



Research Article

Pre-Hospital Management of Diarrhea Among Age Five Children in ILESS Community, Ogun State, Nigeria

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Abstract

Diarrhea is the passage of unformed or watery stools occurring above three or more instances in a 24-hour period with an elevated frequency or decreased consistency of bowel movements, and it affects persons of all ages. Despite widespread global development in reducing child deaths over the last decades, diarrhea retains its place as a leading cause of mortality in children less than 5 years of age. The study is based on pre hospital management of diarrhea disease among under age five children in Ilese community. The study was a descriptive cross sectional survey involving One Hundred (100) mothers with children under age five using stratified sampling techniques. Data generated was analyzed and presented in frequency and percentage. Inferential (chi-square) analysis was conducted to test for the significant difference among means ($P < 0.05$) using SPSS version 22. Findings from this study showed adequate knowledge on diarrhea and pre hospital management in Ilese community ($X^2 = 18.85$, $P = 0.0044$) which contributed to understanding of major signs and symptoms of diarrhea such as passage of loose or watery stool. Oral rehydration ($X^2 = 22.48$, $P = 0.0010$) is the major pre-hospital management of diarrhea in Ilese community because of its effectiveness in the management of diarrhea. The knowledge of zinc treatment as management for diarrhea is significant. ($X^2 = 44.25$, $P < 0.001$) although it is not well utilized by the mothers. Therefore, oral rehydration is the only pre-hospital management that is adequately used by these mothers in Ilese community. Based on the outcome of this study, it was recommended that mothers should take the child to a health provider for ORS or intravenous electrolyte solution upon signs of dehydration as well as familiarizing with other symptoms defining medical treatment (bloody diarrhea) and health care workers should counsel mothers to begin administering suitable available home fluids immediately upon onset of diarrhea in a child.

Keywords: Children, Diarrhea, Oral Rehydration, Pre-Hospital, Ilese Community

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1.1 Introduction

Background to the Study

Diarrhea is the passage of unformed or watery stools occurring three or more instances in a 24-hour period which means an increased frequency or decreased consistency of bowel movements, and it affects people of all ages. It is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral, and parasitic organisms (WHO,2009; Dawit, 2016). Diarrhea is the second leading cause of child morbidity and mortality, especially in the developing countries like Nigeria. Globally, it is estimated that there are 2.5 billion episodes and 1.5 million deaths annually in children under five years (Black *et al.* 2010). Diarrhoea kills 2195 children every day—more than AIDS, malaria, and measles combined (Liu et al. 2012); Of 7.6 million deaths in children younger than 5 years in 2010, 64% (4.879 million) were attributable to infectious causes (Hashi *et al.* 2016) Diarrhea diseases are major causes of malnutrition, delayed physical development and early childhood mortality in developing countries and poor communities, and the major cause of death in children with diarrhea is loss of water and essential minerals (Dodicho, 2016).

The role of the mother is important in health promotion, diarrhea prevention, and management of the sick child. Care givers awareness and practice on fluid intake and child feeding during diarrhea episode are important. Mothers are the key caregivers, who determine and decide the type of food and fluids given to the child. The overall management of diarrhea depends on mother's decision. Therefore, their level of knowledge and practice on diarrhea are critically important (Peter & Umar, 2018). The usually recommended management of diarrhea is the use of oral rehydration therapy. Rice water, yogurt, soup, salt sugar solution, and clean water are also recommended home based fluids. Low osmolality oral rehydration salt (ORS) and zinc are also included as components of home management of diarrhea. Timely administrations of oral rehydration therapy and zinc tablets have proved to be of less cost and efficient as principal management to reduce deaths from diarrheal disease (Brown, 2009). Even though there was progress in advanced diagnostic methods, improved management, and increased utilization from health facility, diarrhea continued to be the main cause of morbidity and the second causes of mortality in under-five children. Diarrhea prevention and control efforts alone were less effective in reducing child mortality and should be complemented with good home management practice (Okoh and Alex-Hart, 2014; Thiam *et al.*, 2019).

