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# Myths, Experiences and Home Management of Childhood Diarrhea among Nursing Mothers in Federal Medical Center Abeokuta, Nigeria.

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**KEYWORDS**

Childhood Diarrhea
Dehydration
Home management
ORS/SSS
Myths

**ABSTRACT**

**Background:** Diarrhea is a major threat to child survival due to its devastating complication of dehydration. Several home remedies inclusive of oral rehydration therapy have benefited many people. This study assessed nursing mothers' knowledge and experiences of home management of childhood diarrhea.

**Methodology:** Descriptive cross sectional design was adopted and consecutive sampling technique was utilized to select 223 nursing mothers with babies over three months old on the immunization clinic days at Federal Medical Center, Abeokuta. Structured questionnaire was used for data collection. Frequency, percentages and Chi square were utilized for analysis.

**Results:** Most 154(69.1%) of the respondents had good knowledge about diarrhea. However 34.5% indicated that sunken fontanel is not related to diarrhea or dehydration, and that it is the sign of a local disease. While 97(43.5%) also indicated that teething is a major cause of diarrhea. Only 56(25.1%) considered Salt Sugar Solution (SSS) / Oral Rehydration Solution (ORS) as home management. There is significant association between mothers' perception of myths associated with developmental mile stones and mothers' age, occupation and educational level, $p < 0.05$.

**Conclusion:** Findings of the study have implications for mothers' home management of diarrhea. It is therefore essential for health care providers to educate the mothers on diarrhea with emphasis on early management with ORS/SSS to prevent complications.

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## BACKGROUND

Diarrhea is accountable for a high percentage of mortality and morbidity especially in developing countries.[1] "Diarrhea is defined as the passage of loose or watery stools occurring three or more times in a 24-hour period".[2]The causes of diarrhea include: virus, bacteria and protozoa, this is prevalent in communities with poor food hygiene, water and sanitation.[1]

Clinically there are four types of diarrhea[2]*: acute watery diarrhea* (including cholera) usually lasts for several hours or days and the major complication is dehydration with significant weight loss especially if feeding is stopped. *Persistent diarrhea* is so termed because of the long duration, this may last for 14 days or longer and its main complications include: malnutrition, serious non-intestinal infection and dehydration. *Dysentery* is characterized by the presence of blood in stool, its complications include intestinal damage, sepsis, malnutrition, dehydration, and the last type is *diarrhea with severe malnutrition***,** accompanied complications are severe systemic infection, dehydration, heart failure and vitamin and mineral deficiency.

Dehydration is the major complication of diarrhea and this is common to all types of diarrhea. The lost water and salts should be replaced fast and if the lost water is more than 10%, death may occur.[3] Therefore there is need to provide adequate fluids and ensure continuous feeding which is appropriate

with the affected individual's age.[4] Oral Rehydration Solution (ORS) is considered effective in the management of diarrhea diseases, it contains sodium, potassium, chloride and glucose to be used in the treatment of diarrhea caused by different infectious agents and associated with varying degrees of electrolytes loss which can be used among diverse populations.[4] A study that made recommendation for the mixture of Salt Sugar Solution (SSS) for home management of diarrhea in Nigeria indicated that one leveled teaspoon of salt, 10 leveled teaspoon of sugar or five cubes of sugar and 650mls of clean water will constitute 45-70 mmol/litre of sodium and 83mmol/litre of salt if 3ml household teaspoon is used. These constituents are within safe limits.[5]

Use of copious clear fluids such as water is recommended as the first home remedy to consider when there is diarrhea. Other fluids such as broths and fruit juices can also be given until symptoms improve. Bananas are rich in potassium and the unripe type is rich in pectin. The potassium content helps in restoring lost potassium while the pectin helps in the growth of beneficial bacterial. White rice, mashed potatoes, and boiled carrots help in reducing the looseness of stool because of their starch component. Teas made from agrimony and fresh or dried bilberries are useful and effective.[6] In spite of these easily available remedies, diarrhea disease is among the main causes of death among children in many countries, where about 1.8 million children die as a result of diarrhea each year.[7]

Though the burden of diarrhea is very high, it is not treated as a global health priority, and research in this area isdwindling.[8] Nigeria ranked second to India among 11 countries that were reported to be responsible for over 70% of global deaths among under- five children.[8]

Home remedy and use of ORS/SSS is a proven effective intervention that would prevent complications and implementation of this, is dependent on mothers. In view of these submissions, this study explored myths, experiences and home management of childhood diarrhea among nursing mothers attending immunization clinic at a Federal Medical Center in Abeokuta, Nigeria.

