

# Socio-Demographic Factors And Knowledge Influencing Associated With ORS Use For Diarrhoea In Children At Miathene Sublocation, Meru County, Kenya

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*Abstract: Oral rehydration solution is the gold standard treatment option in childhood diarrhoea though there are other practices like use of rice water, water sugar mixtures, continuous breast feeding for under six months and complementary feeding have management well dehydration due to diarrhoea. The study adopted mixed methods for data collection and 301 caregivers were interviewed and data analyzed using SPSS version 25. Bivariate analysis was conducted to examine possible associations between predictor variables and ORS uptake. This was done using Pearson's Chi Square. Association was considered significant when p-value is less than 0.05. Results indicated that children average age was 28.44. About 50.2% of the respondents utilized oral rehydration solution, the utilization was significantly associated with socio-demographic variables such as age with ( $p=0.018$ ), marital status ( $p=0.001$ ), level of education ( $p=0.015$ ), monthly income ( $p=0.046$ ); caretaker's variables such knowledge on how ORS is given ( $p=0.0001$ ), amount oral rehydration solution given to child ( $p=0.011$ ) and uses of oral rehydration solution ( $p=0.036$ ), therefore, policy makers need to advice the government on different approaches to diarrhea management, which involves use of oral rehydration solution packets. Efforts are needed to incorporate herbalists into diarrhea case management programs so that they can also promote the use of oral rehydration solution for prevention of dehydration from diarrhea.*

*Keywords: Caregiver, Oral Rehydration Therapy, Oral Rehydration Salts*

## I. INTRODUCTION

Diarrheal disease is the second leading cause of death among children under five globally; accounting for 9 percent of all deaths in 2016. Eight out of ten of these deaths occur in the first two years of life. In developing countries, it is the major cause of morbidity and mortality in children under 5.

Children below three years of age in developing countries experience three episodes on average of diarrhoea each year. Frequent or prolonged diarrhoea can lead to poor nutritional status, and repeated episodes of diarrhoea can also leave children susceptible to other infections.

Caregivers are the first to recognize diarrhoea among the children, thus, home treatments by use of oral rehydration

solution are an essential part of the correct management of acute diarrhoea diseases thus restoring the lost fluid and electrolytes. Oral rehydration solution is the gold standard treatment option in childhood diarrhoea though there are other practices like use of rice water, water –sugar mixtures, continuous breast feeding for under six months and complementary feeding have management well dehydration due to diarrhoea.

According to Diouf, et al. and Ghasemi *et al.*, despite the success of oral rehydration therapy (ORT), its proven efficacy and recommendations for use by various organizations, studies show that ORT continues to be underused globally. The use of ORS solution played a major role in this reduction and a recent study has established that zinc supplementation for 10 – 14 days reduces duration and severity of diarrhoea. Recent studies have shown that most mothers in Pakistan have indeed heard of ORS (Oral Rehydration Solution) packets but only few have actually used it in treating their children’s diarrheal illness. UNICEF - WHO reported the prevalence of ORS use as Fiji 66 %, Myanmar 60.6%, Haiti 50.6%, Qatar 21.1 %, Nigeria 36.8%, Burundi 35.6%, Tanzania 44.8%, Uganda 43.5% and Kenya 67.9%. Therefore, hence indicate that Miathene being in Kenya encounters still low uptake of oral rehydration solution for children between age of 6 months to 59 months.

## II. RESEARCH PROBLEM

Diarrheal disease is an important public health problem among under- five children in developing countries. Diarrhea may last several days and can leave the body without water and salts that are necessary for survival; deaths resulting from diarrhea reflect the principal problem of disruption of fluid and electrolyte homeostasis which leads to dehydration electrolyte imbalance, vascular instability and shock.

ORS solution use for children under five years of age in many parts of Kenya is low. Out of the 11,080 Kenyan children under five years of age who reported with diarrhea, only 7,524 (67.9%) received ORS solution. Caregiver less than 25 years and elderly caring under five children with diarrhoea have lower odds of ORS utilization. Low level of education and lack of home management of diarrhoea skills among the caregiver has been found to contribute to underutilization of ORS. Caregivers do not appropriately prepare and administer ORS thus this has been shown to not effectively treat dehydration due to diarrhea under-fives, increasing the expenses of intravenous fluid and hospitalization.

