways of preventing diarrhoea. While table 3 shows the various approaches of preventing diarrhoea identified by the mothers.

**Health Education about diarrhoea:** Seventy seven (74.7%) of the mothers in this study had not had any form of health education with regards to diarrhoea, its treatment and prevention, while only 27(25.9%) of the mother admitted that they have had health education on diarrhoea. Of the 27 mothers who have had any form of health education on diarrhoea, its treatment and prevention 11(40.7%) had received the information within the last 1 year at the time of the study, while 10(37.0%) of the mothers had received the health education, between 2-10 year back at the time of the study. Two (7.4%) of these mothers received the only formal health education about diarrhoea and its treatment and prevention over 10years ago, while 4(14.8%) of the mothers could not even remember the duration since they had any form of health education on diarrhoea.

With regards to the source of health education 17(63%) of the 27 mothers who have had health education, received it from health personnel in the hospital/ health centers, 6(22.2%) from electronic and print media, others from various sources. Table 4 shows the sources of information on health education on diarrhoea.

## DISCUSSION

This study reveals deficiency in knowledge of mothers concerning diarrhoea. Majority of mothers in this study had poor knowledge about what the definition of diarrhoea is, had limited knowledge on practices that can cause it and ways of preventing diarrhoea.

In this study majority of the mothers were unable to define what diarrhoea is. This is in contrast to other studies,<sup>15-18</sup> were 50 -70% of the mothers interviewed were able to correctly

state that diarrhoea was the frequent passage of watery stool. The difference may be because mothers in our study were less exposed to health education on diarrhoea compared to mothers in the studies,<sup>15-17</sup> conducted in the 90s during the ORT introduction and promotion campaign era. Observed from this study is that only a quarter of the mothers have had any form of formal health education on diarrhoea. This is in contrast to the work of McLennan JD<sup>19</sup> in Dominican Republic who reported that over 55% of their responders had been exposed to health education on diarrhoea which positively correlated to their practice during diarrhoea episode. In addition, most of the mothers exposed to health education in our study received such information several years back, some as far as 17-20years ago. This shows that extensive and sufficient attention is not currently given to diarrhoea enlightenment campaigns as it was in the 90s.

Behavioral practices are important in transmission of diarrhoea disease from person to person. In this study assessment of mothers' knowledge on these practices that cause diarrhoea reveals that mother had limited knowledge as only 5% of the mothers were able to answers all the questions asked correctly. However, with regard to the specific practice the majority of the mothers knew that; poor hand hygiene, use of contaminated water for drinking, use of dirty utensils and dirty environment were responsible for how diarrhoea disease can be acquired. Similar finding was reported by Orr okhodion et al,<sup>20</sup> amongst market women in Ibadan South West Nigeria.

However most mothers in our study, did not know that use of feeding bottles and baby pacifier were also culprit in acquisition of diarrhoea. This therefore shows that the message of the Baby Friendly initiative over the years has been lost. Interestingly, a good proportion of the mother also answered true to the questions on practices that do not cause

diarrhoea such as breast feeding during pregnancy, adding sugar and or milk to child's diet during diarrhoea episode. The consequence of avoiding these practices is the development of malnutrition in children. This finding shows that the mothers' wrong beliefs concerning child rearing practices has not changed over the years which points to failure of our health educational delivery system.

In our study only very few mothers knew that diarrhoea could be prevented, this is very disturbing as prevention of diarrhoea is vital for the successful reduction of diarrhoea death and more so for morbidity reduction. Furthermore, of the five preventive interventions of the WHO's 7-point plan for comprehensive diarrhoea control,<sup>21</sup> the few mothers in this study who admitted that they knew ways of preventing DD, mentioned only hand washing, using and drinking clean water and exclusive breast feeding (which was mentioned by only one mother.) Also very surprising is that some mother mention drugs (Septrin, flaggyl and Diastop) ORT and cleaning the breast before breastfeeding as measures to prevent diarrhoea. This high level of ignorance amongst mothers in this study may result from weakening of intensive health education.

In conclusion, this study reveals that the present generations of mothers are not sufficiently health educated on the issues of diarrhoea as mothers were over 20years ago during the ORT campaign era. Emphasizing the need for intensive health education of mothers on diarrhoea and its prevention, In fact extensive attention should be given to health education of caregivers and the training of health worker who deliver the information at all level of health care. This can be achieved by reintroduction of diarrhoea treatment and training unit DTTU in all health facilities. Furthermore, in order to decrease the knowledge gap, information on diarrhoea, its causes, home management and prevention

should be incorporated into the secondary school curriculum.

