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Prevalence, Health Care Seeking Behaviour and Factors Associated with Home Management of Diarrhoea Among Caregivers with Children Aged 2-59 Months, Attending Health Facilities in Moshi Municipality: A Hospital Based Cross-Sectional Study

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Abstract

Background: Diarrhoea is the second leading cause of death in children under five years old, and is responsible for killing around 760,000 children every year. The recommended management for diarrhea according to WHO is to give oral rehydration therapy, appropriate homemade fluid with, fluid replacement beginning at home and administered by the caregiver at the start of the diarrhea episode. Proper home management can reduce morbidity and mortality due to diarrhoea.

Objectives: To determine the prevalence, health care seeking behavior and factors associated with home management of diarrhoea among caregivers with children aged 2-59 months old, attending health facilities in Moshi Municipality.

Methodology: This was a cross sectional hospital-based study conducted from August 2015 to May 2016. It was carried out at KCMC Hospital, St Joseph Hospital, Majengo and Pasua Health Centre's. We included all children aged 2-59months presenting with diarrhea. A questionnaire was used for data collection. Continuous variables were summarized using median and interquartile range. Descriptive statistics was used to summarize data on health care seeking behavior. Odds ratio was used to assess the strength of association and p-value of <0.05 was taken as statistical significant.

Results: A total of 279 children were enrolled in the study. The proportion of caregivers who gave Oral Rehydration Solution(ORS) and Sugar Salt Solution(SSS) was 42.7% and 18.3% respectively. Most 133(47.7%) of the children were given ORS/SSS/ both ORS and SSS as an initial treatment for diarrhoea while some 32(11.5%) were taken to health facilities. Few of the children (5.4%) were given antibiotics. Vomiting, diarrhoea duration of more than 3 days and past history of diarrhoea were associated with ORS provision at home.

Conclusion: The study highlights home management of diarrhoea for those unable to afford hospital bills. Further emphasis should be put on educating mothers/caregivers on the importance of using ORS/SSS as initial intervention at home during diarrhoea episodes.

Introduction

Diarrhoea is defined as the passage of three or more loose or liquid stools per day, or more frequently than is normal for the individual [1]. Diarrhoea is the second leading cause of childhood mortality, with approximately 760,000 deaths annually, with rotavirus being the leading cause among children under five responsible for 40% of all hospital admissions [1]. Diarrhoea spreads through contaminated food or drinking water or from person-to-person as a result of poor hygiene [1]. Reports from World Health Organization show the burden varies from one developing country to another, with greatest burden seen in Africa and South Asia accounting for more than 80% of all deaths [1]. In Africa, diarrhoea contribute to 19% of deaths in children under five years [1]. WHO recommends administration of oral rehydration therapy, usage of appropriate homemade fluid, with fluid replacement beginning at home by the caregiver at the start of the diarrhoea episode as ideal modalitites of managing diarrhea at home [1]. Oral rehydration therapy as the initial intervention during the diarrhoea episode has proven to show reduction of morbidity and mortality due to diarrhoea [1].

Studies have shown that health care seeking behaviour among caregivers is still poor. A small proportion of caregivers used Oral rehydration therapy during the diarrhoea episode, most of the caregivers use antibiotics, anti-diarrhoea and herbal preparations for treating their children at home [2]. Also, some of the caregivers visited traditional healers in order to treat their children during the diarrhoea episodes [3]. Use of Oral rehydration solution and health care seeking behaviour are still poor in Tanzania with 30% of the caregivers providing homemade fluids at home as initial treatment for diarrhoea [4]. The use of anti-diarrhoeals and antibiotics is common among most of the caregivers [5]. In Tanzania, cultural beliefs such as breast feeding may increase the severity of the diarrhoea made caregivers to withold breast feeding during the diarrhoea episodes [6].