Despite the availability of free ORS in the public health facilities and various interventions put in place: ensuring regular supply of ORS, diarrhoea case management, training of service providers in case management and diarrhoea prevention, health education and social mobilization, its use at Miathene Sub-location in children under five years of age with diarrhoea has remained low (25%). The reasons for this are unclear. In the recent past, data from health facilities at Miathene sub-location, diarrhoeal cases has been in an increasing trend, in 2016 the prevalence was 20.9%, 21.3% in 2017, 21.8% in 2018. In the first and second quarter of 2019

diarrhea cases reported were 15.2% and 15.8% respectively. Further the data reveals that 18.2% and 18.7% and of children under five years old presented at the facility while dehydrated respectively. Out of 1903 children reported to have diarrhoea in 2018, only 506 (26.6%) received ORS solution. Majority of the cases are from Lunyuki, Antu-Akwii, and Mbuyu villages. This study aims at establishing factors that are associated with utilization of ORS among children under five years at Miathene Sub-location, Meru County.

## III. METHODS

The research was carried out at Miathene sub location, Tigania West Sub-County of Meru County. The study focused caregivers with children under five years at Miathene sub-location, Meru County. The Miathene sub-location have a total population of 5,958 and under five populations of 1,849 and 1,483 households. The study adopted a descriptive cross-sectional study that adopted both quantitative method (use interviewer administered questionnaire) and qualitative method (use of a key informant interview guide and FGDs). The study adopted a multistage sampling technique, random sampling among the Kenyan counties was employed to select one county with Meru County selected, then stratified sampling to select the respondents, stratified sampling is a probability sampling technique wherein the entire population is divided into strata or subgroups and then the final subjects proportionally selected from the various strata. Thereafter, proportionate sampling in each hotspot and random sampling methods to achieve required minimum sample size. For qualitative data it was determined using the data saturation method. Saturation is data satisfaction which involved adding more participants to the study that does not result in additional perspectives or information. Pearson Product Moment Correlation Co-efficient was used to establish reliability. Correlation coefficient of 0.75 was considered adequate to judge reliability of the instruments. The completed questionnaires were checked daily to ensure each question had been filled out correctly and that there is no gap. The questionnaires were numbered and coded for ease of handling. Quantitative data was coded and processed using SPSS version 25.0.

## IV. RESULTS

### A. SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH ORS UPTAKE

Age of respondents was significantly associated with caretakers’ use of ORS treatment for childhood diarrhea (p-value =0.018). Likewise, there was strong association between marital status as independent variables and ORS use (p-value =0.001). There was no association between all other independent variables and ORS use. Assessment of socio-economic factors associated with ORS uptake indicates that respondents’ level of education (p=0.015) and their monthly income (p=0.046) influenced ORS uptake (were significantly

associated). Interestingly respondent's employment status was not associated with ORS uptake at  $p=0.374$

Variables	ORS uptake		Chi square	p-value
	Yes (n=107)	No (n=106)		
<b>Age</b>				
18-29 years	30(44.1%)	38(55.9%)	11.977 df 4	<b>0.018</b>
30-39 years	32(49.2%)	33(50.8%)		
40-49 years	37(58.7%)	26(41.3%)		
50-59 years	6(60.0%)	4(40.0%)		
≥ 60 years	2(28.6%)	5(71.4%)		
<b>Marital status</b>				
Single	24(30.4%)	55(69.6%)	14.126 df 3	<b>0.001</b>
Married	73(62.4%)	44(37.6%)		
Divorced/separated	8(57.1%)	6(42.9%)		
Widow	2(66.7%)	1(33.3%)		
<b>Religion</b>				
Christian	100(50.8%)	97(49.2%)	2.011 df 1	<b>0.075</b>
Muslim	7(43.8%)	9(56.3%)		
<b>Relationship with child</b>				
Mother	54(55.7%)	43(44.3%)	1.814 df 4	<b>0.145</b>
Father	18(43.9%)	23(56.1%)		
Sibling	13(39.4%)	20(60.6%)		
Grandparent	15(57.7%)	11(42.3%)		
Aunt/uncle	7(43.8%)	9(56.3%)		
<b>Gender</b>				
Male	24(38.7%)	38(61.3%)	3.403 df 1	<b>0.191</b>
Female	83(55.0%)	68(45.0%)		
<b>Respondents Education level</b>				
No formal education	9(36.0%)	16(64.0%)	12.417 df 3	<b>0.015</b>
Primary	39(40.2%)	58(59.8%)		
Secondary	42(60.9%)	27(39.1%)		
Tertiary	17(77.3%)	5(22.7%)		
<b>Respondents Employment status</b>				
Self-employed	15(40.5%)	22(59.5%)	3.118 df 3	0.374
Unemployed	22(23.9%)	70(76.1%)		
Housewife	36(85.7%)	6(14.3%)		
Employed	34(81.0%)	8(19.0%)		
<b>Monthly income (TSH)</b>				
<Ksh 1000	25(26.6%)	69(73.4%)	8.448 df 5	<b>0.046</b>
Ksh 1000-4999	24(55.8%)	19(44.2%)		
Ksh 5000-9999	21(87.5%)	3(12.5%)		
Ksh 10000-14999	22(81.5%)	5(18.5%)		
Ksh 15000-19999	8(61.5%)	5(38.5%)		
≥ Ksh 20000	7(58.3%)	5(41.7%)		

Table 1: Analysis of Socio-Demographic Factors Associated with ORS Uptake

## B. CARETAKERS KNOWLEDGE ASSOCIATED WITH ORS UPTAKE

Most of the respondents were aware how ORS is prepared 89(54.3%), reason for giving ORS 93(52.8%) and uses of ORS 69(57.0%). The study found no significant association between ORS preparation ( $p=0.052$ ) with ORS uptake but there was significant association between knowledge on how ORS is given ( $p=0.0001$ ), amount ORS given to child ( $p=0.011$ ) and uses of ORS ( $p=0.036$ ) with ORS uptake.