Table 1: Socio-demographic characteristics of the mothers.

Characteristics	Frequency (n)
Mother's age group in years	
=20	8 (7.7%)
21 - 30	67 (64.4%)
=31	29 (27.9%)
Total	104 (100%)
Mother's Educational status	
Primary level	24 (23.5%)
Secondary level	52 (51.0%)
Tertiary level	26 (25.5%)
Social Class of Family	
Upper class	18 (17.8%)
Middle Class	21 (20.2%)
Lower Class	64 (62.1%)

Figure 1. Mother's Knowledge of Practices that cause Diarrhoea.

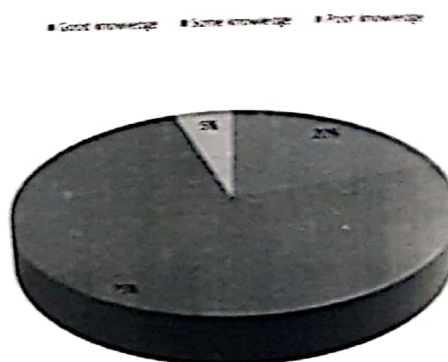


Table 2: Mothers knowledge of specific practice that cause diarrhoea

Practices	True (%)	False (%)	Do not know
Exposing food to flies	97 (93.3)	4 (3.8)	32.9
Preparing food in a dirty environment	96 (92.3)	7 (6.7)	31.0
Using contaminated water to prepare food	95 (91.3)	7 (6.8)	21.9
Using dirty hands to handle child's food	96 (92.3)	6 (5.8)	22.9
Using dirty feeding utensils	95 (91.3)	6 (5.8)	32.9
Not washing hands after using the toilet	94 (90.4)	7 (6.7)	32.9
Using feeding bottles to feed child	41 (39.4)	55 (52.9)	87.7
Use of baby pacifiers	49 (47.1)	42 (40.4)	13 (12.5)
Breast feeding when mother is pregnant	52 (50.0)	33 (31.7)	19 (18.3)
Eating hot freshly prepared food	53 (51.3)	39 (37.5)	12 (11.5)
Adding Sugar to child's diet	80 (76.7)	19 (18.3)	8 (7.7)
Adding milk to child's diet	27 (26.0)	69 (66.3)	8 (7.7)

Figure2: Mother's knowledge on ways of preventing diarrhoea.

■ Good knowledge ■ Some Knowledge ■ Poor Knowledge

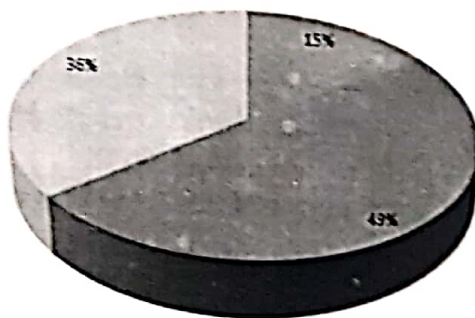


Table 3: Preventive measures identified by the mothers.

Identified ways of preventing diarrhoea by mothers	Frequency (%)
Hand washing	14(35.9)
Washing of feeding Utensil	13(33.3)
Drinking clean/treated water	12(30.5)
Clean environment for preparing food	11(28.2)
Covering food to avoid flies	6(15.4)
Avoidance of feeding bottles	4(10.6)
Avoidance of sugary foods	4(10.6)
Drugs	3(7.7)
Oral rehydration therapy	3(7.7)
Eating freshly prepared foods	2(5.1)
Bathing Baby	2(5.1)
Cooking food properly	1(2.6)
Exclusive breast feeding	1(2.6)
Cleaning breast before breastfeeding	1(2.6)
Washing clothes	1(2.6)

Table 4: Source of information on health education on diarrhoea.

Source of Health education	Frequency (%)
Health personnel	17(63.0%)
Electronic/Print media	6(22.2%)
Relative	2(7.4%)
School	1(3.7%)
Herbalist	1(3.7%)
<b>Total</b>	<b>27(100%)</b>

