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**THE FACTORS ASSOCIATED WITH THE INCREASE OF DIARRHOEA AMONG CHILDREN UNDER FIVE YEARS OF AGE AT KASANGATI HEALTH CENTRE IV, WAKISO DISTRICT: A CROSS-SECTIONAL STUDY.**

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**ABSTRACT**

**Background**

**The purpose of the study**

Determined the factors associated with the increase of diarrhea in children less than 5 years of age in Kasangati Health Center IV, Wakiso district.

**Study objectives**

Determined the knowledge, attitude, and practices of caretakers towards diarrhea in children less than 5 years old at Kasangati HC IV, Wakiso district.

**Methodology**

A cross-sectional study of 100 participants was used in the study. A simple random sampling technique was used and data collected using survey and interview methods was presented and analyzed using descriptive frequencies and percentages of Microsoft Word and Excel

**Result**

The majority of respondents 73(73%) knew the meaning of diarrhea and 27(27%) did not know the meaning of diarrhea. Findings also showed that the majority 54(54%) of respondents said that children don't like ORS because of its taste, 36(36%) of the respondents proposed its scent, and the rest 10(10%) it's color. They also showed that the majority of participants 59 (59%) breastfed a child with diarrhea while 41(41%) respondents did not.

**Conclusion**

The study findings indicate that the majority of the respondents knew the meaning of diarrhea, its signs and symptoms (marked thirst, weight loss, sunken eyes, and dry skin), and its causes (poor hygiene, too much sugar in milk, and not breastfeeding).

**Recommendations**

Health workers and community health personnel should increase the sensitization about diarrhea signs and symptoms to the caretakers. Health workers and dispensing places like pharmacies should explain to caretakers how to prepare ORS and assess if they have understood it.

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*Keywords: Factors, diarrhea, children less than 5 years, Kasangati Health Center IV, Wakiso district.*

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**Background**

Diarrhea is the fifth cause of death among the under-fives causing more deaths than malaria AIDs and measles combined. Globally diarrhea is the second leading cause of death among the under-five (UNICEF 2019).

In Uganda, the prevalence of diarrhea is 18.5% in young children (Farina *et al.*, 2022).

In 2020, diarrheal diseases reached 6.41% of total deaths making the country ranked 27th wide. Presently diarrhea remains among the top ten causes of morbidity in the country with the Rotavirus being responsible for about 40% of all diarrheal cases, complications, and outcomes such as Loss of appetite, electrolyte imbalance, malnutrition, increased risk of developing other infectious diseases and delayed physical growth and mental development Diarrhea is also associated with multiple problems causing for 72.8 million disabilities and adjusted life years and it worsens

then economic situation of families and the health care systems (UDHS,2019)

The government and other non-government organizations like WHO, and UNICEF have carried out community awareness through health education to mothers and caregivers at outpatient departments (OPD), and medical camps before starting any medical activity. Also giving the children different remedies in the management of diarrhea; like giving ORS and zinc. However, the prevalence has remained high. This study aims to determine the factors associated with the increase of diarrhea in children less than 5 years of age in Kasangati Health Center IV, Wakiso district.

## METHODOLOGY

### Study design.

The study design was a cross-sectional study design using quantitative data because this design allowed data to be collected on factors contributing to the increase of diarrhea in children under 5 years simultaneously at a particular point in time and within the shortest time possible.

### Study area

The study was conducted at Kasangati Health Center IV in Nangabo sub-county, Wakiso District Central part of Uganda. The Health Center offers Outpatient, Inpatient, Maternity, Immunization, outreaches, laboratory, MCH, and HIV/TB services to the community and the turnout was always well.

### Study population

Data was collected from caregivers of children under five years the children under five years were included and caretakers who willfully consented to the study were the ones to participate.

### Sample size determination.

The sample size was determined by using the formula Kish and Leslie 1965.

$$n = Z^2 P(1-P) / D^2$$

n was the sample size (total number of subjects required in the sample).

