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Diarrhoea Prevention and Management Practices by Mothers and Caregivers of Under 5 Children in Nwangele Local Government Area

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Abstract

The study is on diarrhoea prevention and management practices by mothers and caregivers of under 5 children in Nwangele Local Government Area. The study was guided with four (7) objectives and four (4) hypotheses. A cross-sectional descriptive survey design was used. A semi-structural questionnaire was used for data collection and sample size was 400 mothers. Data were analyzed using statistical software package version 20.0 to determine the percentage as well as the inferential statistical of Chi-square (X^2). Result showed that 160(40.0%) mothers were aware of preventive measures of diarrhea. 93.2% of mothers believed that exclusive breastfeeding is used as a preventive measuresfor diarrhea while 40.0% adopted the use of quality water and 30.0% believe that maintaining cleanness is also used as a preventive measure to diarrhea diseases in under 5under children. In regards to the association between educational attainment and type of management action taken by mothers and caregivers of under 5 children, result shows that 162(50.6%) of mothers who attained tertiary education gave anti diarrheal drugs to their children as against 14(17.5%) mothers who attained only primary education. Also 53(16.6%) mothers who attained secondary/ tertiary education gave oral rehydration therapy to their children as against 12(15.0%) mothers who only had primary education. In regards to fluid intake and feeding to a child suffering diarrhea 41(12.5%) of educated mother give less amount of food during diarrhea episode as against 37(46.2%) non educated mothers, the result when put to test show that there is an association between mothers and caregivers educational attainment arid management of diarrhea in under 5 children this was found statistically significant p<0.001. diarrhea remains one of the major public health problems and mostly affects children under the age of 5 causing dehydration which can lead to death if not properly treated therefore the poor knowledge of the mothers required to be addressed by the health system as the mothers are the caregivers in the management of childhood diarrhea.

Keywords: Caregiver, Children, Diarrhoea, Management, Mother, Prevention

Introduction

Diarrhea diseases is the second leading causes of death in children under 5 years old, and is responsible for killing around 525,000 children, every year (WHO, 2018) [17]. Diarrhea can last several days and can leave the body without the water and salt that are necessary for survival. Diarrhea is defined as having loose or watery stools at least 3 times per day, or more frequently than normal for an individual. Frequent passing of formed stools is not diarrhea, nor is the passing of loose, pasty stools by breastfed babies (WHO/UNICEF, 2025) [16].

Diarrhea is among the most common morbidities affecting children under 5 years old with an estimated 960 million cases worldwide in 2015. Diarrhea mortality rate has declined 39% between 2005 and 2015, but it still is the fourth leading cause of death in this age group, responsible for killing half a million children (Global Burden Diseases, 2017). More than 70%of these deaths occur in children 2 years of age and younger (Das & Bhutta, 2016) [5]. These figures are estimates of deaths in which diarrhea was the primary cause identified. However, as suggested by Ahmed *et al*. (2017) [2] in a verbal autopsy study in

Bangladesh, diarrhea may contribute to children mortality as a secondary cause which may make its impact even larger.

Diarrhea among children is defined as a disease with loose or watery stool three or more times during a 24-hour period, or a decrease in the consistency of the stool from that which is normal for the patient. It is estimated that in 2015, diarrhea caused over 71 million DALYs of which 45 million were among children under 5 years old and 99% of these occurred in low- and middle-income countries (Global Burden Diseases, 2017). The African, South Asian, and South East Asian regions have the highest burden of diarrhea in the world (United Nation's Children Fund, 2017).

Children that survive diarrhea are confronted with long term consequences that include malnutrition and developmental delays. Diarrhea early in life may have an independent effect on cognitive function that is not necessarily mediated by the effects on nutritional status. Thus, diarrhea hinders children developing to their full potential and may affect future productivity and quality of life. In addition to these effects on the individual, diarrhea imposes a large burden on household and health system economics in low-income countries further perpetuating poverty (Giglio *et al*., 2017) [7].