## METHODOLOGY

A cross sectional design was adopted for the study. From a total population of an average of 649 immunization clinic attendances in a month, sample size of 223 inclusive of 5% attrition rate was calculated and recruited for the study. Only nursing mothers with babies over three months were eligible and recruited to participate in the study using convenience sampling method. Data were collected on two immunization clinic days out of the three clinic days until the desired sample size was accomplished. The duration for data collection was five weeks.

A structured questionnaire was used for the data collection after it was validated by nursing research experts. The reliability was ascertained by test retest method with coefficient correlation value of *0.74* among a group of nursing mothers attending the immunization clinic of another government hospital. The questionnaire consisted of three sections. The first section assessed socio-demographic characteristics of the participants, the second section assessed beliefs and knowledge with 23 items, and the last section assessed management of diarrhea with 16 items while the last question requested respondents to make suggestions about what health care workers should tell mothers about diarrhea.

Ethical approval was obtained from the Federal Medical Center Abeokuta's ethical review

At the immunization clinic, after due permission from the head nurse, information about the study was provided to mothers attending the immunization clinic. All eligible mothers were invited to participate in the study. Written informed consent was obtained from the participants before conducting the study. With the help of research assistants, questionnaires were administered after the mothers had completed babies' immunization protocol for the day and same were collected back on the same day to minimize attrition rate.

Data obtained was analyzed using descriptive statistics; percentages and frequencies as well as chi-square test for association of variables by means of the Statistical Package for Social Sciences (SPSS version 20). Knowledge score was calculated by assigning a correct option a score of 1, and for incorrect and I don't know options, a score of 0.

Total for each subsection was calculated by adding up the number of items in each subsection, and overall knowledge was addition of all the subsections giving maximum obtainable score at 24 and minimum obtainable score at 0.This was re-coded into percentage scores and was categorized to two groups; score of 0-49% was classified as poor knowledge while 50 – 100% was classified as good knowledge.

Selected socio-demographic variables were cross tabulated with knowledge score to determine relationships between variables.

## RESULTS

All the two hundred and twenty three questionnaires distributed were retrieved and same were analyzed.

### Socio-demographic characteristics of participants

Age of the nursing mothers that participated in the study was between 15 and 43 years. Their modal age group was 25 – 35 years (65.8%) and their mean age $\pm$SD was 29.9 years $\pm$5.4. For the babies the mean age$\pm$SD in months was 6.1months$\pm$2.95. Table I shows details of socio-demographic variables. Figure 1 shows distribution of socio-demographic variables by mother's age group. Figure 2 also shows distribution of selected variables by mothers' age.

### Mothers' level of knowledge on childhood diarrhea

Few of the participants 64 (28.7%) identified various types of diarrhea as vomiting, loose stool, rice water stool, black stool, yellow stool, teeth stool, formula stool, parasite stool, bacterial stool, severe stool, dehydration, dysentery, and gastro enteritis. However, only 14.3% of the respondents listed at least a correct type of diarrhea, such as acute diarrhea/gastroenteritis, and dysentery. The highest knowledge score was 23 (95.8%) and only 4(1.8%) of the mothers had this high score. Sixty six (29.6%) had poor knowledge score while 154 (69.1%) had good knowledge. Seventy seven (34.5%) indicated that sunken fontanel is not related to diarrhea or dehydration, it is the sign of local disease and 97(43.5%) also indicated that teething is a major cause of diarrhea. Table II shows details of knowledge of causes and symptoms of diarrhea.