1.2 Statement of the Problem

Despite the significance worldwide progress in reducing child deaths over the last decades, diarrhea remains a leading cause of mortality in children under 5 years of age. Diarrhea is a leading cause of morbidity and mortality across all age groups and regions of the world. Diarrhea remains a major cause of child morbidity and mortality globally. The World Health Organization (WHO) estimates that there are approximately 1.3 billion episodes and 3 million deaths annually in children under five years of age. Although there have been a few reports of declines in incidence rates in some specific countries, for most regions, no decline in the incidence of diarrhea was observed over the past five years. Surprisingly, the vast majority of these deaths are preventable through improvements in water, sanitation, hygiene, nutrition, breastfeeding, and immunization. It is important to note that >90% of cases of acute diarrhea can be effectively managed when equipped with adequate knowledge. Unfortunately, few young mothers do not have adequate knowledge on management of diarrhea outside hospital setting. This lack of knowledge can be due to lack of effective



attention directed towards the subject hence, this study investigates pre hospital management of diarrhea disease among under age five children in Ilese community in Ogun State, Nigeria.

1.3 Specific Objectives

Specifically, the study:

1. Knowledge of diarrhea and pre hospital management in Ilese community.
2. The use of fluid containing water, glucose, sodium and other elements as management of diarrhea in Ilese community
3. The use of zinc treatment as management of diarrhea in Ilese community.

1.4 Research Questions

- i. Is there adequate knowledge on diarrhea and pre hospital management in Ilese community?
- ii. Do respondents use fluid containing water, glucose, sodium and other elements for management of diarrhea in Ilese community?
- iii. Does respondents' management diarrhea by using zinc treatment in Ilese community?

1.5 Research Hypotheses

- i. There is lack of adequate knowledge on diarrhea and pre hospital management in Ilese community.
- ii. Fluid containing water, glucose, sodium and other elements is not used to manage diarrhea in Ilese community.
- iii. There is no significance difference between zinc treatment and management of diarrhea in Ilese community.

1.6 Significance of the study

Given the importance of diarrhea as one of the foremost causes of global morbidity and mortality, it is essential to document pre hospital management. This study gives more information on diarrhea especially the management outside hospital settings. This will help to prevent disability to have been occurring to children due to diarrheal illness. This study is carried out with the goal of consolidating available data on management of diarrhea outside hospital setting. This study will guide ministry of health and all health agencies across the country in the race to control the prevalence of diarrhea among children.

1.7 Scope of the Study

The study is based on pre hospital management of diarrhea. The study focuses on children under five years and is confined to Ilese community in Ogun State, Nigeria. Data collection is based on use of self-developed and validated questionnaire.



2.1 Review on Diarrhea

Diarrhea is a form of gastrointestinal infection caused by a variety of bacterial, viral and parasitic organisms or through contaminated food or drinking water, or from person to person as a result of poor hygienic practices. If left untreated, diarrhea can typically last several days. Diarrhea remains a major cause of mortality among under-age children (mostly under 5 years) around the world, especially in developing world (Black *et al*, 2010). The burden of Diarrhea disease seriously affects young children in developing countries whose incidence rates is high due to inadequate water, poor sanitation and suboptimal breastfeeding, zinc and vitamin A deficiency. Vulnerable children living in impoverished and undeveloped areas also have higher fatality rates compared to children living in developed countries due to lack of access to quality health care and timely intervention and effective treatment with oral rehydration solution (ORS) and zinc (Santosham *et al*, 2010). According to the African CDC report (2014), made up of an African CDC Coordinating Centre in Addis Ababa, recent mortality rate estimates in the country stood at; Malaria 20% , Lower Respiratory Infections 9% , HIV 9% , Diarrheal Diseases 5% , Road Injuries 5% , Protein-Energy, Malnutrition 4% , Cancer 4% , Meningitis 3% , Stroke 4% , Tuberculosis 4% among young adults. Diarrhea disease is the third leading cause of infant and child mortality in developing countries, (Black *et al*, 2010) and about 1.8 million children die per annum from this disease. The number of diarrhea deaths is ridiculously on the high side despite a fall in childhood diarrheal diseases from 4.6 million to 0.8 million over the last three decades. The prevalence of childhood diarrhea in Nigeria is 18.8%, with 26% of cases treated with oral rehydration salts (ORS) solution. Amongst children below five years old, diarrhea accounts for over 16 % of deaths, estimated at 150,000 annually (NDHS 2013, WHO 2009). Exposure to diarrhea-causing pathogens is frequently related to the consumption of contaminated water and to unhygienic practices in food preparation and disposal of excreta. The combination of high cause-specific mortality and the existence of an effective remedy make diarrhea and its treatment a priority concern for health services (UNICEF, 2013). The following factors are the causes of Diarrhea in children; Lack of adequate breastfeeding, Poor personal, domestic hygiene, Lack of access to safe drinking-water supplies, Bad or poor eating habits, Water pollution, Food poison and other disease causing factors.