Acute diarrhea is caused by more than 20 different viral, bacterial, and parasitic pathogens. However, recent studies have provided insight about the entero-pathogens responsible for the highest burden and their differences in age and geographic distribution. According to the Global Enteric Multicenter Study (GEMS) conducted in Africa and Asia among children under 5 years old seeking medical care, the most common pathogens causing moderate to severe diarrhea were rotavirus, *Cryptosporidium*, enterotoxigenic *E. coli* producing heat stable toxin, and *Shigella* (Steinhoffa, 2018) [14].

Despite global success in the reduction of all cause and diarrhea-specific mortality in the past 30 years, diarrhea remains the second leading cause of death due to infections among children under five years of age worldwide (Steinhoffa, 2018) [14]. It is estimated that diarrhea accounted for 9.9% of the 6.9 million deaths among children under 5 in 2011. Several organisms have been implicated as important causes of these deaths, yet there has not been a review using standardized methods to determine the importance of all of the common pathogens (Naghavi *et al*., 2017) [12]. The general objective of this research was to assess diarrhea prevention and management practices by mothers and caregivers of under 5 children in Nwangele Local Government Areas.

Methodology

Research Design

A Community based cross sectional study was used to obtain information. It is an attempt to collect data from members of the population with respect to one or more variables. It is used to observe event in their natural context. The design was used to obtain information about the knowledge of mothers and caregivers of under five children in Nwangele L.G.A, Imo State.

Study Area

Nwangele is a local government area in Imo State, Nigeria. Its headquarter is in the town of Amaigbo. It has an area of 63km^3 and a population of 128,472 as of the 2006 census. The postal code of the area is 471. Amaigbo town comprises of 38 villages with one traditional ruler.

Study Population

The target population of this study is the mothers or caregivers that attend immunization clinic in each of the health centers in the selected areas in the village. A total number of 4000 mothers or caregivers of under 5 children that attend immunization clinic days were gotten from the health center in the selected areas in the villages.

Sample Size

Four hundred (400) women or caregivers of under 5 children were drawn from the population of four thousand (4000) women or caregivers of under five children that attend immunization clinic in each of the health centers in the selected areas in the villages.

Sampling Techniques

Simple random sampling technique was used in selecting 40 mothers in each of the selected 10 villages given a total number of 400 mothers or caregivers of under five children. The researcher and four trained field assistants visited the immunization clinic on their clinic days (Tuesdays and Thursdays). On each visit in a particular health center, 20 women were randomly selected until the 400 women or caregivers required were completed. The questionnaire was administered and collected same day.

Instrument for Data Collection

A self-designed and pretested structured questionnaire designed with the objective of the study in mind was used as instrument for data collection. The questionnaire was divided into 2 sections; Section A talked about the socio-demographic characteristics including Age, Education, the Occupation and number of Children. While the section B, talked about diarrhea prevention and management practices by mothers and caregivers of under children.

Validation of the Instrument

Questionnaire was constructed with simple and straight to the point question to avoid wrong responses due to poorly understood questions. The supervisor and two other experts in health validated the instrument in relevance to the topic, objective, coverage of content area and appropriateness of language usage.

Reliability of the Instrument

The instrument was subjected to a reliability test in which 20 copies of the questionnaire was administered to twenty (20) mothers or caregivers who came to immunization clinic with their under five children in another L.G.A who were not part of the study. 2 weeks after first administration of the questionnaire, same questionnaire were given to some mothers and caregivers. The result of the first and second administration of the questionnaire were collected and analyzed using correlation coefficient, it yielded a coefficient correlation of 0.82. This shows that the instrument was reliable.

Method of Data Collection

The instrument for data collection was administered to the respondents during child immunization clinic which held on Tuesdays and Thursday in the selected areas. Every respondent who received the questionnaire was given instruction on how to answer the question. An appeal was made to respondents to complete the questionnaire on the spot and return to the researcher and to be honest with their responses. Particular attention was paid to the uneducated mothers. The items in the questionnaire was read and interpreted to them by the researcher and their responses were ticked as it corresponds with the options.