Methods

Study Design and Site

This was a hospital based cross sectional study, conducted from August 2015 to May 2016 among children aged 2-59 months presenting with diarrhoea. The study was conducted in 4 health facilities, Kilimanjaro Christian Medical Centre (KCMC), St. Joseph Hospital, Majengo health centre and Pasua health centre, in Moshi Municipal Kilimanjaro Region. KCMC is one of the referral hospitals in Tanzania; it serves as a referral, research and teaching hospital, located in the North Eastern part of Tanzania.

It caters for five regions in the Northern part of Tanzania, namely, Kilimanjaro, Tanga, Arusha, Manyara, Singida and Dodoma with an estimated population over 10,000,000 people. It has a bed capacity of 450.St Joseph is a designated District Hospital which has several departments and admits approximately 1787 pediatric patients annually. Majengo Health Centre and Pasua Health Centre are secondary level health centres. Both serve considerable number of patients averaging 4920(OPD), 564 in patients annually at Pasua H/C and 5491 outpatients annually at Majengo H/C

Study Population

All caregivers with children with diarrhoea aged 2-59 months who were attending KCMC, St. Joseph hospital, Pasua and Majengo health centres who consented to participate in the study. Sample size was estimated according to hospital attendances. At least 16 patients were expected from the four study areas per month. Data was collected for 10 months. The estimated sample size was 320.

Data Collection and Study Variables

Data was collected using a questionnaire in the form of face-to-face interview**.** A questionnaire with both English and Swahili language was used to collect socio demographic and clinical data from the participants. Dependent variable was home management of diarrhoea and independent variables were, age, sex, residence, caregivers occupation, diarrhoea duration and diarrhoea frequency.

Data Analysis

Data was entered and processed using Statistical Package for Social Scientist (SPSS) version 22. Descriptive statistics was used to summarize data. For continuous variables, data was summarized using median and Interquartile range, while percentages and frequencies were used for categorical data. Odds ratio was used to measure the strength of association and a p-value of less than 0.05 was considered statistically significant. Logistic regression was done to control for possible confounders.

Ethical Consideration

Ethical clearance was sought from KCMU College Research Ethical Committee Certificate No. 850. Permission to conduct the study was obtained at KCMC, St. Joseph Hospital, Majengo and Pasua health centres. Participants who agreed to participate in the study were informed about the purpose of the study.

Results

Background Characteristics of the Study Participants

A total of 300 patients were enrolled, of these 56 were from KCMC Hospital, 87 from Pasua Health centre, 21 from Majengo Health centre and 115 from St Joseph Hospital. The median age at enrolment was 11months (IQR 13). Approximately half

140(50.2%) of the children were males. Majority 249(89.2%) resided in urban areas. Many of their caregivers were housewives 96(34.4%) (Table1).

Variable	Frequency (n)	Percent (%)
Age of child(months)		
0-11	148	53
24-Dec	85	30.5
25-36	25	9
>37	21	7.5
Median age(IQR)	**11(13)**	
Sex		
Male	140	50.2
Female	139	49.8
Residence		
Urban	249	89.2
Rural	30	10.8
Caregivers Occupation		
Housewife	96	
Employed	39	34.4
Petty trader	95	14
Others	49	34.1

Table 1: Socio-demographic characteristics of study participants (N=279).

Among 279 children presenting with diarrhoea, median duration of diarrhoea was 2 (IQR=2) days. The median frequency of diarrhoea was 4 (IQR=2) motions per day (Table 2).

Variable	Frequency(n)	Percent (%)
Duration of diarrhoea		
1-3 days	208	74.6
>3 days	71	25.4
Median (IQR)	2(2)	
Frequency of diarrhoea		
1-5times/day	212	76
>5times/day	67	24
Median (IQR)	4(2)	
Previous history of diarrhoea		
Yes	135	48.4
No	144	51.6

Table 2: Clinical characteristics of study participants N=279.

The proportion of caregivers who gave ORS/SSS before seeking care was 119 (42.7%) for ORS and 51(18.3%) for SSS.