Z was the standardized normal deviation value that corresponded to the level of significance.

P was the estimated prevalence of diarrhea in children under five years in Uganda.

D was the margin of error

$$P=18.5\%, D=0.05, Z=1.96$$

$$n = \frac{(1.96)^2 \times 0.185(1-0.185)}{(0.05)^2}$$

$$n = 232$$

n=232 caregivers of children under the age of five years old

However, due to financial issues, I used 100 respondents

### Sampling technique

A simple random sampling technique was used in the study for every caregiver of the children under the age of five and had equal chances of participating in the study.

### Sampling procedure.

Respondents were randomly selected using the list of children under five and their caretakers who would come to the health center every day for a period of 2weeks, where the name or outpatient number would be written on small pieces of paper and folded. Then the folded pieces of paper would be put in a box and shaken, and the participants would be asked to pick the paper without replacement to find out the participants of that day a researcher administered questionnaire was used to collect data from the Caregivers of the children under five years

who had consented, and this took place every day from Monday to Friday for 2weeks.

### Data collection method

Data was collected using a researcher's self-administered questionnaire where respondents would be given questions and immediately respond to the questions and answers were recorded.

### Data collection tool.

A structured questionnaire was used to collect raw information on the socio-demographic factors, caretaker's knowledge, and practices. Pens were also used for recording responses, for clarity and illiterates; questions were translated into the local language for proper responses to the questions.

### Data collection procedure.

The questionnaires with closed-ended questions were used to collect quantitative data. The questionnaire would be used for literate respondents to fill in the self-administered questionnaire to those who were able to read and write the answers since it was less expensive for data collection. The respondents would record their answers within closely defined alternatives. In this study, the questionnaires would be hand-delivered to the respondents that is to say caregivers of children under five years who were among the selected respondents in the sample field to fill. The technique was appropriate for the investigation of the researcher's needs, expectations, perspectives, priorities, and preferences. Questions were asked using researcher-administered questionnaires and responses were recorded until 100 respondents were interviewed

### Study variables

#### Independent variable

The independent variable was the factors contributing to the increase in diarrhea in children under 5 years.

#### Dependent variable

The dependent variables included the Caregiver's knowledge, attitude, and practices-related factors contributing to the increase of diarrhea in children under five years attending health care at Kasangati Health Center IV, Wakiso district.

#### Quality control

The research tools were pretested in Kasangati town council with the help of research assistants who were trained and a pilot study was carried out in Kasangati town council in Wakiso district, a simple random sample of twenty people were pretested its efficiencies and poorly constructed questions were corrected.

#### Inclusion criteria

The persons that took part in the study were caretakers and children under five years available and with a sound state of mind at the time of consent and data collection, those

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that attend Health care at Kasangati Health Center IV, Wakiso district.

**Exclusion criteria**

The study excluded all children who were above 5 years of age, children whose caretakers refused to consent, children with co-morbidities like typhoid and pneumonia plus those who were critically ill.

**Data analysis and presentation**

Data collected was manually made using fooscaps and information was analyzed statistically using Microsoft Excel and presented information in the form of pie charts, bar graphs percentages, frequency, and distribution tables.

**Data management.**

The research assistants were supervised by the researcher during the data collection procedure, data checked for

completeness and would be kept under a lock and key system. Then data will be entered into a computer using Microsoft Word and Microsoft Excel. After data analysis, the questionnaires were kept securely for future reference only authorized persons could access them for confidentiality.

**Ethical consideration**

An introductory letter was obtained from the research ethics committee of Medicare Health Professionals College, which was introduced to the researcher to the District Health Officer, the local council chairperson of the Nangabo sub-county, and the in charge of Kasangati Health Centre IV. The information obtained from questionnaires was confidential and only for academic purposes not any other reason.