Method of Data Analysis

Each completed questionnaire was coded in pre-arranged coding sheet to minimize errors. Data were checked again for its completeness. The data were entered into EPI (Version 3.5) Descriptive Statistical Software Package (Version 16.0) for further analysis. Descriptive statistics was used to summarize the data characteristics. Frequency Distribution tables were constructed for the Class Variables, the significance level of 5% was used in analyzing the results with confidence level of $P \leq 0.05$ in Chi-Square used for the hypotheses.

Ethical Consideration/Information Consent

Ethical clearance and approval was obtained from the School of Health Technology, Federal University of Technology, Owerri (FUTO) to conduct the study. All the mothers or caregivers who have under 5 children that attend immunization clinic on Tuesdays and Thursdays gave informed consent before they were enrolled in the study.

Results

Table 1 showed the Socio-Demographic Characteristics of the Mother/ Caregivers of Under 5 years. Out of the 400 respondent 320(80%) were age 20- 40 years, while 80(20.0%) were age 41-50years. Educational attainment revealed that 320(80.0%) Attained secondary/tertiary education while 80(20.0%) attained primary/non formal education.

Table 2 showed the basic knowledge of mothers/caregivers on diarrhea preventive measures in Children Under 5 Years of Age. Results indicated that 380(95.0%) were aware of diarrhea while 20(5.0%) were not aware of diarrhea. Also 159(39.7%) reported that their source of knowledge was from health center while 24(60.3%) repotted their source as from educational health programs.

Table 3 showed the preventive measures adopted by mothers/caregivers under 5 children. Results showed that 41(10.3%) adopted washing of hands before feeding the child, 120(30.0%) adopted maintaining cleanliness, 160(400%) adopted the use of quality water, while 66(16.5%) indicated avoid child putting dirty things inside the mouth and 13(3,2%) reported proper disposal of child faeces.

Table 4 showed the management action taken by mothers/caregivers under 5 children. 176(44.0%) gave anti-diarrhoea drugs to their under-fives, while 81(20.3%) gave ORS and 78(19.5%) gave homemade fluid. Eighty (20%) of the respondents gave more food and fluid to a child suffering diarrhoea, while 106(26.5%) gave less amount of food and fluid. Majority 227(56.8%), of the respondents indicated that they followed up the medication until the child completes the doses as prescribed by the physician, 106(26.5%) took back their child for review by the physician white 13(3.3%) received counseling on prevention of re-occurrence of diarrhoea.

Table 5 showed the test association between financial strength of the mothers and the preventive measures adopted by mothers/caregivers of under 5 children. 2(5.5%) of mothers who earned less than 30,000 per month dispose their child faeces properly as against 11(2.9%) of mothers who earned more than 31,000 per month. This result was found to be statistically significant, P-value= $\leq$ 0.001.

Table 6 showed the test association between financial strength of the mothers and diarrhoea management action taken by mothers/caregivers of under 5 children. The result found statistically significant (Chi-Square = 20.789, P-value = <0.0014).

Table 7 showed the test of association between educational attainment and diarrhoea preventive measure adopted by mothers/caregivers of under 5 children. The result that there was no significant statistical association between preventive measures adopted by mothers/caregivers and educational level attained (Chi-square = 2.148, P-value = 0.709).

Table 8 showed the test of association between mothers educational attainment and management action for diarrhoea taken by mothers/caregivers of under 5 children. 162(50.6%) of the mothers who attained secondary/tertiary level of education gave anti-diarrhoea drug to their children as against 14(17.5%) mothers who attained only primary education.

Table 1: Socio-demographic Characteristics of the Mothers/Caregivers of Under Five Children

Socio-demographic Characteristics	Frequency (N = 400)	Percentage (%)
Age		
20-40 years	320	80.0
41-50	80	20.0
Total	**400**	**100**
Marital Status		
Married	360	90.0
Single	13	3.3
Divorced	27	6.7
Total	**400**	**100**
Educational Level		
Non formal/ Primary	80	20.0
Secondary / Tertiary	320	80.0
Total	**400**	**100**
Parity		
1-2	133	33.3
3.4	214	53.5
5-6	40	10.0