Thirty-one (13.9%) indicated that the function of ORS/SSS is to replace lost water, 52(23.3%) indicated that it will stop diarrhea, 13(5.8%) said its function is to give strength while 2(0.9) said it is a form of first aid. Table III shows knowledge of ORS/SSS.

### Incidence of Diarrhea

Seventy four (33.2%) of the mothers indicated that at least one of their children had diarrhea at a point in time while 61(27.4%) indicated

**Table I: Socio-demographic variables of Mothers and babies' age**

| Variables | Frequency (N=223) | % |
|---|---|---|
| **Age group of mothers (years)** | | |
| 15-30 | 128 | 57.4 |
| 31-43 | 75 | 33.6 |
| **Marital Status** | | |
| Single | 7 | 3.1 |
| Married | 203 | 91.0 |
| Separated | 9 | 4.0 |
| Widowed | 2 | 0.9 |
| **Education** | | |
| Primary School | 17 | 7.6 |
| Secondary School | 73 | 32.7 |
| Tertiary | 126 | 56.5 |
| **Occupation** | | |
| Trading | 95 | 42.6 |
| Civil servants/professionals | 87 | 39 |
| Artisans | 18 | 8.1 |
| Students | 7 | 4 |
| Farmers | 4 | 1.8 |
| **Number of Children** | | |
| One child | 79 | 35.4 |
| Two children | 73 | 32.7 |
| Three or more children | 67 | 30.0 |
| **Age group of babies in months** | | |
| 3- 6months | 145 | 64.7 |
| >6months – 20months | 74 | 33.0 |

the index child had diarrhea in the last six months. Of these 61 mothers, 12 (5.4%) had indicated incidence of diarrhea in the last one month, 21(34.4%) in the last two months and 28(45.9%) over two months to six months. Only 53 out of the 61 indicated duration of the diarrhea, 4(7.5%) indicated one day, 26(49.1%) indicated two days, 22(41.4%) indicated 3-5days duration and only one person indicated a seven day duration.

### Management of diarrhea

Indicating action taken at home, 56(25.1%) indicated use of ORS/SSS, 22(9.8%) visited the chemist, 11(4.8%) continued breast feeding, 45(20.2%) took the child with diarrhea to the hospital and a total of nine children were admitted. Seventy (31.4%) of mothers indicated that they had ever prepared SSS by themselves. However only 48(21.5%) correctly identified that only one leveled tablespoon of salt is required. Table III shows details of the participants' knowledge of constituents of SSS. None of the mothers correctly identified the quantity of clean water required to prepare SSS and the largest volume of water indicated was 75mls.

One hundred and twenty seven mothers (56.7%) washed hands more often when the child had diarrhea. Forty three (19.2%) indicated they did this to prevent infection, 27(12.1%) to remove dirt, 14(6.3%) to reduce diarrhea, 11(4.9%) to prevent diarrhea complication and six (2.7%) to prevent diarrhea re-occurrence.

The mothers identified home therapies that they have used and considered effective, among these home therapies, oral rehydration solution (ORS) was identified by 14 (6.2%). However 70 (31.4%) mothers indicated that they had ever prepared SSS to manage a child with diarrhea.Only57 (25%) of the respondents indicated that their child had received Rota virus vaccine and only 2.2% were able to indicate the number of doses received.

### Factors influencing mothers' knowledge and Home management of childhood diarrhea.

There was no significant relationship between socio demographic factors such as level of education, occupational status and mothers' overall knowledge of diarrhea, Chi Square value was16.0, df: 0.3 and p value> 0.05. Also there was no significant relationship between Mothers' age group, educational level, number of children and practice of home management, p > 0.05. However the categories of nursing mothers with highest frequency that indicated use of ORS/SSS were the middle age; between 25 – 35 years(16.5%), nursing mothers with tertiary education(12.5%) and nursing mothers with children more than 3 years(11.2%).