**RESULTS**

**Demographic characteristics of respondents.**

**Table 1: Distribution of Respondents according to Demographic characteristics (n=100)**

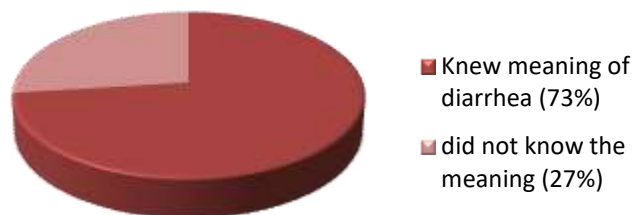
Variables	Category	Frequency (n=100)	Percentage (%)
<b>Gender</b>	Males	37	37
	Females	63	63
<b>Tribe</b>	Muganda	40	40
	Iteso	9	9
	Mugwere	7	7
	Mogadishu	11	11
	Others	33	33
<b>Religion</b>	Anglican	25	25
	Catholic	29	29
	Moslem	21	21
	Born again	25	25
<b>Education level</b>	Not educated	22	22
	Primary level	19	19
	Secondary level	37	37
	University	22	22

Table 1 shows the demographic characteristics of 100 respondents who agreed to participate in the study. Majorities were female 63(63%) and the rest were males 37(37%). The most dominant tribe were the Baganda 40(40%), followed by the other tribes 33(33%), then the Gishu 11(11%), the Iteso 9(9%), and finally the Bagwere 7(7%).

Most of the respondents were Catholics 29(29%), followed by the Anglicans 25(25%) and Born agains 25(25%) and finally the Moslems 21(21%). Furthermore, the majority of respondents had completed Secondary level 37(37%), followed by those who finished University 22(22%), the those who were not educated 22(22%) and finally those who had finished only Primary level 19(19%)

**Knowledge of caretakers towards the increase of diarrhea.**

**Figure 1: Distribution of respondents by knowledge of the meaning of diarrhea (n=100)**



**Figure 1** shows that the majority of respondents 73(73%) knew the meaning of diarrhea and 27(27%) did not know the meaning of diarrhea

**Table 2: Distribution of respondents by knowledge of diarrhea signs and symptoms (n=100)**

Variable	Frequency (n=100)	Percentage (%)
Marked thirst	32	32
Weight loss	30	30
Sunken eyes	30	30
Dry skin	8	8
<b>Total</b>	<b>100</b>	<b>100</b>

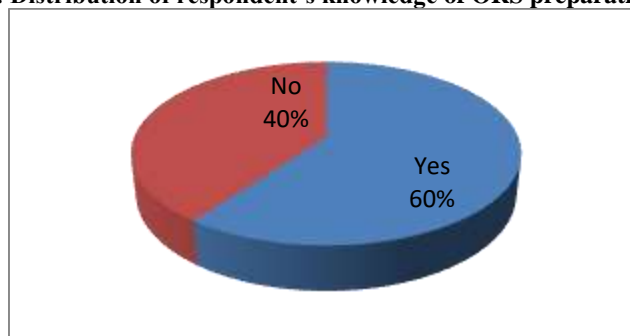
**Table 2** shows that the majority of respondents 32(32%) knew the diarrhea signs and symptoms as marked thirst, 30(30%) respondents knew weight loss, 30(30%) respondents knew sunken eyes, and finally, 8(8%) respondents knew dry skin.

**Table 3: Distribution of the respondent's knowledge of the cause of diarrhea (n=100)**

Cause	Frequency (n=100)	Percentage (%)
Poor hygiene	55	55
Too much sugar in milk	30	30
Not breastfeeding	15	15
<b>Total</b>	<b>100</b>	<b>100</b>