3.1 Methodology

Descriptive survey research design was used for this study because of its suitability for data collection from relatively large number of sample at a particular time. Ilese community in Ogun State in Nigeria (where the study area falls) has a population of about 32,653 people (projection from 2006-2007 population census). It occupies an area of 409 square kilometers in Ogun State, bureau per square kilometer, the community was located under Ijebu North East Local Government of Ogun State which its head quarte is located at Atan. It has about one (1) primary school, 1 secondary school with only one Higher Institution (Ogun State College of Health Technology) located in the town. The population of this study are children under five at Ilese community.

One hundred (100) children was used for this study. Respondents were selected using stratified sampling techniques the instrument for this study was a self-developed structured questionnaire designed according to the variables to be tested in the hypotheses of this study. The questionnaire was in 2 sections (A and B,). Section A is based on demographic data of the respondents while section B is based on response to questions developed for this study. The instrument for data collection was the self-structured questionnaire which was subjected to the perusal for proper structuring and critics of the items in the questionnaire. In order to



test for reliability of the research instrument, Test-Retest method was used to establish reliability of the research instrument used for this study. Frequency, simple percentage and Inferential (chi-square) evaluation was used for testing the research hypothesis Demographic data of the respondents was subjected to simple percentage and standard deviation which was represented using bar charts.

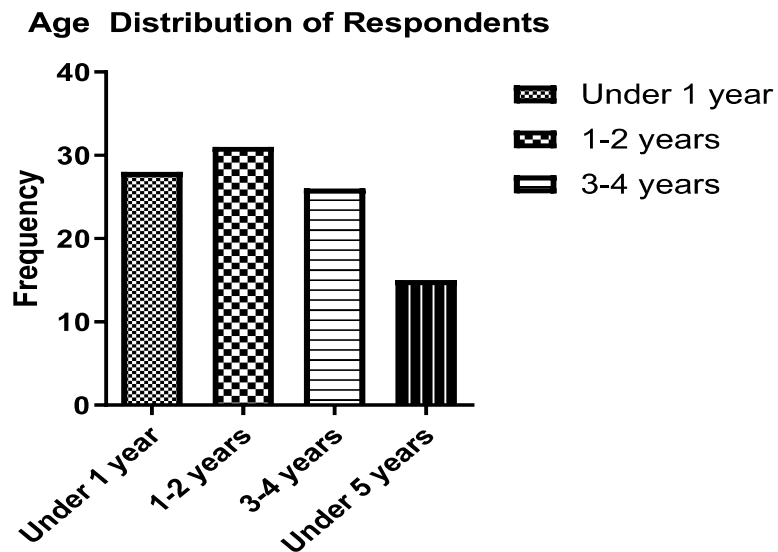
4.1 Analysis Of Data Presentation Of Results

Presentation Of Personal Data Of Children

Table 1: Age of Child

Age	Frequency	Percentage (%)
Under 1 year	28	28
1-2 years	31	31
3-4 years	26	26
Under 5 years	15	15
Total	100	100

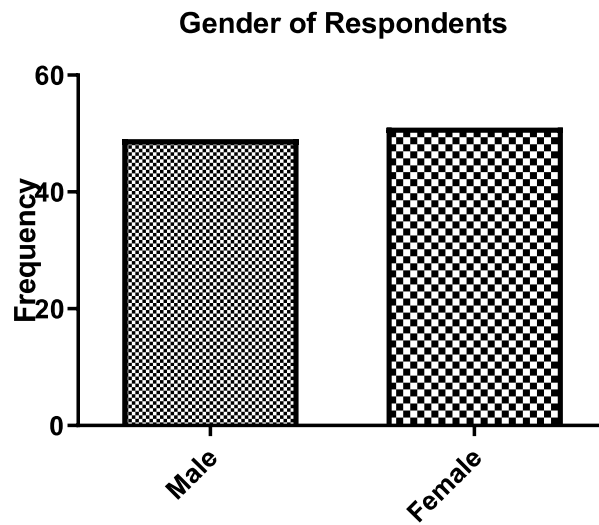
From table one, 28% of the children are under 1 year, 31% were between 1 and 2 years, 26% were 3-4 years while 15% were under 5 years.



