



Maternal perception of Diarrhoea in an urban setting in South-South Nigeria: A cause of concern or a call for action

Akhimienho Kingsley Irelosen ^{1*}, UWAIBI Noel ²

¹ Department of Paediatrics, Edo State University, Uzairue, Nigeria

² Department of Community Medicine, Edo State University, Uzairue, Nigeria

* Corresponding Author: Akhimienho Kingsley Irelosen

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Abstract

Introduction: Globally, 1.7-2.5 million episodes of diarrhoea occur in children less than 5 years of age per annum. Diarrhoea is also responsible for at least 500,000 childhood deaths annually.

Methodology: This was a cross-sectional study conducted amongst mothers whose children were receiving care in the children's out-patient clinic of Edo Specialist Hospital. Maternal knowledge of diarrhoea disease and their practice during diarrhoea disease were assessed using pre-tested questionnaires.

Results: Nearly half of the respondents (49.31%) were within the age of 30-39 years. Majority of the respondents (87.3%) had good knowledge of the causes of diarrhoea (87.3%), while less than half of respondents (48.7%) had good knowledge of the danger signs of diarrhoea. No association was found between the level of education and overall knowledge of diarrhoea.

Conclusion: Although majority of the respondents had good knowledge of the causes of diarrhoea, however, their overall knowledge of diarrhoea amongst the mother was low. This is a cause of concern as this might negatively affect the morbidity statistics from diarrhoea in our environment.

Keywords: Diarrhoea, concern, South-South Nigeria, perception

Introduction

Diarrhea is a common manifestation of many gastrointestinal as well as systemic disease ^[1]. The World Health Organization defines diarrhoea as the passage of two or more loose or liquid stool per day (or more frequent passage per day than that which is normal for the individual ^[2]). Of note is that the frequent passage of formed stools is not diarrhea.

Diarrhea is particularly common in children under 5 years of age, where Rota virus has been reported as the principal causative agent ^[3]. However, other pathogens of Salmonella, Shigella, etc has also been reported as aetiologic agents of diarrhoea ^[4].

Increased susceptibility to diarrhea disease are seen in children between the age of six months to two years, malnourished children, immunocompromised children as well as those that are mini-fed with infant formula ^[5].

Globally, between 1.7-2.5 million episodes of diarrhea occur in children less than 5 years of age annually ^[6].

It is responsible for 8% of all deaths in children less than 5 years of age ^[7]. Diarrhoea is also known to be responsible for the death of at least 500,000 children annually ^[7].

Dehydration is the commonest complication as well as the commonest cause of death in diarrhea ^[8]. Other causes of death in diarrhea are loss of calories as well as dyselectrolytaemia ^[8].

About 10% of deaths from diarrhea can be prevented by optimal infant feeding practices. Similarly, hand hygiene practices, as well as sanitary disposal of faeces are also important ways to reduce the incidence of diarrhoea ^[9, 10]. Home administration of oral rehydration solution or salt-sugar solution has been shown to reduce morbidity and mortality of diarrhoea amongst children ^[11, 12]. Diarrhoea in itself is not lethal.

However, the improper knowledge, poor practice, negative attitudes and misdirect approach of mother towards its prevention as well as home management account for the high degree of morbidity and mortality recorded in children with diarrhea, particularly in developing countries [13, 14].

This study therefore assesses the perception of mothers towards diarrhoea in a secondary facility in Southern Nigeria.

Methodology

This was a cross-sectional study conducted amongst mothers whose children were receiving care in the children's out-patient clinic of Edo Specialist Hospital, Benin City, Nigeria. The hospital is a secondary health facility located around the Sapele road area of Benin City and basically offers specialist case to both children and adults. It has a total of about 4 wards, with an infant welfare clinic that runs weekly.

The children's out-patient clinic runs daily except on weekends, with a medical officer on duty daily. The medical officer is under the supervision of a consultant paediatrician.

The hospital has three consultant paediatricians.

The study was done between October 2021 and June 2022.

Mother's perception of diarrhoea diseases, including home management of diarrhoea was assessed using structured pre-tested observer administered questionnaires. Knowledge was assessed in two domains: knowledge of causes of diarrhea, and knowledge of danger signs. Knowledge of causes was assessed with a total of eight questions, while knowledge of danger signs was assessed with a total of four questions. Each question was assigned a score of one, and overall knowledge was calculated as a percentage of the total score. Respondents who had above fifty percent cumulatively were said to have good knowledge, and thus a good perception of diarrhea.

All information obtained were arranged into tables and data analyzed using SPSS version 20. The level of statistical significance was set at $p < 0.05$.