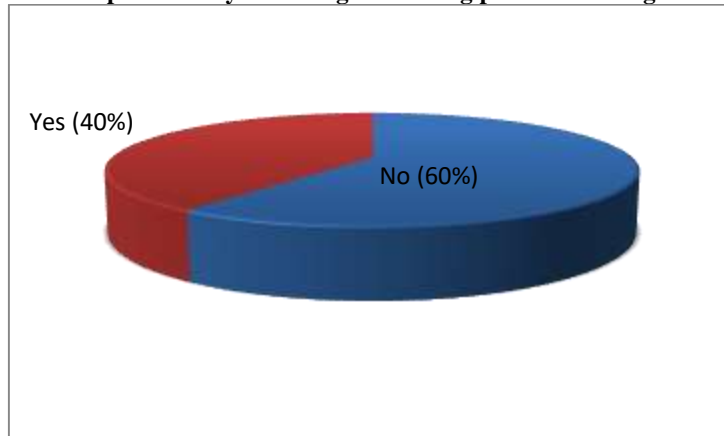
**Table 3** shows that 55(55%) of the respondents knew poor hygiene to be the cause of diarrhea, 30(30%) respondents knew too much sugar in milk and 15(15%) respondents knew not breastfeeding.

**Figure 2: Distribution of respondent's knowledge of ORS preparation (n=100)**



**Figure 2** shows that the majority of 60(60%) respondents knew how to prepare ORS while 40(40%) respondents did not know how to prepare ORS.

**Figure 3: Distribution of respondents by knowledge of feeding practices during diarrhea episodes (n=100)**



**Figure 3** shows that the majority 60(60%) respondents did not the feeding practices during diarrhea episodes while 40(40%) respondents knew the feeding practices during diarrhea episodes.

**Attitudes of mothers towards diarrhea management in children under 5 years.**

**Table 4: Distribution of the respondent's attitude on treatment of diarrhea by use of ORS (n=100)**

Variable	Frequency (n=100)	Percentage (%)
It brings about improvement	60	60
It does not bring about improvement	40	40
<b>Total</b>	<b>100</b>	<b>100</b>

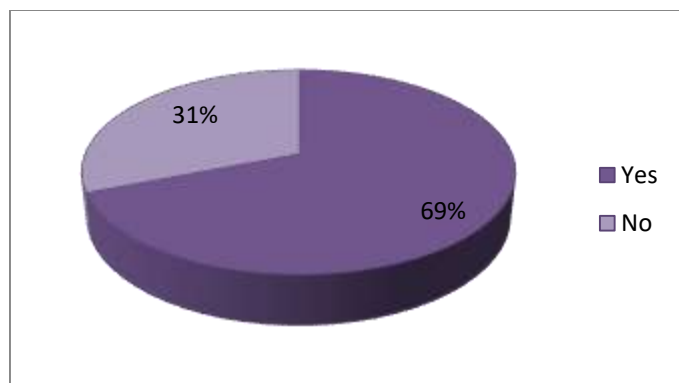
**Table 4** shows that the majority of 60(60%) respondents believed that ORS brings about improvement in diarrhea treatment while 40(40%) respondents believed that it does not bring about improvement in diarrhea treatment.

**Table 5: Distribution of respondents attitudes on water intake in a child with diarrhea (n=100)**

Variable	Frequency (n=100)	Percentage (%)
It improves the management of diarrhea	73	73
It does not improve the management of diarrhea	27	27
<b>Total</b>	<b>100</b>	<b>100</b>

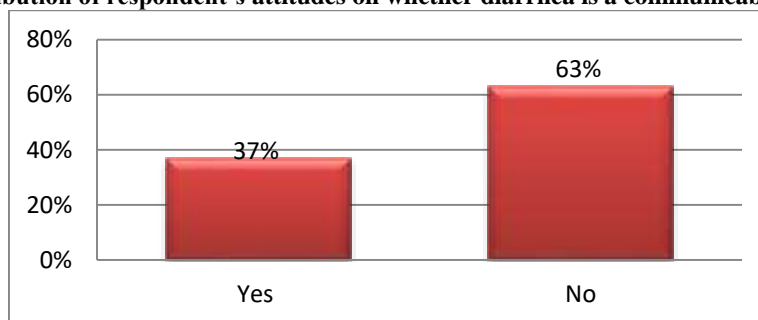
**Table 5** shows that the majority 73(73%) of respondents believed that water intake in a child with diarrhea improves its management while 27(27%) respondents did not believe that water intake improves the management of diarrhea.