There was significant association of

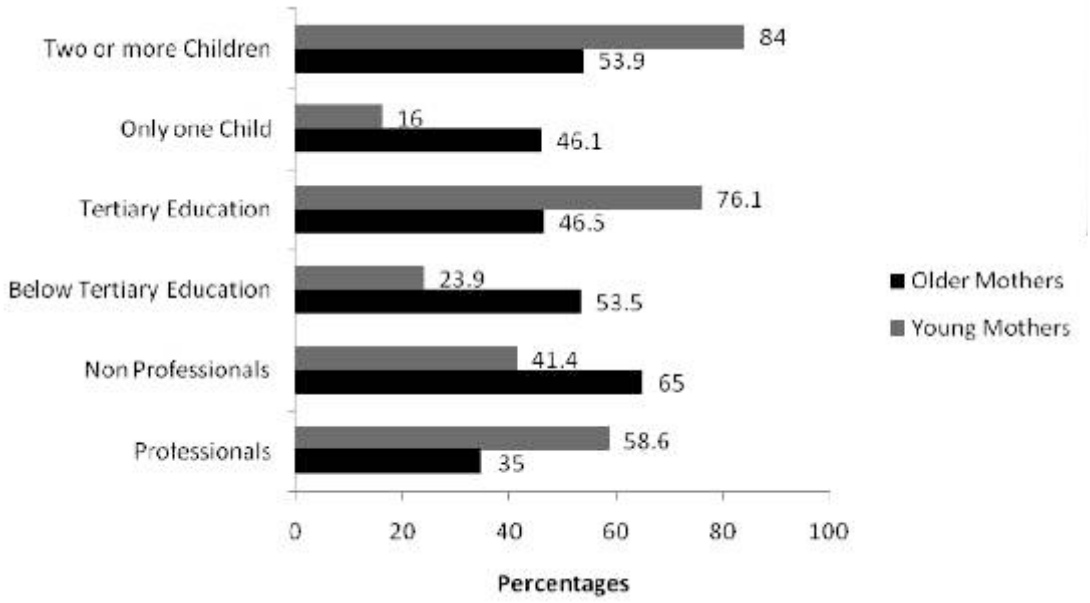


Figure 1: Socio-demographic Variables by Mothers' age

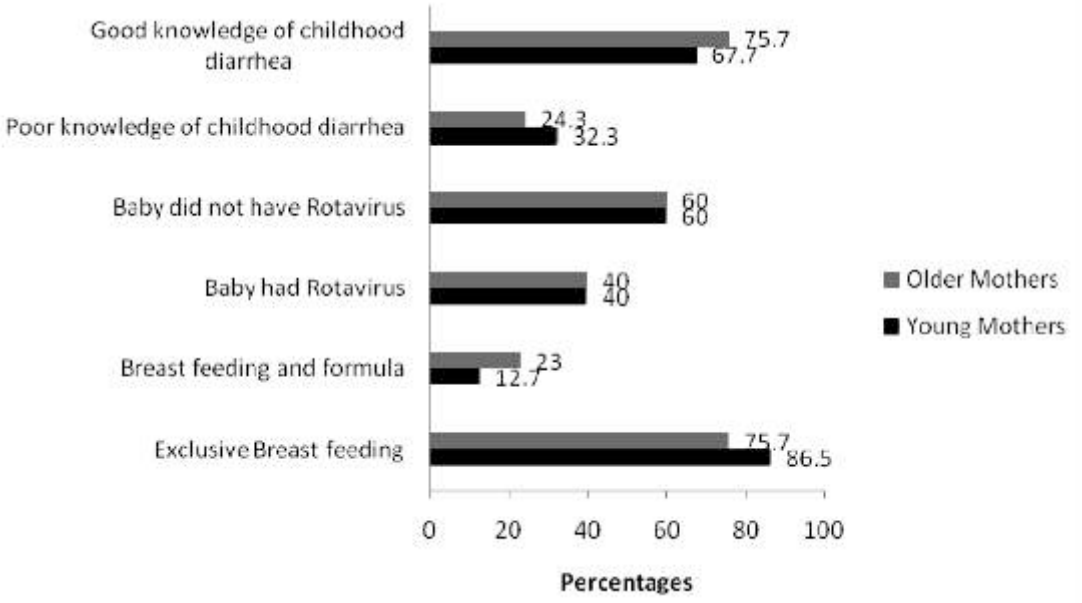


Figure 2: Selected variables by Mothers' age

mother's age, occupation, educational level as well as number of children) with feeding myths: "Breast feeding in a child with diarrhea increases the diarrhea". "When a child has diarrhea all forms of feeding must stop as any form of feeding will increase the diarrhea", $P < 0.05$ for each variable. This is also consistent with signs and symptoms related myths: "Sunken fontanel is not related to diarrhea or dehydration, it is the sign of another local disease" and "When vomiting accompanies diarrhea it is very serious", $p < 0.05$. Table IV shows the associations between mothers' perception of myths associated with developmental mile stones and mothers' age, occupation and educational level and number of children.

In response to the question "what do mothers think nurses and health workers should tell them about diarrhea", care of food and water topped the list by 19(8.5%), care of baby (17.3%), prevention of diarrhea 13(5.8%), treatment and environmental hygiene by seven (3.1%) respondents each.

**Table II: Mothers' Knowledge of Causes and Symptoms of Diarrhea**

| N=223 | | True | | False | | I don't know | |
|---|---|---|---|---|---|---|---|
| | CAUSES | FREQ | % | FREQ | % | FREQ | % |
| i | If hands are not washed after using the toilet or doing dirty jobs it can lead to diarrhea | 213 | 95.5 | 1 | 0.4 | 6 | 2.7 |
