Caretakers' knowledge, attitude and practices on prevention and management of diarrhoea among children under 5 years attending Masaka Regional Referral Hospital in Masaka city: A cross-sectional study

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Abstract

Background

Diarrhoea in Uganda accounts for 20%, and it has been one of the major causes of mortality in children under five years. This study aims to assess caretakers' knowledge, attitude and practices on prevention and management of diarrhoea among children under five years attending Masaka Regional Referral Hospital.

Methodology

A cross-sectional study design was conducted in which quantitative data collection methods were used.71caretakers were chosen to participate in the study using a simple random sampling technique. The sample size was determined using Kish Leslie's (1965) method of sample estimation. A self-administered questionnaire was used to collect the data and was analysed and presented using frequency tables, graphs& pie charts.

Results

53% of the respondents were females; 36.6% resided in rural areas; and 63.4% were the mothers of the child. 50.7% were married; and 46.4% had finished secondary education. All the respondents had ever heard of diarrhoea; 44% obtained information about diarrhoea from health workers; 42% could identify a child with diarrhoea by thirst and dry skin; 55% preferred to use ORS to manage diarrhoea; 85% believed diarrhoea was a serious condition that could lead to death; 51% practiced personal hygiene sometimes and 42% kept solid waste in open garbage heap.

Conclusion

The caretakers generally had good knowledge of prevention and management of diarrhoea; their attitudes were fair, but practices were poor.

Recommendation

The Ministry of Health should make more efforts to sensitise caretakers about diarrhoea to increase awareness and improve practices by caretakers to reduce risks of diarrhoea**.**

Keywords: Caretakers, Knowledge, Attitude, Practices, management of diarrhoea, children under five years.

Background of the study

According to WHO (2018), diarrhoea is defined as the passage of three or more loose or liquid stools per day or more frequent passage than normal for an individual. It can also be defined as the occurrence of three or more loose watery stools in 24 hours. Diarrhoea is typically a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. The most common causative agent of diarrhoea disease in infants and children is the rotavirus. Infections can be spread through contaminated food or drinking unsafe water or from person to person as a result of poor hygiene (Shane et al., 2017). Some other factors have been implicated in diarrhoea in children under 5, like the presence of other infections like HIV, duration of breastfeeding, quality of house, availability of a latrine facility in a homestead, maternal education and source and storage of water (Alum et al., 2023)

According to Sarker (2016), the three clinical types of diarrhoea are acute watery diarrhoea that lasts hours and days, including cholera; acute bloody diarrhoea, which is also called dysentery; and persistent or chronic diarrhoea, which lasts longer than 14 days (Namisi, 2023). Diarrhoea can be diagnosed mainly based on clinical presentation of the causative organism by laboratory techniques through stool microscopy, culture and sensitivity and other investigations. Complications of diarrhoea include fluid loss with consequent dehydration, electrolyte loss and vascular collapse, which may sometimes occur, especially in patients with severe diarrhoea.

Globally, there are nearly 1.7 billion cases of childhood diarrhoeal disease every year (World Health Organisation, 2024). Approximately 84% of the global burden of diarrhoeal disease is experienced by children less than five years of age (Fekadu et. al., 2025). In developing countries, there is a high prevalence of diarrhoea, which is attributed to poor hygiene, lack of clean water and sanitation, accounting for 88% of all diarrhoeal diseases; yet worldwide, an estimated 780million people lack access to safe clean water, 2.5billion lack safely managed sanitation, and 1billion people still practice open defecation (Alum et al., 2023).

Although the global mortality from diarrhoea has been declining over the past 25 years, the disease is still a major cause of 21% of deaths in children less than five years of age in developing countries (Omona, Malinga, Opoke, Openy, & Opiro, 2020)

In sub-Saharan African countries, diarrhoea is one of the causes of death for children under five years. One child passes away from the world within each 15 seconds due to diarrhoea disease. In developing countries alone, about 2 million people, most of whom are children under five years, die annually (Getachew et al., 2018). Approximately 540,000 die from diarrhoea-related complications, especially dehydration, accounting for 9% of all deaths. Most cases of diarrhoea occur in sub-Saharan Africa and South East Asia, accounting for more than 80% of all deaths due to diarrhoea worldwide. In sub-Saharan Africa alone, 300,000 children die every year due to diarrhoea complications (UNICEF, 2019). In East Africa, the prevalence of diarrhoea in children below 5 years in Kenya is 11.2%, Burundi is 24.8%, Rwanda is23.2%, and Tanzania is 23.9% (Biruk et al., 2023). Diarrhoea has been managed through health education sessions in communities and health facilities, distribution of free medicine like ORS and zinc and provision of a clean water supply to communities by the government, thereby reducing the risk of infection that causes diarrhoeal diseases.

In Uganda, diarrhoea remains among the five leading causes of mortality in children under five, accounting for 8% of the 85,000 under five children mortality, and a national prevalence of 20% among under-five children. However, Northern Uganda reports diarrhoeal prevalence ranging from 29.1% to 41.3% (UBOS, 2017). The probability of dying between the first and fifth birthday for rural children is 45% in Uganda (Rutaremwa, Wandera, & Jhamba, 2015). Therefore, this study will assess caretakers' knowledge, attitude and practices on prevention and management of diarrhoea disease in children below five years attending Masaka Regional Referral Hospital, Masaka City.

Methodology

Study design.

The researcher used a descriptive cross-sectional study design employing quantitative methods of data collection. The cross-sectional study design was used to obtain data from a population at a specific point in time. This study design was chosen because it enabled the researcher to describe the independent and dependent variables and the relationship between them. Quantitative methods of data collection, i.e., questionnaires, were employed to collect the required data, and it was analysed using statistical means.

