Diarrhoea: Knowledge, Attitude and Practice in Three Selected Rural Communities in North Central Nigeria

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Abstract: **Diarrhoea has been reported to be the second leading course of death among children under-five years of age globally and Nigeria with high poverty index, accounts for an estimated 250,000 deaths per annum. The objectives of this research are to find out the knowledge, attitude, and practice of mothers so that behavioral changes of mothers can be encourage for them to follow the best scientific methods of prevention of diarrhoea for children under-5years old and reduce the resultant infant mortality rate.**

A cross-sectional survey of knowledge, attitude, and practices of diarrhoea among mothers of under-5 years old children in 3 communities in North central Nigeria. Data collected was analyzed using the Statistical Package for Social Sciences (SPSS 20). P-value was set at ≤ 0.05 and used in cross tabulation using Pearson Chi Square and Analysis of Variance (ANOVA). Educational level of the mothers was poor, 112(30.1%) had primary education (middle school), 115(30.9%) had secondary education (High school), while 94(25.3%) of the husbands ended their education at primary schools and 76(20.4%) got to secondary school level. Additionally, 342(91.9%) had poor knowledge of diarrhoea, 70.0% had good attitude towards handwashing and only 21.3% treated water before use.

Mothers of under-5years old in the three communities investigated had poor knowledge and practice of diarrhoea. However, their positive attitude could be used to increase their knowledge and bridge the gap between knowledge and practice which would be beneficial to the community with the resultant reduction in infant mortality rate.

Key Words: **Knowledge, Attitude, Practice, Diarrhoea, Rural Communities.**

I. INTRODUCTION

Infectious diseases continue to pose grim threats in developing countries like Nigeria especially for the vulnerable ones such as the young, elderly and those with compromised immune systems.[1,2] This seems contrary to the trend in the developed countries like United States of America and Europe where the most frequent causes of death are from illness such as advance heart diseases, advance cancer and terminal illness.[1] Despite various efforts by respective government and individuals, malaria, diarrhoea, and other infectious diseases are still a major health threats to the poorest people around the world.[1]

Diarrhoea is defined as having loose or watery stools at least three times per day or more frequently than normal for an individual.[2] Therefore, a person is classified as having diarrhoea when he or she experiences more than three liquid stools per day.[2,3] It is usually a symptom of gastrointestinal infection which can be caused by a variety of bacterial, viral, and parasitic organisms. Rotavirus is the leading cause of acute diarrhoea and is responsible for about 40 per cent of all hospital admissions due to diarrhoea among children under-five years old worldwide. Other major bacterial pathogens *include E. coli, Shigella, Campylobacter and Salmonella,* along with *V. Cholerae* have been implicated especially during an epidemic.[4,5] Cryptosporidium has been the most frequently isolated protozoan pathogen among children seen at health facilities and is frequently found among HIV-positive patients.[6] Though cholera is often thought of as a major cause of child deaths due to diarrhoea, some cases also occur among adults and older children. [6] Diarrhoe infection is spread through contaminated food and water, and from person to person because of poor hygiene.[4]

Acute cases of childhood diarrhoea can lead to significant fluid loss and dehydration, resulting in death or other severe consequences, if adequate and sufficient fluids are not replaced at the first sign of diarrhoea.[5] Severe diarrhoea is life-threatening, particularly in young children and people who are malnourished or have impaired immunity.[5,7] Though a preventable and treatable disease, diarrhoea is a major contributor to the infant mortality rate (IMR) and an important cause of malnutrition.[8] In Nigeria, it accounts for an estimated 250,000 deaths per annum,[9] and it is reported that diarrhoea kills young children more than Acquired Immuno-Deficiency Syndrome (AIDS), malaria and measles combined.[2,5] Diarrhoea remains the second leading cause of death among children under-five globally with nearly one-in- five child deaths, that is, about 1.5 million each year is due to diarrhoea.[5,8] Current reports indicate that only 44% of children with diarrhoea in low-income countries receive the recommended treatment due to a combination of poverty with lack of knowledge,[10] and this trend suggest that there has been little progress made since 2000. [4,10,11]