7+	13	3.3
Total	**400**	**100**
Financial Strength		
Less than 30,000	50	12.5
31,000-60,000	84	21.0
60,000 – 90,000	121	30.25
91,000 and above	145	36.25
Total	**400**	**100**

Table 2: Basic Knowledge of Mothers/Caregivers on Diarrhea preventive measures in Children Under 5 Years of Age

Knowledge of Diarrhea by Mothers/Caregivers	Frequency (N = 400)	Percentage (%)
Awareness of Diarrhea		
Yes	380	95.0
No	20	5.0
Total	**400**	**100**
Source of Knowledge		
Health center	159	39.7
Educational Programme	241	60.3
Total	**400**	**100**
Perceive Cause of Diarrhea		
Drinking of dirty water	100	25.0
Dirty environment	200	50.0
Non-regular washing of hands by mothers before feeding the child	50	13.0
Teething	48	12.0
Total	**400**	**100**
Signs/Symptoms of Diarrhea		
Frequent stooling	240	60.0
Repeated vomiting	147	36.7
Excessive thirst	13	3.3
Total	**400**	**100**

Table 3: Preventive Measures Adopted by Mothers/Caregivers Under 5 Children

Preventive Measures Adopted	Frequency (N = 400)	Percentage (%)
Washing of hands before feeding the child	41	10.3
Maintaining cleanliness	120	30.0
Use of quality water	160	40.0
Proper disposal of child feaces	13	3.2
Avoid child putting dirty things inside the mouth	66	16.5
Total	**400**	**100**
Can Exclusive breastfeeding prevent the occurrence of Diarrhea?		
Yes	373	93.2
No	27	6.8
Total	**400**	**100**
Do you have access to Portable Water?		
Yes	318	79.5
No	82	20.5
Total	**400**	**100**
Do you have access to toilet facility?		
Yes	333	88.2
No	67	16.8
Total	**400**	**100**
Can vaccination prevent Diarrhea		
Yes	265	66.3
No	135	33.8
Total	**400**	**100**

Table 4: Management Action taken by Mothers/Caregivers Under 5 Children

Pattern of Management of Child's Diarrhea	Frequency (N = 400)	Percentage (%)
Action taken during Diarrhea		
Give anti-diarrhoea drugs	176	44.0
Homemade fluid	78	19.5
Taken to health facility	81	20.3
Give ORS	65	16.3
Herbal medicine	-	-
Total	**400**	**100**
Fluid intake and feeding to a child suffering diarrhoea		

Is the child given less amount of food?	106	26.5
Same amount of food	214	53.5
More than usual to eat or drink	80	20.0
Total	**400**	**100**
Follow-up and compliance with treatment		
Medication completed	227	56.8
Child taken back for review	106	26.5
Advice given on home care	54	13.5
Counseling done on prevention of reoccurrence of infection	13	3.3
Total	**400**	**100**

Table 5: Test Association between Financial Strength of the Mothers and the Preventive Measures Adopted by Mothers/Caregivers of Under 5 Children

Preventive Measures adopted	Financial Strength of Mothers who earn				Total
	Less than 30,000	31,000 -60,000	61,000 -90,000	91,000 above	
Washing of hands before feeding the child	5(13.5%)	11(11.11%)	10(8.13%)	15(10.5%)	41(10.3%)
Keeping the environment clean	8(22.2%)	30(30.30%)	40(32.5%)	42(29.5%)	120(30.0%)
Use of quality / portable water	15(41.6%)	45(45.45%)	50(40.6%)	50(35.21%)	160(40.0%)
Mothers children avoid child putting dirt inside their mouth	6(16.6%)	10(10.10%)	20(16.2%)	30(21.12%)	66(16.5%)
Proper disposal of children faeces	2(5.5%)	3(3.0%)	3(44.0%)	5(3.5%)	13(3.20%)
Total	**50**	**84**	**121**	**145**	**400**

Chi-Square = 52.301, df = 8, P-value =<0.001

Table 6: Test Association between Financial Strength of the Mothers and Diarrhoea Management Action taken by Mothers/Caregivers of Under 5 Children