Results

Table 1: Socio demographic Characteristics of Respondents

Variable	Frequency (n = 205)	Percent
Age group (years)		
< 30	81	39.5
30 – 39	101	49.3
40 – 49	22	10.7
50 and above	1	0.5
Mean ± SD	31.3 ± 16.3 years	
Marital status		
Married	174	84.9
Single	15	7.3
Divorced	13	6.3
Widowed	3	1.5
Religion		
Christianity	184	89.7
Islam	18	8.8
Others*	3	1.5
Ethnicity		
Bini	111	54.1
Esan/Etsako	41	20.0
Urhobo/Isoko/Ijaw	16	7.8
Yoruba	14	6.8
Igbo	12	5.9
Others**	11	5.4
Level of education		
Primary	36	17.6
Secondary	40	19.5
Tertiary	129	62.9
Occupational Skill Level		
Skill Level 0	27	13.2
Skill Level 1	10	4.9
Skill Level 2	106	51.7
Skill Level 3	42	20.5
Skill Level 4	20	9.8

Others*: African traditional religion, Atheist. Others**: Tiv, Ghanian, French, Hausa, Fulani, Ukwani

Nearly half (101; 49.3%) of respondents were within age group 30 – 39 years. The mean age was 31.3 ± 16.3 years. Majority (174; 84.9% and 184; 89.7%) of respondents were married and practiced Christianity respectively. Slightly

more than half (111; 54.1%) of respondents were Bini by tribe, about two-thirds (129; 62.9% and 143; 69.7%) had tertiary level of education and occupation within skill level 0 – 2 respectively.

Table 2: Knowledge of Diarrhoea among respondents

Variable	Yes Frequency (%)	No Frequency (%)
Causes of Diarrhoea		
Drinking impure water	183 (89.3)	22 (10.7)
Eating improperly preserved food	194 (94.6)	11 (5.4)
Eating leftover food	171 (83.4)	34 (16.6)
Use of feeding bottles	119 (58.0)	86 (42.0)
Lack of exclusive breast feeding	89 (43.4)	116 (56.6)
Poor sewage disposal	181 (88.3)	24 (11.7)
Teething	131 (63.9)	74 (36.1)
Hand washing prevents diarrhoea	200 (97.6)	5 (2.4)
Danger signs of diarrhoea		
Excessive thirst	166 (81.0)	39 (19.0)
Dry thirst	87 (42.4)	118 (57.6)
Sunken eyes	112 (54.6)	93 (45.4)
Tearless eyes	131 (63.9)	74 (36.1)

n = 205

While nearly all respondents (200;97.6%) stated that hand washing prevents diarrhoea, vast majority (194;94.6%, 183; 89.3, 181;88.3 and 171;83.4%) of respondents affirmed that diarrhoea could be caused by eating improperly preserved food, drinking impure water, poor sewage disposal and eating left over food respectively. However, more than half (116; 56.6%) stated that lack of exclusive breastfeeding was not a possible cause of diarrhoea.

Also, while majority (166; 88.1%) and nearly two-third (131; 63.9%) of respondents identified excessive thirst and tearless eyes as danger signs of diarrhoea, less than half (87; 42.4%)

of respondents identified dry taste as a danger sign.

Table 3: Knowledge domains of Diarrhoea among respondents

Variable	Good Frequency (%)	Poor Frequency (%)
Knowledge of causes	179 (87.3)	26 (12.7)
Knowledge of danger signs	98 (48.7)	107 (52.2)

Majority of respondents (179; 87.3%) had good knowledge of causes of diarrhoea while slightly less than half (98; 48.7%) had good knowledge of danger signs of diarrhoea.

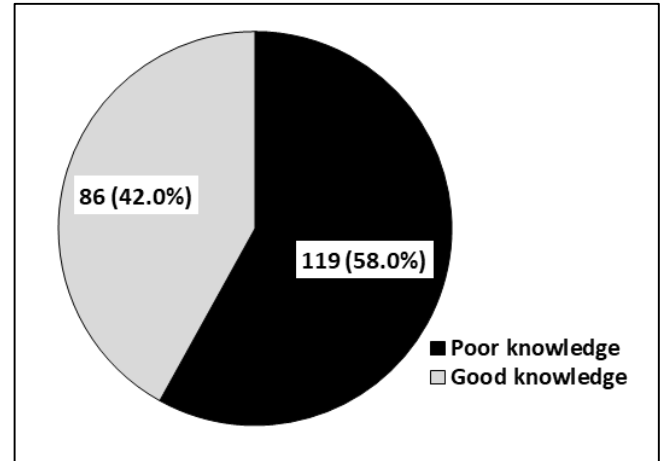


Fig 1: Overall knowledge among respondents

Good overall knowledge of diarrhoea was noticed in less than half (86; 42.0%) of respondents.