| ii | Dirty food, spoilt food and exposed uncovered food can lead to diarrhea | 210 | 94.2 | 3 | 1.3 | 5 | 2.2 |
| iii | Teething is the major cause of diarrhea in babies | 97 | 43.5 | 93 | 41.7 | 25 | 11.2 |
| iv | Breast feeding in a child with diarrhea increases the diarrhea | 34 | 15.2 | 149 | 66.8 | 36 | 16.1 |
| v | When a child is about to start crawling, standing or walking the child will have diarrhea | 60 | 26.9 | 141 | 63.2 | 16 | 7.2 |
| | SIGNS & SYMPTOMS | | | | | | |
| vii | Dry skin in a child with diarrhea is a sign of dehydration | 142 | 63.7 | 22 | 9.9 | 49 | 22.0 |
| viii | Showing signs of severe thirst is a sign of dehydration | 145 | 65.0 | 23 | 10.3 | 44 | 19.7 |
| ix | Decrease in amount of urine passed and dark urine is a bad sign of dehydration | 125 | 56.1 | 51 | 22.9 | 40 | 17.9 |
| x | Sunken fontanelis not related to diarrhea or dehydration, it is the sign of another local disease. | 77 | 34.5 | 46 | 20.6 | 87 | 39.0 |
| xi | Sunken eyes is a sign of dehydration | 129 | 57.8 | 24 | 10.8 | 63 | 28.3 |

**Table III: Mothers' Knowledge of ORT/ SSS**

| N=223 | Correct Response | | Incorrect Response | |
|---|---|---|---|---|
| | FREQ | % | FREQ | % |
| Leveled teaspoon of Salt | 48 | 21.5 | 6 | 2.7 |
| Cubes of sugar | 24 | 10.8 | 28 | 12.6 |
| Leveled Teaspoon of sugar | 8 | 3.6 | 24 | 10.8 |
| Volume of clean water | 0 | 0 | 29 | 13.0 |
| SSS should be used up within 24 hours | 100 | 44.8 | 7 | 3.1 |
| Function of ORT/ SSS | 44 | 19.7 | 55 | 24.7 |