Gender of Child

Gender	Frequency	Percentage (%)
Male	49	49
Female	51	51
Total	100	100

The table above showed that 49% were male while 51% were female.



4.2 Presentation of Personal Data of Mothers

Table 3: Age of Mothers

Age	Frequency	Percentage (%)
20-29	29	29
30-39	46	46
40-49	25	25
50 and above	0	0
Total	100	100

From table above, 29% were 20-29 years, 46% were 30-39 years while 25% were 40-49 years

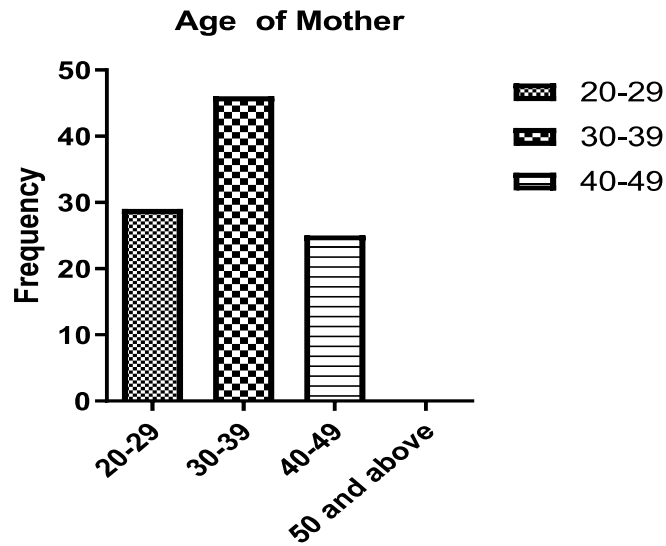


Table 4: Religion of Mother

Religion of Respondents	Frequency	Percentage (%)
Christianity	58	58
Islam	38	38
Traditional	0	0
Others	4	4
Total	100	100

Table above revealed that 58% were Christians, 38% were Muslims while 4% were not specific.

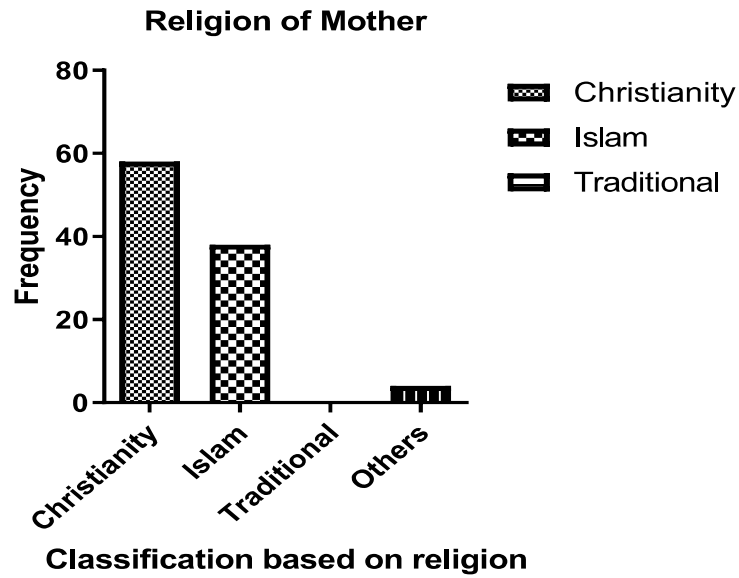


Table 5: Marital status of Mother

Marital Status of Respondents	Frequency	Percentage (%)
Single	0	0
Married	78	78
Widow	0	0
Divorced	22	22
Total	100	100

Table above revealed that 78% were married while 22% were divorced.