Africa and South Asia are home to more than 80 percent of child deaths due to diarrhoea.[6] Half of all deaths worldwide of children less than 5 years occurred more in only five

countries; India, Nigeria, the Democratic Republic of Congo, Pakistan, and China.[6] The United Nations Children Fund (UNICEF) reported that diarrhoea alone accounted for 9% of under-five years death in 2012 in Nigeria.[6] Kwara State, a state in Nigeria, accounted for 10% of under-five deaths from diarrhoea and 2% of neonatal death.[12]

Although diarrhoea is not lethal by itself, nevertheless, inadequate/lack of knowledge of the mothers and their misdirected approach toward the management of diarrhoea could be the reason for the high mortality rate.[2] This might be a factor when one examines Nigerian states profile on diarrhoea treatment. Kwara State in the Nigeria Demographic and Health Survey (NDHS), and the Multiple Indicator Cluster Survey (MICS) reported that the percentages of sick children that received Oral Rehydration Salts (ORS) or recommended homemade fluids were 34%(NDHS) and 52%(MICS) 2008; 41%(NDHS) and 70%(MICS) 2011; 42%(NDHS) and 47%(MICS) 2013.[3,13] The question that comes to mind is why was there an increase in the use of ORS from 2008 to 2011 and then a decline in 2013? It is the objective of this research to investigate the knowledge, attitude, and practice of mothers on diarrhoea and know if they have adequate knowledge of diarrhoea and what is needed to increase their knowledge with the goal of improving the practice of prevention of diarrhoea in their children.

II. METHODOLOGY

This is a cross-sectional survey of knowledge, attitude, and practices of diarrhoea in mothers of under-5 years old children in Kwara State. Three communities, Oke-iya, Osin and Oyun were randomly selected from three local government area which were also randomly selected from the three senatorial districts in the state which are Kwara north, Kwara central and Kwara south senatorial district. The households where mothers were found at homes were selected by systematic sampling technique. Ethical clearance was obtained from the University of Ilorin and the Kwara State Ministry of Health ethical committees. Informed verbal consent and willingness to participate were sought from community leaders, heads of households and respondents. Included in this study were mothers with at least one child between 0-59 months old who had lived in the selected communities for at least six months and at home at the time of data collection. Mothers of under-five year children who were on visit or transit and had not stayed up to six months within the selected communities at the time of data collection were excluded from the study.

Qualitative data was collected using Focal Group Discussion (FGD) among the mothers of under-5 years at the primary health center children clinic where they attended, and the discussion was on the knowledge, attitude, and practices of diarrhoea. The FGD sessions were anchored by a trained research assistant, chosen to be the researcher. The discussion was translated in the language understood by the respondents which is Yoruba, while the other trained research assistants recorded and took notes during the session. Ethical statements on voluntary participation were read and explained to respondents in their language. A translated version of a pre-tested questionnaire was used during the interactive session by the research assistants.

A different pre-tested questionnaire in the language respondents understood was used to collect quantitative data for this study which consisted of closed ended questions that elicit data on socio-demographic variables, knowledge, attitude, and practice of respondents. Knowledge and Practice were graded as 70% and above for "Good", 50%-69% for "Fair" and below 50% respectively as "poor". The attitude was graded as "Positive" for 50% above and "Negative" for below 50%. The data collected was analyzed using the Statistical Package for Social Sciences (SPSS 20). P-value was set at ≤ 0.05 and used in cross tabulation using Pearson Chi Square and Analysis of Variance (ANOVA).