**Table IV: Association between mothers' perception of common myths and their socio-demographic variables.**

| MYTHS | Perception | | | | Remarks |
|---|---|---|---|---|---|
| | Correct Perception | | Incorrect Perception | | Chisquare P value |
| | Freq | % | Freq | % | |
| **Teething is the major cause of diarrhea in babies** | | | | | |
| **Age :** | | | | | |
| Young mothers | 41 | 33.3 | 82 | 66.7 | $X^2$ = 8.2,df 1, |
| Older mothers | 40 | 54.1 | 34 | 45.9 | p= 0.004* |
| **Occupation :** | | | | | |
| Professionals | 52 | 56.5 | 40 | 43.5 | $X^2$ =13.6, df 1, |
| Non Professionals | 35 | 31.0 | 78 | 69.0 | P< 0.001* |
| **Education :** | | | | | |
| Below Tertiary | 18 | 21.2 | 67 | 78.8 | $X^2$ = 30.9, df 1, |
| Tertiary | 74 | 60.2 | 49 | 39.8 | P< 0.001* |
| **Number of Children:** | | | | | |
| One | 37 | 48.7 | 39 | 51.3 | $X^2$ =1.77,df 1, |
| Two or more | 53 | 39.3 | 82 | 60.7 | P= 0.18 |
| **Associated with milestones:** ***walking, crawling standing.*** | | | | | |
| **Age:** | | | | | |
| Young mothers | 60 | 47.6 | 66 | 52.4 | $X^2$ = 8.9,df 1, |
| Older mothers | 52 | 69.3 | 23 | 30.7 | P=0.003* |
| **Occupation:** | | | | | |
| Professionals | 65 | 67.7 | 31 | 32.3 | $X^2$ = 8.43,df 1, |
| Non Professionals | 55 | 47.8 | 60 | 52.2 | p = 0.004* |
| **Education :** | | | | | |
| Below Tertiary | 34 | 38.2 | 55 | 61.8 | $X^2$= 24.3,df 1, |
| Tertiary | 90 | 72.0 | 35 | 28.0 | P< 0.001* |
| **Number of Children:** | | | | | |
| One | 50 | 63.3 | 29 | 36.7 | $X^2$ = 2.2,df 1, |
| Two or more | 73 | 52.9 | 65 | 47.1 | p= 0.14 |

Importance of immunization and breast feeding by six (2.7%) each, causes of diarrhea, how it spreads, how to prepare ORS by three (1.3%) people each and only one person considered need to talk about the danger of diarrhea.

## DISCUSSION

The mean age± SD of mothers (29.9 years±5.4) in this study is consistent with that of women in child bearing age group. The mean age ±of the index child (6.1months± 2.95) also conforms to babies expected at the immunization clinic which was the setting for the study.

Incidence of diarrhea among under- five children of study participants was 33.2% however for the index child almost a third of the study group had report of diarrhea in the last 2-6months prior to data collection. Duration of diarrhea for almost half

of them was two days and a little less than half reported 3-5days this is similar to findings of the Ethiopian study[9] where duration of acute diarrhea in children was 3.9± 2.7 days.

A little above half of the mothers indicated that all forms of feeding should stop when a child has diarrhea. This study further indicated significant association between this perception and educational levels of mothers. More of the professional mothers and mothers with tertiary education did not agree with stopping feeding when a child has diarrhea. Educational level of mothers has been associated with knowledge of diarrhea[10] and child's wellbeing in other studies as well,[11] though mothers' overall knowledge of diarrhea was not significantly associated with mothers' education in the current study.

Similarly another misconception that breastfeeding increases diarrhea was significantly associated with age, with more of younger mothers, more of non-professionals and women with education below tertiary education agreeing with this misconception. Though most of the mothers indicated exclusive breastfeeding as mode of feeding, however the belief that breastfeeding should be discontinued when a child has diarrhea may make mothers lose out on the benefit of this choice.