Table 4: Association between knowledge and socio-demographic Characteristics of respondents

Variable	Overall Knowledge		Test statistics	p-value
	Good knowledge (n = 86) Frequency (%)	Poor knowledge (n = 119) Frequency (%)		
Age group (years)				
< 30	35 (40.7)	46 (38.7)		
30 – 39	43 (50.0)	58 (48.7)		
40 – 49	7 (8.1)	15 (12.6)		
50 and above	1 (1.2)	0 (0.0)	$\chi^2 = 2.380$	0.497
Marital status				
Married	69 (80.2)	105 (88.2)		
Single	9 (10.5)	6 (5.0)		
Divorced	6 (7.0)	7 (5.9)		
Widowed	2 (2.3)	1 (0.8)	$\chi^2 = 3.230$	0.357
Religion				
Christianity	77 (89.5)	107 (89.9)		
Islam	8 (9.3)	10 (8.4)		
Others*	1 (1.2)	2 (1.7)	Fischer’s Exact = 0.280	>0.999
Ethnicity				
Benin	47 (54.7)	64 (53.8)		
Esan/Etsako	17 (19.8)	24 (20.2)		
Urhobo/Isoko/Ijaw	6 (7.0)	10 (8.4)		
Yoruba	7 (8.1)	7 (5.9)		
Igbo	4 (4.7)	8 (6.7)		
Others**	5 (5.8)	6 (5.0)	$\chi^2 = 0.935$	0.968
Level of education				
Primary	14 (16.3)	22 (18.5)		
Secondary	20 (23.3)	20 (16.8)		
Tertiary	52 (60.5)	77 (64.7)	$\chi^2 = 1.345$	0.510
Occupational Skill Level				
Skill Level 0	13 (15.1)	14 (11.8)		
Skill Level 1	3 (3.5)	7 (5.9)		

Skill Level 2	45 (52.3)	61 (51.3)		
Skill Level 3	20 (23.3)	22 (18.5)		
Skill Level 4	5 (5.8)	15 (12.6)	$\chi^2 = 3.393$	0.415

Others*: African traditional religion, Atheist. Others**: Tiv, Ghanian, French, Hausa, Fulani, Ukwani

The incidence of good and poor knowledge followed a similar pattern with age as greater proportions (43; 50.0% and 58; 48.7%) of respondents with good and poor knowledge respectively were within age group 30 – 39 years. This association was not statistically significant ($p = 0.497$). Also, majority (69; 80.2% and 105; 88.2%) of respondents with good and poor knowledge respectively were married while Christianity accounted for the highest proportion (77; 89.5% and 107; 89.5%) of respondents with good and poor knowledge respectively. However, the association between marital status and religion with knowledge was not statistically significant. ($p = 0.353$ and 0.999 respectively) Though not statistically significant ($p = 0.510$), the level of good and poor knowledge was noticed to increase with increasing level of education with respondents with tertiary level of education having the greatest proportion (52; 60.5% and 77; 64.7%) of respondents with good and poor knowledge respectively. Respondents whose occupation fell within occupational skill level 2 had greatest proportion (45; 52.3% and 61; 51.3%) of good and poor knowledge respectively. This association was also not statistically significant ($p = 0.415$)

Table 5: logistic regression model for the determinants of knowledge of Diarrhoea

Predictors	B (regression co-efficient)	Odds ratio	95% CI for OR		p-value
			Lower	Upper	
Age	0.000	0.998	1.000	0.952	0.105
Marital status					
Married	-0.738	0.478	0.152	1.507	0.208
Divorced	-0.395	0.674	0.131	3.465	0.636
Widowed	0.441	1.555	0.103	23.519	0.750
Single*	1				
Religion					
Islam	0.088	1.092	0.385	3.096	0.869
Others	-0.511	0.600	0.043	8.296	0.703
Christianity*	1				
Level of education					
Tertiary	-0.019	0.981	0.437	2.203	0.963
Secondary	0.228	1.256	0.470	3.355	0.649
Primary*					
Occupational skill level					
	-0.049	0.952	0.700	1.295	0.754

*Reference category, $R^2 = 20.0\% - 27.0\%$, CI= Confidence Interval

The variable in the model accounted for between 20.0% – 27.0% of the variation observed in the outcome variable (Good knowledge). With increasing age, the likelihood of having good knowledge remained unchanged. This was more likely by an odds ratio of 0.998 when compared with respondents with poor knowledge. This however was not statistically significant. ($p = 0.105$). Respondents who are married and divorced were 0.478 and 0.6474 respectively less likely to have good knowledge compared to those who are single. Conversely, widowed respondents were 1.555 more likely to have good knowledge compared to those who are single. This was also not statistically significant ($p = 0.750$). The level of good knowledge of diarrhoea was found to decrease by 0.283 among respondents with tertiary level of

education while those with secondary level of education were 1.256 more likely to have good knowledge compared to those with primary level of education. This was however not statistically significant. ($p = 0.963$ and 0.649 for tertiary and secondary level of education respectively). The likelihood of having good knowledge was found to decrease by 0.049 with increasing occupational skill level. This was more likely by an odds ratio of 0.952 when compared to those with poor knowledge. This was however not statistically significant ($p = 0.754$)