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III. RESULTS

Table 1: Socio-Demographic Characteristics of Respondents

Characteristics	Frequency	Percentages (%)
Age category as at last birthday (years)		
< 20	9	2.4
20-29	119	32.0
30-39*	182	48.9
40-49	60	16.1
50 years and above	2	0.5
Total	372	100.0
Last child age category in months		
< 12	142	38.2
12-23	17	4.6
24-35	111	29.8
36-47	52	14.0
48-59	50	13.4
Total	372	100.0
Marital Status		
Single	16	4.3
Married	330	88.7
Divorced	6	1.6
Separated	7	1.9
Widowed	13	3.5
Total	372	100.0
Tribe		
Yoruba	228	61.3
Hausa	42	11.3
Igbo	27	7.3
Fulani	48	12.9
Nupe	25	6.7
Others	2	0.5
Total	372	100.0
Religion		
Christianity	113	30.4
Islam	236	63.4
Traditional	23	6.22
Total	372	100.0

Table 1 shows the socio-demographic characteristics of the respondents in the study population. About half of mothers, 182(48.9%) * were between ages 30- and 39 years, while 2(0.5%) had age range of 50 years and above. In the last child age category in months, 142(38.2%) of the children were less than 12 months. Majority, 330(88.7%) of the respondent are married. Yoruba formed the majority 228(61.3%). Majority practiced Islam with 236(63.4%).

Table 2: Socio-Demographic Characteristics of Respondents

Characteristics	Frequency	Percentages (%)
Educational status		
Primary	112	30.1
Secondary	115	30.9
Tertiary	91	24.5
Others	54	14.5
Total	372	100.0
Occupation		
Trading	156	41.9
Civil service	50	13.4
Company	10	2.7
Artisan	59	15.9
Farming	58	15.6
Private business	37	9.9
Others	2	0.6
Total	372	100.0
Husband education status		
Primary	94	25.3
Secondary	76	20.4
Tertiary	116	31.2
Others	86	23.1
Total	372	100.0
Husband occupation		
Farming	134	36.0
Trading	70	18.8
Civil service	49	13.2
Private business	47	12.6
Company	21	5.6
Artisan	50	13.4
Others	1	0.4
Total	372	100.0

The demographic characteristics of the respondents are as shown in Table 2 in the educational section, 112(30.1%) of the respondents had primary education, 115(30.9%) had secondary education, 91(24.5%) had tertiary education and 54(14.5%) were from others, respectively. In the husband education status, 94(25.3%) of the respondents had primary, 76(20.4%) had secondary, 116(31.2%) had tertiary and 86(23.1%) are others, respectively. For the husbands' occupation, 134(36.0%) are farmers, 70(18.8%) are traders, 49(13.2%) are civil servants, 47(12.6%) are private business owners, 50(13.4%) are artisans and 1(0.3%) are others.

Table 3: Knowledge of Causes of Diarrhoea in Children by Respondents

Characteristics	Frequency	Percentage%
Eating of hot food		
No	98	26.3
Yes	274	73.7
Total	372	100.0
Bacteria like E. coli & Shigella		
No	264	71.0
Yes	108	29.0
Total	372	100.0
Virus like rotavirus in food		
No	333	89.5
Yes	39	10.5
Total	372	100.0
Protozoa in food		
No	268	72.0
Yes	104	28.0
Total	372	100.0
Teething		
No	91	24.5
Yes	281	75.5
Total	372	100.0
Change in weather.		
No	170	45.7
Yes	202	54.3
Total	372	100.0
Parasitic organisms in food		
No	225	60.5
Yes	147	39.5
Total	372	100.0
Too much water		
No	240	64.5
Yes	132	35.5
Total	372	100.0
Eating plenty vegetable		
No	94	25.3
Yes	278	74.7
Total	372	100.0

The results obtained from evaluation of knowledge of causes of diarrhoea are showed here. The record shows an overall poor knowledge of what causes diarrhoea among respondents and about 73.7% (274) believe diarrhoea results from eating hot food, while a high number of respondents (71% (264), 89.5% (333), 72% (268)) believe it is not caused by Bacteria, Virus or Protozoa respectively. Additionally, some of the respondents (75.5%, 54.3%, and 74.7%) reported that diarrhoea is caused by teething, change in weather and eating of plenty vegetable.