## REFERENCES

- Snyder JD, Merson MH. The magnitude of the global problem of acute diarrhoeal disease: a review of active surveillance data. . Bulletin of the World Health Organisation. 1982;60: 605-13.
- Forsberg BC, Petzold MG, Tomson G, and Allebeck P. Diarrhoea case management in low and middle income countries- an unfinished agenda. Bulletin of the World Health Organisation. 2007;85: 42-8.
- Enzley S, Barros F. A Global Review of Diarrhoeal Control. UNICEF Staff working papers Evaluation, Policy and planning series Numbers EVL-97-002. Available at [www.rehydrate.org/diarrhoea/pdf/diarrhoea-global-review.pdf](http://www.rehydrate.org/diarrhoea/pdf/diarrhoea-global-review.pdf). Accessed 19.6.12.
- Murry CJ, Lopez AD, Mathers CD and Stein C. The global burden of disease 2000 project: aims, methods, and data sources. Geneva: World Health Organization; 2001 Available at [www.who.int/healthinfo/paper36.pdf](http://www.who.int/healthinfo/paper36.pdf) Accessed 19-6-12.
- United Nations Children's Fund and World Health Organization Clinical Management of acute Diarrhoea WHO/UNICEF Joint Statement. Available at [http://www.afro.who.int/cah/documents/intervention/acute\\_diarrhoea\\_joint\\_statement.pdf](http://www.afro.who.int/cah/documents/intervention/acute_diarrhoea_joint_statement.pdf) Accessed 19-6-2012.
- World Health Organization the global burden of disease2004 update. Available at "[http://www.who.int/.../global\\_burden\\_disease/GBD\\_report\\_2004update\\_fu...](http://www.who.int/.../global_burden_disease/GBD_report_2004update_fu...)" Assessed 19-6-2012.

7. Cesar GV, Bryce J, Fontaine O and Monasch R. Reducing deaths from diarrhoea through oral rehydration therapy. *Bulletin of the WHO*. 2000; 78: 1246-55.
8. Feachem GR, Hogan RC, Merson MH. Diarrhoeal disease control: reviews of potential interventions. *Bulletin of the World Health Organisation*. 1983; 60: 637-40.
9. Taylor CE, Greenough WB. Control of diarrheal diseases. *Annu Rev Public Health*. 1989; 10:221-244.
10. Huttly SR, Morris SS, Pisani V. Prevention of diarrhoea in young children in developed countries. *Bulletin of the World Health Organisation*. 1997; 75: 163-74.
11. United Nations Children's Fund/ World Health Organization. *Diarrhea: Why children are still dying and what can be done*. Geneva: World Health Organization, 2009. Available at [http://whqlibdoc.who.int/publications/2009/9789241598415\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598415_eng.pdf). Assessed 19-6-2012.
12. Federal Republic of Nigeria 2006 Population and Housing census of Nigeria. Federal Republic of Nigeria official gazette, Lagos 2007.
13. Keusch GT, Fontaine O, Bhargava A, Boschi-Pinto C, Bhutta ZA, Gotuzzo E et al. Diarrhea Diseases. In: Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB, Jha P, Mills A, Musgrove P (eds) *Disease Control Priorities in Developing Countries*. 2nd edn. Washington DC: Oxford University Press and The World Bank 2006:371-38.
14. Olusanya O, Okpere E, Ezimokai M. The importance of social class in voluntary fertility control in a developing country. *West Afr J Med*. 1985; 4:205 - 12.
15. Kapoor P, Rajput VJ. Maternal knowledge Attitudes and practice in Diarrhea. *Indian Pediatrics*. 1993; 30: 85-7.
16. Cabatbat AM. The effect of health education on the knowledge, attitude and practices (KAP) on the mothers on diarrhea in Barangay, paglaun, Dumalinao, Zamboanga Del sur. Available at [som.adzu.edu.ph/research/pdf/2008-05-09-100350cabatbat.pdf](http://som.adzu.edu.ph/research/pdf/2008-05-09-100350cabatbat.pdf). Accessed 15-12-2012.
17. Abiola AO, Ndaman AL, Idris SH, Jiya NM, Ibrahim MT. Home management of childhood diarrhoea among mothers in Sokoto, Nigeria. *Trop J Health Sci*. 2010; 17(1). Available at: <http://www.ajol.info/index.php/tjhc/article/view/52801>. Accessed 19-6-12.
18. Adimora GN, Ikefuna AN, Ilechukwu G. Home management of childhood diarrhoea: Need to intensify campaign. *Nig J Clin practise*. 2011; 14: 237-4.
19. McLennan JD. Home Management of Childhood Diarrhoea in a Poor Periurban Community in Dominican Republic. *J Health Popul Nutr*. 2002; 20:245-54.
20. Omokhodion FO, Oyemade A, Sridhar MK, Olaseha IO, Olawuyi JF. Diarrhoea in Children of Nigerian Market Women: Prevalence, Knowledge of Causes, and Management. *J Diarrhoeal Dis Res*. 1998; 16: 194-200.