**Figure 4: Distribution of respondent's attitude on diarrhea treatment at home (n=100)**



**Figure 4** shows that the majority 69(69%) respondents believed that diarrhea could be treated from home while 31(31%) respondents believed that diarrhea could not be treated from home.

**Figure 5: Distribution of respondent's attitudes on whether diarrhea is a communicable disease(n=100)**



**Figure 5** shows that the majority of 63(63%) respondents believed that diarrhea is not a communicable disease while 37(37%) respondents believed that diarrhea was a communicable disease.

**Table 6: Distribution of respondents attitudes on why children do not like ORS (n=100)**

Variable	Frequency (n=100)	Percentage (%)
It's color	10	10
Its taste	54	54
Its scent	36	36
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 6** shows that the majority 54(54%) of respondents said that children don't like ORS because of its taste, 36(36%) of the respondents proposed its scent, and anisecolor 0(10%) its color.

**Practices of caretakers towards the prevention and control of diarrhea in children under 5 years.**

**Table 7: Distribution of respondents' practice of hand washing after contact with a child's fecal matter (n=100).**

Variable	Frequency (n=100)	Percentage (%)
Yes	80	80
No	20	20
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 7** shows that the majority of the caretakers 80 (80%) wash their hands after contact with the child's fecal matter and only 20(20%) respondents do not wash their hands

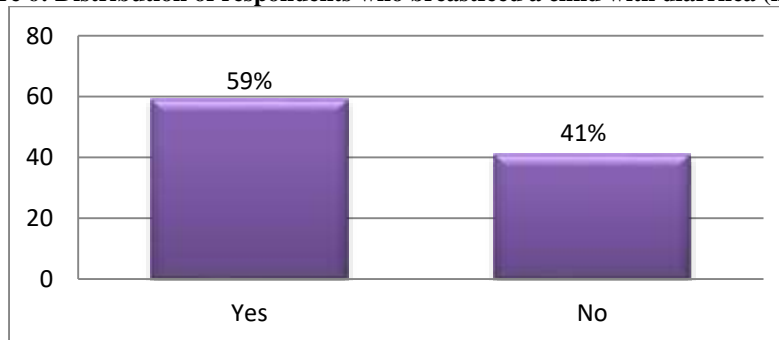
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**Table 8: Distribution of what respondents use to wash their hands. (n=80)**

Variable	Frequency (n=80)	Percentage (%)
Soap and water	44	55
Plain water	22	27.5
Hand sanitizer	14	17.5
<b>Total</b>	<b>80</b>	<b>100</b>

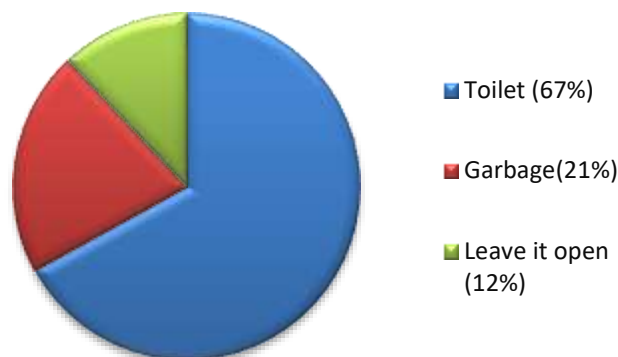
**Table 8** shows that the majority 44(55%) of caretakers use soap and water, 22 (27.5%) caretakers use only plain water, and 14(17.5%) respondents use hand sanitizer.

**Figure 6: Distribution of respondents who breastfed a child with diarrhea (n=100).**



**Figure 6** shows that the majority of participants 59 (59%) breastfed a child with diarrhea while 41(41%) respondents did not.