Table 4: Attitude of Respondents towards Diarrhoea and its Prevention

Characteristics	Frequency	Percentage%
Vitamin A supplementation can prevent diarrhoea		
Strongly disagree.	126	33.9
Disagree	135	36.3
Agree	82	22.0
Strongly agree.	29	7.8
Total	372	100.0
Exclusive breastfeeding can prevent diarrhoea		
Strongly disagree.	62	16.7
Disagree	73	19.6
Agree	173	46.5
Strongly agree.	64	17.2
Total	372	100.0
Washing the hands an prevent diarrhoea		
Strongly disagree.	30	8.1
Disagree	80	21.5
Agree	181	48.7
Strongly agree.	81	21.8
Total	372	100.0

Maintain clean environment of feeding utensils.	43	11.6
Strongly disagree.	120	32.3
Disagree	132	35.5
Agree	77	20.7
Strongly agree.	372	100.0
Total		
Taking a child for prayers		
Strongly disagree.	93	25.0
Disagree	88	23.7
Agree	160	43.0
Strongly agree.	31	8.3
Total	372	100.0

A few percentage of mothers 27(7.8%) strongly agreed that Vitamin A supplementation can prevent diarrhoea while 64(17.2%), 48(12.9%), 81(21.8%), 77(20.7%) strongly agreed that exclusive breastfeeding, continuous feeding, hand washing, clean environment of feeding utensils respectively could prevent diarrhoea.

Table 5: Practices Score of Diarrhoea by Respondents

Variables	Score	Percentage %
What mothers did when their children last had diarrhoea	10.3	32.2
Kept ORS after 24hrs of preparation.	1.9	47.5
Use zinc supplement to prevent diarrhoea	1.2	30.0
Vitamin A supplements	1.7	42.5
Make your child available for measles vaccine.	2.0	50.0
Has the child taken a dose of rotavirus to prevent diarrhoea?	1.1	27.5
Practice exclusive breastfeeding for my baby.	1.8	45.0
Breastfeed normally during diarrhoea	2.3	57.5
Treatment of child's water	6.8	21.3
Main source of water	9.6	30.6
Storage of household water	8.5	26.6
Care of baby's defaecate	10.6	33.1
How mother's clean baby's stools	9.1	28.4
Hand washing practices.	11.6	36.3
Observation of community wide sanitation	7.5	23.4
Method of faecal disposal	6.0	18.8

Scores for each variable of practice by the respondents in diarrhoea prevention strategies in children are shown here. Mothers that kept ORS after 24hours of preparation were 1.9(47.5%), those that used Zinc supplement to prevent diarrhoea scored were 1.2(30%), used Vitamin A supplements were 1.7(42.5%), brought the child for measles vaccines were 2.0(50), those that treated child's drinking water were 6.8(21.3%). Main source of water 9.8(30.6%), storage of household water 8.5(26.6%), care of baby's defaecate10.6(33.1%), observation of community wide sanitation scored 7.5(23.4%) and method of faecal disposal 6.0(18.8%).

IV. DISCUSSION

This study was conducted in three rural communities of Osin, Oke-iya and Oyun communities of Ilorin West, Irepodun and Moro Local Government Areas (LGAs) respectively of Kwara State in North central Nigeria. All the selected 372 mothers from 372 households were interviewed during the base-line cross sectional survey.