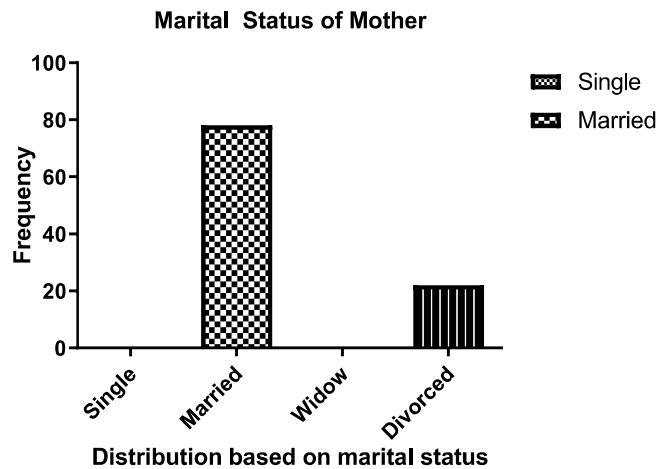
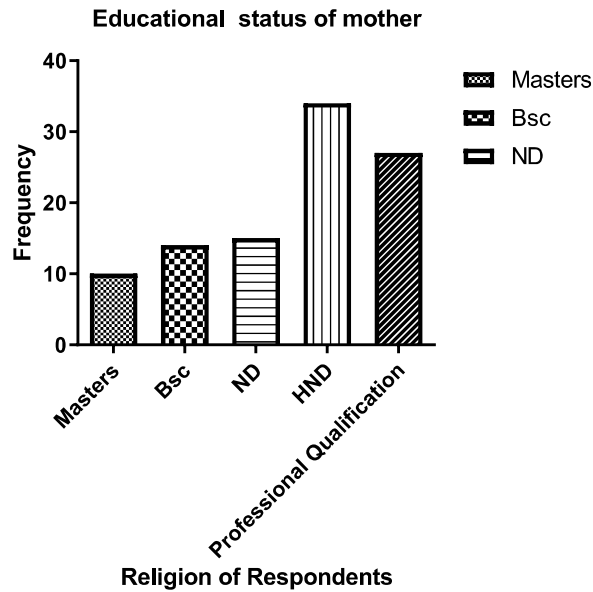




Table 6: Educational Status of Mother

Educational of Respondents	Frequency	Percentage (%)
Masters	10	10
BSc	14	14
ND	15	15
HND	34	34
Professional Qualification	27	27
Total	100	100

The table above revealed that 10% of the respondents had M.Sc, 14% B.Sc certificate holders, 15% were ND holders, 34% had HND holder and 27% had professional qualification.





4.3 Analysis of Research Hypotheses

Hypothesis one

There is lack of adequate knowledge on diarrhea and pre hospital management in Ilese community.

S/N	QUESTION	Yes	No	Total	X ²	df	Tab.	P Value	Inf.
1.	Do you think passage of loose or watery stool is major signs and symptoms of diarrhea?	98	2	100					
2.	In your opinion, does diarrhea cause death among children?	97	3	100					
3.	Do you think diarrhea is an infection of the intestine?	99	1	100					
4.	Does diarrhea infect all parts of the body?	90	10	100	18.85	6	12.59	0.0044	P<0.05
5.	Do you think there are certain age of people that are prone to diarrhea?	92	8	100					
6.	Does diarrhea increase rate of defecation?	99	1	100					
7.	Do you think acute diarrhea leads to appearance of blood in the stool ?	96	4	100					

The table above tested hypothesis one which examined knowledge on diarrhea and pre hospital management in Ilese community. Chi square value obtained was 18.85 while the tabulated value is 12.59, a P value of 0.0044 which is less than 0.05 ($P < 0.05$). The result (since the chi square value is greater than the tabulated value) showed that the hypothesis which states that there is lack of adequate knowledge on diarrhea and pre hospital management in Ilese community is rejected. This means that there is adequate knowledge on diarrhea and pre hospital management in Ilese community



Hypothesis two

Fluid containing water, glucose, sodium and other elements is not used to manage diarrhea in Ilese community.

S/N	QUESTION	Yes	No	Total	X ²	df	Tab.	P Value	Inf.
1.	Do you know what oral dehydration means?	98	2	100					
2.	Have you used fluid containing mixture of water, glucose, sodium when you had diarrhea?	94	6	100					
3.	Have you used fluid containing mixture of water, glucose, sodium when your child was having diarrhea	90	10	100					
4.	Did you notice any change in the health of your child	99	1	100	22.48	6	12.59	0.0010	P<0.05
5.	Do you think the fluid you gave your child reduced the number of stools	98	2	100					
6.	Did it take long before your child recovered after giving him/her the fluid	99	1	100					
7.	Can you recommend use of oral rehydration for management of diarrhea?	99	1	100					

The table above tested hypothesis one which examined significance difference between use oral dehydration therapy and management of diarrhea in Ilese community. Chi square value obtained was 22.48 while the tabulated value is 12.59, a P value of 0.0010 which is less than 0.05 ($P < 0.05$). The result (since the chi square value is greater than the tabulated value) showed that the hypothesis which states that fluid containing water, glucose, sodium and other elements is not used to manage diarrhea in Ilese community is rejected. It can be inferred that fluid containing water, glucose, sodium and other elements is been used to manage diarrhea in Ilese community.