Health Care Seeking Behaviour of the Caregivers

Among 279 children enrolled, majority 133(47.7%) were given ORS/SSS/both, 67(24%) were given water only. Some children 32(11.5%) were taken to the hospital/dispensary/health centres by their caregivers as an initial intervention during the diarrhoea episode while 32(11.5%) children had nothing done for them (Figure 1).

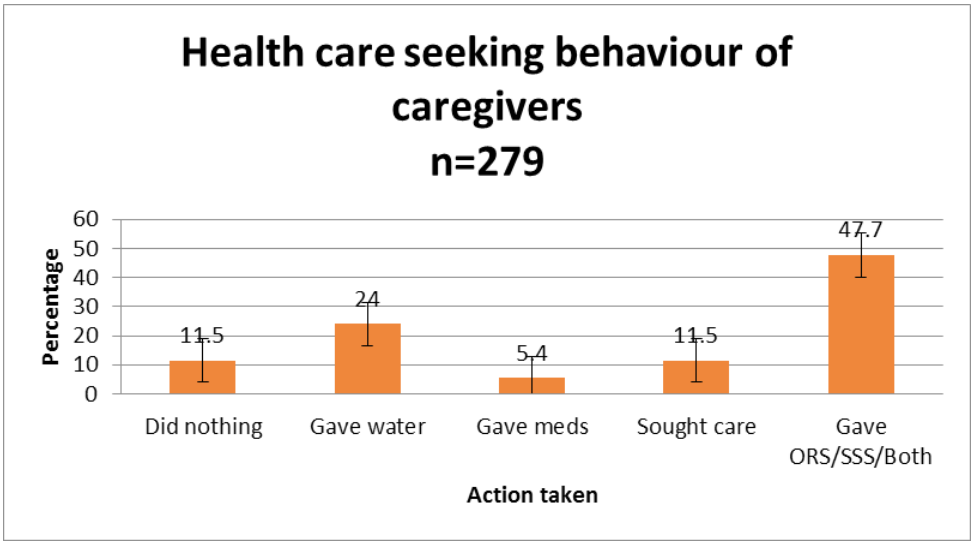

Figure 1: Healthcare seeking behaviour of caregivers.

Factors Associated with Provision of ORS at Home

Factors that were found to be significantly associated with provision of ORS at home were vomiting, past history of diarrhoea and diarrhoea duration of >3days and these factors remained to be significant after adjusting for confounders (Table 3).

Characteristics	N	Gave ORS n (%)	OR (95% CI)	AOR (95% CI)
Vomiting				
No	102	30(29.4)	1	
Yes	177	89(50.3)	2.43(1.45-4.07)	2.55(1.46-4.17)
Fever				
No	105	45(42.9)	1	
Yes	174	74(42.5)	0.99 (0.61-1.61)	-
Residence				
Urban	249	104(49.8)	1	
Rural	30	15(50.0)	1.39 (0.65-2.98)	-
Past diarrhoea history				
No	144	72(50.0)	0.64 (0.33-0.87)	0.52(0.32-0.86)
Yes	135	47(34.8)	1	
Duration of diarrhoea				
1-3 days	208	73(35.1)	1	
>3 days	71	46(64.8)	3.40(1.94-5.98)	3.74(2.09-6.69)
Frequency of diarrhoea				
1-5 times/day	212	93(43.9)	0.81 (0.46-1.42)	-
>5 times/day	67	26(38.8)	1	

Table 3: Factors associated with provision of ORS at home (N=279).

Factors Associated with Provision of SSS at Home

Several factors were assessed and were found to be not associated with provision of SSS at home in the crude analysis (Table 4).