**Figure 7: Distribution of where caretakers dispose of the children’s waste (n=100).**



**Figure 7** shows that the majority of respondents 67 (67%) said they dispose of children’s waste in the toilet. 21(21%) respondents said they dispose it to the garbage and 12(12%) respondents said they leave it open.

**Table 9: Distribution of respondents on treatment of diarrhea (n=100)**

Variable	Frequency (n=100)	Percentage (%)
ORS	37	37
ORS and Zinc	30	30
Only breastfeeding	20	20
All the above	13	13
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 9** shows that the majority of respondents 37(37%) said they use ORS to treat diarrhea, 30(30%) respondents said they use ORS and Zinc, 20 (20%) respondents said

they only breastfed the child while 13(13%) respondents said they use ORS, Zinc and also breastfed the child.



## Discussion.

### Knowledge of caretakers towards the increase of diarrhea.

The study findings show that the majority of the participants (73%) knew the meaning of diarrhea and 27% did not know the meaning of diarrhea. This could be due to the sensitization of health workers to the caretakers as they come for health services. The study findings are higher than those of the study done by Maysa *et al.*, 2023 which showed that the majority of the urban mothers (58%) knew the meaning of diarrhea due to the high number of 581 respondents that he used.

It also observed that the majority of the study participants (60%) had knowledge of ORS preparation and 40% did not have knowledge of ORS preparation. This was due to the sensitization of health workers in Kasangati HC IV and also the preparation instructions on the ORS sachets. These findings are in agreement with the study carried out by Hailemariam *et al.*, 2018 which showed that the majority of the participants 62.4% knew about the recommended volume of water for mixing the sachet of ORS.

Furthermore, the research findings showed the participants' knowledge of the signs and symptoms of diarrhea; the majority of the participants 32% knew about marked thirst, 30% knew about weight loss, another 30% also knew about sunken eyes and 8% knew dry skin. This was due to the acquisition of knowledge by the participants whenever they bring children for growth monitoring in which they are told which danger signs they should look out for. These findings are in agreement with the study conducted by Aneeqa *et al.*, 2022 which showed that out of 61.4% of participants who knew the diarrhea signs and symptoms; 10% mentioned dry skin, 16.5% sunken eyes, 8.4% weight loss, and 33.5% mentioned marked thirst.

### Attitudes of caretakers towards diarrhea in children below 5 years.

The results of this study showed that the majority of respondents 60 (60%) believed that ORS brings improvement in the treatment of diarrhea while 40(40%) respondents disagreed. This was due to the lack of adequate knowledge of home preparation of ORS hence a poor outcome. These results are in agreement with the study conducted by Dawit *et al.*, 2022 which suggested that 53.6% of the respondents believed ORS to be the main treatment of diarrhea.

The research findings also showed 69(69%) respondents believed that diarrhea could be treated from home while 31(31%) respondents disagreed. This was due to the fear of hospital-acquired infections like covid 19 that inpatient children would be predisposed to. These results are in disagreement with the findings of Kheir *et al.*, 2021 which showed that 51% of respondents disagreed with home diarrhea treatment while 49% of respondents agreed.

It further showed that 73(73%) respondents agreed that water intake improves the management of diarrhea in children while 27(27%) respondents disagreed. This was due to the signs of dehydration that respondents always

based on to given water. These results are slightly lower than the findings of Nalubwama *et al.*, 2021 who found that 94.5% of respondents believed that water intake should be increased when the child has diarrhea due to a higher study population (188 respondents) than mine.

The research findings continued to show that 37(37%) respondents agreed that diarrhea is not a communicable disease while 63(63%) respondents disagreed. This is due to the health education that had been given to most of the post-natal mothers whenever they would come for review. These findings are in disagreement with Kheir *et al.*, 2021 who found out that 52% of the respondents believed that diarrhea was a communicable disease and 49% of the respondents disagreed.