Hypothesis three

There is no significance difference between zinc treatment and management of diarrhea in Ilese community.

S/ N	QUESTION	Yes	No	Total	X ²	df	Tab.	P Value	Inf.
1.	Are you aware of zinc treatment for management of diarrhea?	84	16	100					
2.	Have you used zinc treatment for management of diarrhea?	44	56	100					
3.	Do you think zinc treatment is effective in the management of diarrhea?	70	30	100	44.25	4	9.49	0.000	P<0.05
4.	In your opinion, do you think zinc treatment is used in various hospitals for management of diarrhea?	76	24	100					
5.	Can you recommend use of zinc treatment for management of diarrhea?	75	25	100					

The table above tested hypothesis three which evaluated significance difference between zinc treatment and management of diarrhea in Ilese community. Chi square value obtained was 44.25 while the tabulated value is 9.49, a P value of 0.000 which is less than 0.05 ($P < 0.05$). The result (since the chi square value is greater than the tabulated value) showed that the hypothesis which states that no significance difference between zinc treatment and management of diarrhea in Ilese community is rejected. This reveals that there is significance difference between zinc treatment and management of diarrhea in Ilese community.

5.1 Discussion of Findings

Findings from this study showed adequate knowledge on diarrhea and pre hospital management in Ilese community ($X^2=18.85$, $P=0.0044$). The knowledge acquired on diarrhea among respondents directly contributed to response among them. Majority 98% affirmed that passage of loose or watery stool is major signs and symptoms of diarrhea which may result to death if not treated on time (97%) and majority (99%) of the respondents also opined that diarrhea is an infection of the intestine which increases rate of defecation and sometimes causes appearance of blood in the stool (96%). The finding from this study conforms to the study of Dawit *et al*, (2016). According to Dawit *et al.*, diarrhea is the passage of loose or watery stools occurring three or more times in a 24-hour period which means an increased frequency or decreased consistency of bowel movements.

Significant difference between oral rehydration and management of diarrhea was established in the study ($X^2=22.48$, $P=0.0010$). It was evident that oral rehydration is the major pre-hospital management of diarrhea



in Ilese community. This is because majority (98%) believed that oral rehydration is very effective in the management of diarrhea and 94% asserted that oral rehydration is very helpful in the management of diarrhea. 99% confirmed that oral rehydration is extremely safety therapy which can also be recommended. The finding is in line with the study of Peter & Umar, (2018). Bryce *et al.* 2020 also asserted that the mostly recommended management of diarrhea is the use of oral rehydration therapy. This is further buttressed by the study of Khalili *et al.*, (2013) who opined that level of knowledge and practice on diarrhea are critically important. The knowledge of zinc treatment as management for diarrhea is significant. ($X^2=44.25$, $P=0.000$). Majority (84%) are aware of zinc treatment for diarrhea. Although majority (56%) have not used zinc treatment for management of diarrhea but opined that it is effective (70%) and is used in hospitals.

6.1 Summary and Conclusion

There is adequate knowledge on diarrhea and pre hospital management in Ilese community. The knowledge acquired contributed to understanding of major signs and symptoms of diarrhea which include that passage of loose or watery stool, increases rate of defecation and appearance of blood in the stool which may result to death if not treated on time. Oral rehydration is the major pre-hospital management of diarrhea in Ilese community. This is effectiveness in the management of diarrhea which makes it look very helpful and safe. Oral rehydration is only the pre-hospital management that is preferred and used in Ilese community. People in Ilese community have knowledge of zinc treatment, are aware that zinc treatment is used in hospitals but have not used it therefore, oral rehydration is the first hand pre-hospital management of diarrhea.

6.2 Recommendations

- Mothers are advice to be neat, avoid dirty environment and understand signs of dehydration and take the child to a health provider for ORS or intravenous electrolyte solution as indicated as well as familiarizing with other symptoms refining medical treatment (bloody diarrhea).
- Government should provide and create clean water and environment for the populace
- Health Care Workers should counsel mothers to begin administering suitable available home fluids immediately upon onset of diarrhea in a child. Then treat dehydration with ORS solution (or with an intravenous electrolyte solution in cases of severe dehydration) and emphasize continued feeding or increased breastfeeding during, and increased feeding after the diarrheal episode.

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