Majority of the mothers, 182 (48.9%) who participated in the study were found to be between ages 30-39 years followed by 20-29 years old at 119(32%). This shows that most of the women were at the critical high reproductive age group and any intervention within this group would be of benefit. This finding agrees with the study conducted in Odeda LGA of Oyo State where majority of respondents were between ages 20 to 40 years of age.[14] Majority of the mothers were traders 156(41.9%) and artisans 59(15.9%), and the highest level of education attained was between primary school (which is like Middle School) 112(30.1%), and secondary school (High School) 30.9%. Educational level of mothers seems to have affected the jobs the mothers are qualified to do since most of them are artisans and traders, and this could lead to poverty. Poverty has close relationship with inadequate housing, unhealthy environmental sanitation, poor/polluted source of water, quality, and quantity of food.[15] This with uneven distribution of health services and shortage of trained health workers predisposes children to malnutrition and infectious diseases like diarrhoea. Our results agree with reports from study carried out in Ibadan by Omokhodion.[16] Additionally, some of the mothers in this present study, about 58(15.6%) are farmers and it has been reported that seasonal plus geographical variations do affect the aetiology of diarrhoea. During summer, acute diarrhoea is predominantly of bacteria origin.[17] Furthermore, health related challenges such as poor housing, poor sources of water supply, and lack of access to satisfactory health care services which are more in rural areas lead to high mortality and low average life expectancy in most rural communities.[15,18] Therefore, it could be concluded that the socio demographic factors of respondents in the three communities studied were unfavourable to child health.

Othero *et al* reported that the knowledge of mothers regarding causes of diarrhoea and its associated danger signs in children, is a guideline to timely and proper management at home and subsequent referral for skilled care.[19] Our study revealed a generally poor knowledge of causes of diarrhoea where 73.7% believed hot food can cause diarrhoea, only 10.5% knew rotavirus in food can cause diarrhoea, while 39.5% knew parasitic organism in food can cause diarrhoea. This report is in consonance with similar studies carried out in other parts of Kwara state, Sokoto state, and other developing countries like Gambia as well as rural Brazil and China.[3,11,20-25]

Attitude of caregivers has been found to play a significant role in the management, prevention, and control of

diarrhoea.[26] This study reveals a positive attitude shown by majority of the respondents. A combined number of 63.2% of mothers of under-five agreed and agreed strongly that they would continue breastfeeding of their child while 56.8% also agreed and agreed strongly that handwashing plays an important role in management of diarrhoea. Nevertheless, about 25.0% strongly agreed with 43.0% that they visited their spiritual leaders during their children's diarrhoea episodes. These results agree with reports from West-African sub-region where religious beliefs and traditions of the mother or caregiver often influence health seeking behaviour.[27,28.]

The practice score of 70% and above, 50%-69%, and below 50% were graded as good, fair, and poor practice, respectively. The practice scores here revealed that less than 50% practice basic handwashing 116(36.3%), and less than 50% gave Zinc, vitamin A supplements, kept ORS in their respective communities. None, (0%) was found to score above 70% benchmark. Among those that practice breastfeeding were 57.5% of the respondents and these claimed they never stopped breastfeeding their children during diarrhoea episodes. This is really encouraging and correlates with positive attitude and good practice of exclusive breastfeeding of the child during diarrhoea episodes. On the other hand, this is contrary to related studies carried out in some East African countries where some mothers were found to withhold food and fluid during onset of diarrhoea and febrile illness. [29,30]

V. CONCLUSION

This study has revealed a generally poor knowledge of diarrhoea among mothers of under-five, and this could be attributed to their poor level of education. However, majority of respondents agreed that diarrhoea can lead to death, although it is preventable.

Thus, while knowledge was poor, attitude was good, but practices of the mothers were also poor. The positive attitude of mothers in these three communities could be used as a springboard to educate them regularly on diarrhoea and its prevention. Different preventive strategies which these mothers can easily learn and put to practice should be taught to mother of under-fives. This would go a long way to reducing infant mortality rate from diarrhoea diseases in these communities. Thus, it would be important for more research to be done on how to educate mothers of under-five, observe them put to practice what they are taught and report the changes that might be recorded from such positive practices. It is pertinent to recommend that the findings of KAP study such as this should be considered as indicators for strategic interventions by government, Non-governmental organisations, UNICEF, and policy makers to improve child healthcare and reduce morbidity and mortality. Also, this information would be important for governmental authorities, NGO, and UNICEF to prioritize the health of mothers and under-fives and provide well-equipped health care centres with trained staff and sufficient materials for the healthcare of mothers and their under-five children.

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