Management action taken	Financial Strength				Total
	Less than 30,000	31,000 -60,000	61,000 -90,000	91,000 above	
Taken to health facilities	6(12.0%)	10(11.9%)	30(24.7%)	35(24.1%)	81(20.3%)
Give ORS	10(22.2%)	15(17.85%)	20(16.5%)	20(13.7%)	65(13.7%)
Give anti-diarrhea drugs	16(32.0%)	40(47.6%)	50(41.32%)	70(48.2%)	176(44.0%)
Give homemade fluid	18(36.0%)	19(122.6%)	21(17.3%)	20(13.7%)	78(19.5%)
Total	**50**	**84**	**121**	**145**	**400**

Chi-Square = 20.789, df = 9, P-value =<0.0014

Table 7: Test of Association between Educational Attainment and Diarrhoea Preventive Measure Adopted by Mothers/Caregivers of Under 5 Children

	Educational Level		
Preventive Measures adopted	**None/Primary (%)**	**Secondary / Tertiary (%)**	**Total**
Washing of hand before feeding the child	11(13.8%)	30(9.4%)	41(10.3%)
Maintaining cleanliness	20(25.0%)	100(31.3%)	120(30.0%)
Use of quality water	13(16.3%)	53(16.6%)	66(16.5%)
Avoid child putting dirty things inside the mouth	3(3.8%)	10(3.1%)	13(3.2%)
All of the above	33(41.3)	127(39.7)	160(40.0)
Total	**80**	**320**	**400**

Chi-Square = 2.148, df = 4, P-value = 0.709

Table 8: Test of Association between Mothers Educational Attainment and Management Action for Diarrhoea taken by Mothers/Caregivers of Under 5 Children

	Educational Level		
Management Action	**None/Primary (%)**	**Secondary / Tertiary (%)**	**Total**
Give anti-diarrhoea drugs	14(17.5%)	162(50.6%)	176(44.0%)
Homemade fluid	37(46.2%)	41(12.8%)	78(19.5%)
Taken to health facilities	17(21.3%)	64(20.0%)	81(20.3%)
Give ORS	12(15.0%)	53(16.6%)	65(16.2%)
Total	**80**	**320**	**400**

Chi-Square = 52.801, df = 3, P-value < 0.001

Discussion

There were several discrepancies about the prevention and management of diarrhea among the mothers. Generally, socio-demographic factors such as mother age, financial strength and educational level were linked with the mothers' knowledge about prevention and management of diarrhea among under 5. Out of the 400 respondents 320(80.0%) were age 20-40years, while 80(20.0%) were aged 41-50 years. Educational attainment revealed that 320(80.0%) attained secondary/tertiary education while 80(20.0%) attained primary/non formal education. This is in agreement with Nowamani *et al,* (2024) [13] who said that majority of mothers were educated and it was particularly important in determining the health status of their children. Children of mother with no education have a high prevalence of diarrhea diseases.

Diarrhea prevention and management practice by mother/caregivers of under 5 children as pictured in the result showed that 380(80.0%)of mothers were aware of diarrhea while 20(5.0%) were not aware of diarrhea, this result goes in line with (Ener-Obing *et al*., 2017) study which reveal that in Nigeria some of the mothers perceived that diarrhea is caused by teething. 159(39.7%) of mothers got their knowledge from health centers while 241(60.3%) of mothers source their knowledge through educational program this is in agreement with (Bauleth *et al*., 2022) [4] who said that the best opportunity for mothers to learn about home treatment of diarrhea is when she brings her child to the treatment center because they have diarrhea. Unfortunately, this opportunity is often lost because doctors or health workers do not communicate well with mother; as a result mother frequently return home without the understanding needed to continue treating their children effectively.

Talking about the preventive measures taken, result showed that 160(40.0%) of mothers were aware of preventive measures of diarrhoea which include washing of hands before feeding the child, maintain cleanliness, use of quality water and avoid child putting dirty thing inside the mouth, this is in line with WHO/UNICE, (2016) which said that improving access to safe drinking water and adequate sanitation, as well as promoting good hygiene are key components m preventing diarrhoea. In this study 373(93.2%) of mothers believed that exclusive breastfeeding is used as preventive factors for diarrhoea. This agree with (WHO, 2018) [17] who said that frequent breast feeding can protect and prevent diarrhoea episode in children. On the contrary, 27(6.8%) of mothers do not give breast milk during diarrhoea episode to their children. This might be due to the difference in the educational levels of mothers, lack of experience in diarrhoea and it prevention.