Characteristics	Total N (%)	Gave SSS N (%)	OR (95% CI)
Vomiting			
No	102(36.6)	21(20.6)	0.78(0.42-1.46)
Yes	177(63.4)	30(16.9)	1
Fever			
No	105(37.6)	21(20.0)	0.83 (0.45-1.55)
Yes	174(62.4)	30(17.2)	1
Residence			
Urban	249(89.2)	47(18.9)	0.66 (0.22-1.99)

Rural	30(10.8)	4(13.3)	1
Past diarrhoea history			
No	144(51.6)	26(18.1)	1
Yes	135(48.4)	25(18.5)	1.03 (0.56-1.89)
Duration of diarrhea			
1-3 days	208(74.6)	36(17.3)	1
>3 days	71(25.4)	15(21.1)	1.28(0.65-2.51)
Frequency of diarrhea			
1-5 times/day	212(76)	43(20.3)	0.53 (0.24-1.20)
>5 times/day	67(24)	89(11.9)	1

Table 4: Factors associated with provision of SSS at home (N=279).

Discussion

The proportion of children who were given ORS was 42.7%, However this was different from a study done in Nigeria which found 9.9%,[2] and 24.4% in Burkina Faso[3] These findings showed that the usage of ORS is still low probably due to caregivers lack of awareness of ORS/SSS, its uses and importance in the management of childhood diarrhoea. In our study, 17.9% of children were given SSS; this was similar to a study done in Dominian Republic, 21%, [6] a study done in Nigeria 22.7% [2]. This difference could be due to poor knowledge of the caregivers/mothers on how to prepare and how to use SSS at home. Hence an emphasis needs to be made on proper training of caregivers on preparation of SSS. In this study 11.5% of the children were taken to health facilities, this is different from a study done in Dominian Republic of 33.7% [6], in India 37% [7], in Burkina Faso 54.9% [3], this difference could be due to the health facilities being located far from where the study participants resided, also the study participants might not be aware of when to seek professional assistance in managing diarrhoea. In this study 5.4% of the children were given medications such as anti-diarrhoeals and antibiotics these results were different to a study done in Dominian Republic, 18.7%, [6] in Tanzania, 43% [5], in Temeke Tanzania 35% [8]. This difference could be due to either mother failing to recall if they gave children medication or fear of repercussions from health workers. Nothing was done for 11.5% of the children; these results were similar to a study done in Kibera Kenya 7% [9]. This could be due to mothers/caregivers lack of knowledge on the seriousness of diarrhoea and its consequences. ORS provision at home was associated with vomiting and diarrhoea duration of more than 3 days and past history of diarrhoea, no factors were found to be associated with SSS provision. These results were different from a study done in Dominian Republic where SSS provision was associated with an older age and lower education attainment of caregivers [6], in Ethiopia care givers with poor knowledge and illiterate were less likely to provide ORS/SSS at home [10]. Most of the caregiver's/mothers may not be aware on the factors that can lead to dehydration during the diarrhoea episode, this may lead to delay in the provision of ORS/SSS at home.

Conclusion

In our study, we found the proportion of caregivers who gave ORS and SSS was 42.7% and 18.3% respectively. Majority of the children continued to be breastfed during the diarrhoea episode (59.9%).

Most 133(47.7%) of the children were given ORS/SSS/ both ORS and SSS as an initial treatment for diarrhoea while some 32(11.5%) were taken to health facilities. Few of the children (5.4%) were given antibiotics. Vomiting, diarrhoea duration of more than 3 days and past history of diarrhoea were associated with ORS provision at home. Despite this study not assessing severity of diarrhoea on presentation at health facilitites in association with home management. Still there is a need for further education and raising of awareness on the appropriate use of ORS/SSS prior to seeking health care as diarrhoea is still one of majhor causes of morbidity and mortality among children under 5.

Competing Interests

The authors declare that they have no competing interests. All authors of the manuscript have read and agreed to its contents.

Authors' Contributions

JIN, DNM and SEM designed the study; JIN, DNM and SEM, inputs in the study design and conduct; JIN, DNM data collection; JIN and SEM input in the analysis; JIN, DNM and SEM read the final manuscript for scientific content of the paper.

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