	Use of ORS		Chi square	p-value
	Yes (n=107)	No (n=106)		
<b>ORS preparation</b>				
1 sachet of ORS -1 liter of water	89(54.3%)	75(45.7%)	4.179 df 5	0.052
Others	18(36.7%)	31(63.3%)		
<b>Aware how ORS is given</b>				
Yes	65(54.6%)	54(45.4%)	23.404 df 2	0.0001
No	42(44.7%)	52(55.3%)		
<b>Amount of ORS solution given</b>				
As much as the child can drink	95(58.3%)	68(41.7%)	11.288 df 2	0.011
Coffee cup of 100ml	10(37.0%)	17(63.0%)		
Don't know / can't answer	2(8.7%)	21(91.3%)		
<b>Duration of the mixed ORS</b>				
24 hrs (1 day)	99(52.9%)	88(47.1%)	9.707 df 3	0.008
48 hrs (2 days)	5(29.4%)	12(70.6%)		
72 hrs (3 days)	3(33.3%)	6(66.7%)		
<b>Reasons of giving ORS</b>				
To reduce diarrhea	14(37.8%)	23(62.2%)	12.211 df 1	0.010
To prevent dehydration	93(52.8%)	83(47.2%)		
<b>Uses of ORS</b>				
Replacement of fluid lost during diarrhea	69(57.0%)	52(43.0%)	10.751 df 1	0.036
Stopping diarrhea	38(41.3%)	54(58.7%)		

Table 2: Caretakers Knowledge Associated with ORS Uptake

## V. DISCUSSION

This study identified that age, marital status, level of education and monthly income were associated with ORS use. This concurs with studies by Aziz; Eshete and Veronica & Richard have shown a significant relationship between the levels of parental education as well as family income and utilization of ORS. A study by Rasania, *et al.* on determinants of child health revealed that child survival in developing countries is highly associated with maternal education, more than with any other socioeconomic variables. This is so because the practices of educated women are quite different from those of uneducated women with regard to occurrence of diarrhea, ORS utilization and dehydration. This is contrary to findings of Houston, *et al.*, who explored the impact of maternal education and use of ORS in rural India. They found that mother's education status did not have any significant association with maternal use of ORS for under-five diarrhea. This result was attributed to the homogeneity of mother's schooling status in the area; only very few mothers were educated to more than 10th grade.

In this study caretaker's knowledge on how ORS is given, amount ORS given to child and uses of ORS was significant association with ORS uptake. Similarly a study by Kitony, on knowledge and use of ORS solution found that, Kenyan

mothers who reported knowing about ORS, its advantage and amount given to under-five was associated with ORS use. Understanding of the influences on mothers' treatment decisions is enhanced by awareness of their knowledge, perceptions, beliefs, and attitudes regarding diarrhea and its treatment. Local conditions and constraints present in the cultural and physical environment may also affect mothers' decisions. WHO recognizes that there is an "urgent need" to understand the influences on mothers' present attitudes, perceptions and practices regarding diarrhea, and the factors that prevent effective ORS use in home management.

## VI. CONCLUSIONS

The study revealed that age, marital status, monthly income and education level were socio-demographic factors associated with home management of diarrhoea on using ORS to treat diarrhoea immediately on noticing diarrhoea symptoms. It was established from the study that all the respondents in the area were aware of the ORS preparation and how it should be given. Most of the respondents are aware the amount of ORS given to the child under-fives years, duration the already prepared ORS is supposed to be used and reasons for using ORS. These variables were significantly associated with ORS use. The study recommended that:

- ✓ The government at all levels and other concerned stakeholders should provide means to reduce unemployment at rural areas and in conjunction with relevant pharmaceutical agencies should ensure regular provision and prompt availability of ORS sachets in all health care settings. This would promote easy access and optimal use of ORS among caretakers.
- ✓ The media and hospital posters can be used to effectively increase awareness on the management of childhood diarrhea with ORS among caretakers in the study area. Community-based awareness campaigns on home management of childhood diarrhea with ORS should be carried out intermittently in rural areas especially areas where access to pediatric care is poorly reported.

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