Regarding to the management action of diarrhoea taken by mothers of under 5 children result shows that 162(50.6%) of educated mothers gave anti-diarrhoea drugs during diarrhoea episode as against 14(17.5%) of non-educated mothers. This result is in line with Ayogu *et al.* (2019) [3] study which revealed that in Nigeria, majority of mother treated diarrhoea with a combination of drugs including antibiotics, anti-diarrhoea and herbal medicine. Result on the use of ORS showed that 53(16.6%) of educated mothers gave their children ORS during diarrhoea episode as against 12(15.0%) of non-educated mothers. This result is in line with WHO (2016) study which stated that proper use of ORS can significantly reduce complication related to diarrhoea. Haroun *et al.* (2016) [11] also indicated that lack of health education and low level of maternal education by health personnel affect maternal knowledge on the proper use of ORS in the treatment of diarrhoea.

In terms of the fluid intake and feeding a child suffering diarrhoea 41(12.5%) of educated mothers gave less amount of food during diarrhoea episode as against 37(46.2%) of non-educated mothers. This is in agreement with Adeleke *et al.* (2019) [1] who reported that a reduction in the diet supply in a child suffering from diarrhoea alleviate the symptoms of diarrhoea. Results on the management action of diarrhoea taken by mothers of under 5 children showed that non educated mothers had poor knowledge toward diarrhoea management as against the educated mothers and it goes further to explain that 241(60.3%) of the mothers got their information through educational programme while 159(39.7%) of mother got their information from health center. An observational learn about home treatment of diarrhoea is when she brings her child to the treatment center because they have diarrhoea.

Unfortunately, this opportunity is often lost because doctors or health workers do not communicate well with mothers; as a result, mothers frequently return home without the understanding needed to continue treating their children effectively. The mother who source their knowledge from media, educational programme and personal reading are the educated mothers who have better knowledge compared to non-educated mothers whom their source of information was their physician or their relatives. This result was found to be statistically significant (Chi-square= 52.8, P-value $\leq$ 0.001).

In regards to the financial strength of the mothers and management of diarrhea among under 5 children, result showed that 6(12.0%) of mothers whose financial strength was less than 30,000 monthly took their child to the health center during diarrhea episode as against 75(21.4%) of mothers or caregivers whose financial strength was from 30,000 and above. This result goes with WHO (2018) [17], which recorded that people access health care service if it is available, affordable, accessible and acceptable in some situations. People cannot access health care when the cost of treatment is expensive, in many rural settings health care centers are situated at strategic points so that it can be accessible to member of communities this demotivates inhabitants from accessing health care because they have to travel long distance, most of them are unable to afford cost of transportation. This result showed that children whose mothers or caregivers earn monthly income less than 30,000 were more likely to suffer from severe diarrhea than children whose mothers earn 30,000 and above. When put to test this result was found to be statistical significant (Chi-square = 20.789, P-value <0.0014).

Conclusion

This revealed that illiterate mothers had poor knowledge towards diarrhoea management as compared to educated mothers. Therefore, the poor knowledge of the mother requires to be addressed by the health system as the mothers are the caregivers in the management of childhood diarrhoea. The educational programmes of the mother must be an essential part of the health facilities programmes because the physician and health centres were not effective source of knowledge. Moreover, the research showed that media acts effectively in giving knowledge to the mothers.

This should be considered in the national educational programmes. Furthermore, awareness should be created repeatedly on benefit of ORS and exclusive breast feeding (EBF) as it goes a long way in the prevention of dehydration and death in under 5 children during diarrhoea episode. Also, mothers should be counseled on the importance of personal hygiene and environmental sanitation which help to prevent the occurrences of diarrhoea in under 5 children.

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