Discussion

Diarrhea remains a high burden disease despite the availability of simple, affordable, and cost - effective treatments. This study found out that 94.6% of the mothers knew that diarrhea was as a result of improperly cooked food followed by drinking unclean water (89.3%). These proportions are similar to a study done in India where mothers reported that diarrhea was due to contaminated food¹⁵ but higher than results obtained from another study done in India where 74.8% of the participants knew that consumption of unclean food is a cause of diarrhea and 66.1% believed weather-related changes could cause diarrhoea.¹⁶ This is in contrast to a study done in Iran which revealed that diarrhea occurs in 52% of mothers' babies as a result of intestinal infection, and by teething (48.0%), this was also the case in a study done in India which recorded a higher proportion (68%) of diarrhea due to teething but in contrast to study done in Karachi and Haryana which showed that about 10% and 33% mothers respectively believe that diarrhoea is due to teeth eruption.^{17,18} The above said findings in this study could be due to the fact that most of the mothers were educated and knew about personal hygiene. Perception of teeth eruption as a cause of diarrhoea could be because at the time of eruption of teeth, the children will try to chew on anything they can grasp which leads to the pathogens present on the surface to cause diarrhoea in children.

Majority 166 (88.1%) and nearly two-third 131 (63.9%) of respondents identified excessive taste and tearless eyes as danger signs of diarrhea, only less than half 87 (42.4%) of respondents identified dry taste as a danger sign.

In 2004, WHO and UNICEF issued a joint statement on clinical treatment of acute diarrhea, recommending the use of low-osmolarity oral rehydration salts (ORS), zinc supplementation, increased amounts of appropriate fluids, and continued feeding.⁹ This is remarkable as finding from this study shows that majority, 170 (82.9%), 152 (74.1%) and 188 (91.7%) of respondents continued breastfeeding, gave ORS and went to the hospital when danger signs persisted respectively. This is in tandem with studies done in South Sudan¹⁹ and India¹⁵ where most of the mothers stated that they had breastfed their children during diarrhea episodes. Treatment of diarrhea with ORS is a simple, proven, high-impact intervention that can be provided in home settings by caretakers or by health care providers at community and facility levels to prevent dehydration due to diarrhea and decrease related deaths. There is evidence that ORS may reduce diarrhea specific mortality by up to 93%.²⁰ There is evidence that ORS may reduce diarrhea specific mortality by

up to 93 %. In addition, breastfeeding is a widely accepted practice in this culture, which might be the reason that mothers think that it is preventive. Breastfeeding can reduce the severity, duration, and negative nutritional consequences of diarrhea.

Despite the increasing awareness and common public concern, there are several discrepancies about the knowledge and management of diarrhoea among the mothers. Generally, socio-demographic factors such as mothers' education and occupation, husbands' employment status, family income and family size are linked with mothers' knowledge about diarrhoea and its management apart from mothers' personal attitude and behaviour.²¹ Although mothers were aware of diarrhoea and its home management, the level of awareness was insufficient. This is buttressed in this study where findings revealed a strong association between mothers' knowledge and level of education. Illiterate mothers tend to have low knowledge compared to those with secondary education in a study carried out in Sudan in 2018.²² This finding contrasts with what was found in this study where the level of good and poor knowledge was noticed to increase with increasing level of education with respondents with tertiary level of education having the greatest proportion 52 (60.5%) and 77 (64.7%) of respondents with good and poor knowledge respectively. This could be as a result of the support and improvement of female education in Edo state government through the establishment of the Agency for Adult and Non-formal education Centre, Skill Acquisition Centre. These agencies are charged among other duties with responsibilities to act as an to provide necessary facilities for this purpose such as inclusion of health knowledge skills in school curricula may lead to substantial improvement in child nutritional status by directly enabling the girls who are future mothers to have an improved health knowledge, practices, and health seeking behavior.²³

The overall knowledge scores in a study carried out in India¹⁵ were high and on dividing the scores into two categories, it was found that the knowledge scores regarding causes and prevention were also good. This contrasts with findings from this study where good overall knowledge of diarrhea was noticed in less than half, 86 (42.0%) of respondents. Mother's education is one of the most important determinants of child survival. This could suggest that more emphasis need to be placed on health education of the mothers, during antenatal, postnatal and at every opportunity to ensure they are fully aware of the importance of improving their knowledge and general health seeking behavior.

Conclusion

This study showed that although the perception of mothers on the causes of diarrhea was good, the overall perception of mothers on diarrhea as a whole was poor. There should thus be better public health enlightenment as diarrhea is a major childhood killer if not properly addressed.

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Conflict of interest

The authors hereby declare no conflict of interest.

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