Among the Yoruba in Nigeria (which constitutes majority of participants of this study), another myth or misconception is that diarrhea is associated with developmental milestones such as teething, crawling starting to walk or standing. Findings of this study showed significant association of these myths with age, occupation and educational level of mothers. More of the younger mothers, non-professional mothers and mothers with lower educational level agreed with this perception. Previous study among Nigerian ethnic groups shows that the myth regarding teething as a cause of diarrhea was shared among the Hausa/Fulani, Yoruba and Tiv.[12] Among the Tiv, it was recorded as good type of diarrhea, "it occurs when a child is growing teeth and there is no need to panic". The implication of this perception is that such mothers will not treat diarrhea as they consider it as being associated with development of the child

Oral rehydration was one of the home therapies the mothers identified that they have used and considered effective. Only 31.4 % of nursing mothers indicated that they had ever prepared oral rehydration solution (ORS) in managing children with diarrhea before. However most of them do not have adequate knowledge of its' preparation and function. Similarly, other studies in India[13] reported that many of the mothers could not prepare the solution properly and administer it adequately. Also in Ethiopia less than 10% of mothers in their study used ORS and cited low rate of use in other developing countries.[14] However Stefano[15] stressed the importance of oral rehydration solution (ORS) in the management of diarrhea as replacement of loss of fluid and electrolytes. He added that other commercially available fluids cannot achieve this because of their low sodium content and high osmolality, oral rehydration therapy (ORT) remains the mainstay in the management of diarrhea. Stefano[15] emphasized that when Zinc therapy is added with oral rehydration therapy ORT the outcome will be more encouraging together with continuation of an uninterrupted breast feeding. In addition another report[16] submitted that low osmolality ORS, zinc supplementation and rotavirus vaccine all together will help in reducing the morbidity, mortality and hospitalization of children resulting from diarrhea. Very few mothers in the current study indicated that their children were

immunized with rotavirus vaccine. Only five of the mothers indicated the number of doses of Rotavirus that a child should take. However their responses were not consistent with the standard number of two or three doses depending on the type used. This depicts that most of the mothers may not have the knowledge of Rotavirus vaccine. Further studies may explore the cost implication of Rota virus vaccine on mothers' decision.

**Implication:** Although most of the participants had good overall knowledge about diarrhea many did not have adequate knowledge about its causes and presenting signs. Several misconceptions formed the basis for this, among such is the fact that above half of the mothers indicated that all forms of feeding should stop when a child has diarrhea, this conforms with findings of previous studies in India and rural community in Kenya which shows that many still believe that there is need to reduce or stop fluid intake during diarrhea episode.[13,17] Furthermore mothers' belief that breast feeding should be discontinued when the child has diarrhea is a serious issue that nurses and other health care workers should address as it will be a great loss of the advantage of exclusive breast feeding. Thus it is very important that nurses plan health educational programs, that will be directed at educating mothers on the causes and manifestations of diarrhea, with special focus on importance of the role and advantages of breast feeding especially to younger and illiterate nursing mothers. Other aspects of misconceptions nurses need to address during health education include beliefs that changes during developmental milestones are associated with diarrhea.

The various responses about ORS were not consistent, 25.1% of mothers acknowledged use of ORS/ SSS at home when the index child had diarrhea, while 31.4% have prepared ORS/SSS at one time or the other while only 14(6.2%) considered ORS/SSS effective. These values are lower than the WHO/UNICEF report[9] that just 39% of under-five children with diarrhea received the recommended treatment of ORT (with continued feeding). Contrary to this, previous studies in Nigeria have reported higher percentage usage 65-70% and good knowledge of SSS component, composition and function by up to 80%.[18- 19] The implication of this for nurses is the need to reinforce the importance of ORT/ORS in health education programs.

Among the important things the mothers stated that they would like nurses and other health care workers to tell them about diarrhea were: prevention of diarrhea, how to care for the baby especially their food and water, importance of mother's personal hygiene, drugs to give a child with diarrhea and how to prepare oral rehydration solution (ORS).

## CONCLUSION

Significant associations were reported between various misconceptions and socio-demographic variables of age, occupation and educational level but not with number of children. Regrettably knowledge of measures of constituents of salt sugar solution and its function was very poor. Hence, it is essential for health care providers to develop culturally sensitive educational materials to address these implicating myths and emphasize WHO's recommendation of increased breastfeeding and fluid intake at the first sign of diarrhea. It has been advocated that emphases should be laid on proper management of diarrhea, using oral rehydration therapy (ORT).[20]

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