### Practices of caretakers towards the prevention and control of diarrhea in children under 5 years

The study findings showed that the majority of the caretakers 80 (80%) wash their hands after contact with a child's fecal matter and only 20(20%) respondents do not wash their hands. This was due to the several health talks with the caretakers and also the presence of various sources of water like taps. These results are in agreement with a study conducted by Adeleke *et al.*, 2019 which showed that 93.6% of the urban respondents wash their hands after contact with the child's fecal matter to prevent diarrhea.

It further showed that 44(55%) caretakers use soap and water, 22(28%) caretakers use only plain water, and 14(17%) respondents use hand sanitizer. Most respondents used soap because at least it was affordable and water was available. These findings are slightly in agreement with the study conducted by Manjula *et al.*, 2021 which showed also the majority 60% used soap, 33.6% used plane water, and 6.4% used ash.

The findings also showed that the majority of participants 59 (59%) breastfed a child with diarrhea while 41(41%) respondents did not. This was because most of them knew that children normally become malnourished whenever they are not breastfed. These findings were higher than the findings of Kalenzi *et al.*, 2023 which showed that 46.7% continued breastfeeding more often, 44% stopped breastfeeding and 9.3% continued breastfeeding their children as usual.

The findings of the study also that the majority of respondents 67 (67%) said they dispose of children's waste in the toilet. 21 respondents (21%) said they dispose of it in the garbage and 12 respondents (12%) said they leave it open. This was due to the presence of at least a pit latrine in almost every household and also the preventive cholera health talks that helped participants know the importance of proper waste disposal. These results were in agreement with Manjula *et al.*, 2021 who showed that 55% used sanitary latrines, 36.5% used non-sanitary latrines and 8.2% of respondents defecated openly.

## Conclusion

The study findings indicate that the majority of the respondents knew the meaning of diarrhea, its signs and symptoms (marked thirst, weight loss, sunken eyes, and dry skin), and its causes (poor hygiene, too much sugar in



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milk, and not breastfeeding). It also showed that the majority of respondents knew ORS preparation and feeding practices.

The study also showed that the respondent's attitude towards ORS treatment, water intake, and home treatment towards improvement of their children's health was good. The study further showed that the majority of the respondents believed that diarrhea is not a communicable disease and the majority of the respondent's children did not like ORS due to its taste.

The study continued to show that the majority of respondents washed their hands after contact with a child's fecal matter. It also showed that the majority of respondents breastfed their children with diarrhea. Furthermore, the study showed that the majority of respondents disposed of the children's waste in the toilet. Finally, the study showed that the majority of respondents used ORS in the treatment of diarrhea.

## Recommendation

VHTs should increase the sensitization about diarrhea signs and symptoms to the caretakers.

Health workers and dispensing places like pharmacies should explain to caretakers how to prepare ORS and assess if they have understood it.

Caretakers should dispose of children's fecal matter in latrines and ensure good sanitation. After contact with the child's fecal matter, caretakers should wash their hands with soap and water.

Mothers should continue to breastfeed children with diarrhea.

The government should ensure the availability of ORS and Zinc to government health facilities.

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## LIST OF ABBREVIATIONS AND ACRYNOMS.

<b>EBF:</b>	Exclusive Breast Feeding
<b>IPD:</b>	In Patient Department
<b>MDGs:</b>	Millennium Development Goals
<b>MoH:</b>	Ministry of Health
<b>OPD:</b>	Out Patient Department
<b>ORS:</b>	Oral Rehydration solution
<b>RHF:</b>	Recommended Home Fluids
<b>SSS:</b>	Sugar Salt Solution
<b>UNICEF:</b>	United Nations Children's Emergency Fund
<b>UDHS:</b>	Uganda Development and Health Survey
<b>VHT:</b>	Village Health Team

**WHO:** World Health Organization

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## Conflict of interest

The author had no conflict of interest.

## Author Biography

Akangwanaho Ivan, diploma student of clinical medicine at Medicare Health Professionals' College

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