Study site and setting.

The study was carried out at Masaka Regional Referral Hospital located in Masaka city in central Uganda. This area was chosen because it has a regional referral hospital where many children had been diagnosed with diarrhoea by health workers and could be managed.

Study population

This included caretakers with children under five years admitted at Masaka Regional Referral Hospital.

Sample size determination

The sample size of the respondents for the research study was determined using the (Kish, 1965) formula that is:

$n = \frac{z^2 p(100-p)}{s^2}$

Where: n = the sample size considered for the study

z = the standard deviation of the confidence interval at 95%

p = the assumed proportion of mothers/caretakers to be assessed among the population (90)

s = maximum error that was allowed in the study: 7%

Therefore, putting in the formula: $n = \frac{1.96^{2*}90(100-90)}{7^2}$

n = 70.56 = 71 respondents

Sampling technique.

Simple random sampling technique was employed to select respondents to be involved in the study. This was to give an equal opportunity to participate in the study.

Sampling procedure

The study population was selected using a simple random sampling technique where I wrote small papers with yes/no, folded them and put them in a box, then shook and gave caretakers to pick one without replacing it. Those who picked yes were taken on, and therefore each member was given equal opportunities to participate.

Data collection method

The data for the research were collected by the survey method, which included the use of questionnaires.

Data collection tool

The data were collected using a questionnaire which was developed based on the objectives of the study. The questionnaires included both self-administered and structurally administered questions. The two approaches and respondents answering questions without revealing their identity helped to reduce bias in the collection of information during the study.

Data collection procedure.

The researcher sought consent from the caretaker, introduced himself and explained the reason for carrying out the study. The questionnaire was then given to the mother/caretaker of the child who could read and write to fill the form. For the illiterates, they were interviewed by the researcher and the filled form was received back, counted, and cross-checked to see whether they were filled out well, and edited for accuracy.

Study variables

The variables included both the dependent and independent variables. The dependent variable was the management and prevention of diarrhoea among children under five years. The independent variables were the knowledge, attitude, and practice of caretakers.

Quality control

Pretesting of the research tool

The questionnaire was pre-tested on a few caretakers by the researcher before data collection on those not involved in the study to assess for validity and reliability in the study.

Training research assistant

The research assistant was trained, and training involved how to introduce themselves to respondents, how to administer questionnaires, and how to keep time in the whole process to familiarise themselves with the study tools.

Inclusion criteria

Caretakers with children who consented were included in the study

Exclusion criteria

Mothers/caretakers who did not consent were not included in the study.

Data analysis and presentation

Questionnaires were edited, then data were collected and analysed during this study. Results from the analysed data were then presented in the form of figures, pie charts, and bar graphs after expressing them in percentages for easy presentation.

Ethical consideration

Ethical approval was sought from the research ethics committee of International Paramedical Institute (IPI) Maya in the form of an introduction letter after approval of the proposal. Permission to collect data was sought from the Masaka Regional Referral Hospital superintendent, and informed consent was obtained from study participants. Confidentiality of the participants was maintained by not including their names on questionnaires, and every participant voluntarily participated, and they were free to drop out at any time.

Results

Socio-demographics of respondents

Table 1: Showing socio-demographics of the respondents.

Variable	Category	Frequency (n=71)	Percentage
Sex	Male	33	46.5%
	Female	38	53.5%
Place of Residence	Urban	25	35.2%
	Semi-urban	20	28.2%
	Rural	26	36.6%
Relationship with child	Mother	45	63.4%
	Father	10	14.1%
	Grandparent	12	16.9%
	Any other	4	5.6%
Age of the caretaker	< 16 years	6	8.5%
	16-24 years	21	29.6%
	25-34 years	25	35.2%
	35-45 years	16	22.5%
	>45 years	3	4.2%
Marital status of caretaker	Single	18	25.4%
	Married	36	50.7%
	Widow/widower	2	2.8%
	separated	15	21.1%
Caretaker's education level	None	11	15.5%
	Primary	18	25.4%
	Secondary	33	46.4%
	Tertiary/university	9	12.7%
Caretaker's occupation	Peasant farmer	37	52.1%
	Business person	20	28.2%
	Formally employed	12	16.9%
	Student	2	2.8%

Table 1 shows that 33(46.5%) males and 38(53.5%) female participants were the majority of the participants; 23(32.3%) were in the age group of 25-59 years; the majority of the respondents, 26(36.6%), were staying in rural areas. The majority of the caretakers, 45(63.4%), were children's mothers; most of the caretakers, 50.7%, were married; the majority, 46.4%, studied to secondary level; and most of the caretakers, 52.1%, were peasant farmers.

Knowledge on prevention and management of diarrhoea

Table 2: Showing caretakers' knowledge on prevention and management of diarrhoea

Variable	Category	Frequency (n=71)	Percentage
Ever heard of diarrhoea?	Yes	71	100%
	No	0	0%
Sources of information concerning diarrhoea	Friends	15	21.1%
	Mass media	20	28.2%
	Health workers	31	43.7%
	Others	5	7.0%

Table 2 shows that all the respondents 71(100%) accepted to have heard of diarrhoea, 31(43.7%) said that they obtained information concerning diarrhoea from health workers, 20(28.2%) said they obtained the information from mass media, 15(21.1%) obtained information from friends while 5(7.0%) reported that they obtained the information from other sources like sensitization programs from villages.

Figure 1: Showing how to tell if a child has diarrhoea n = 71

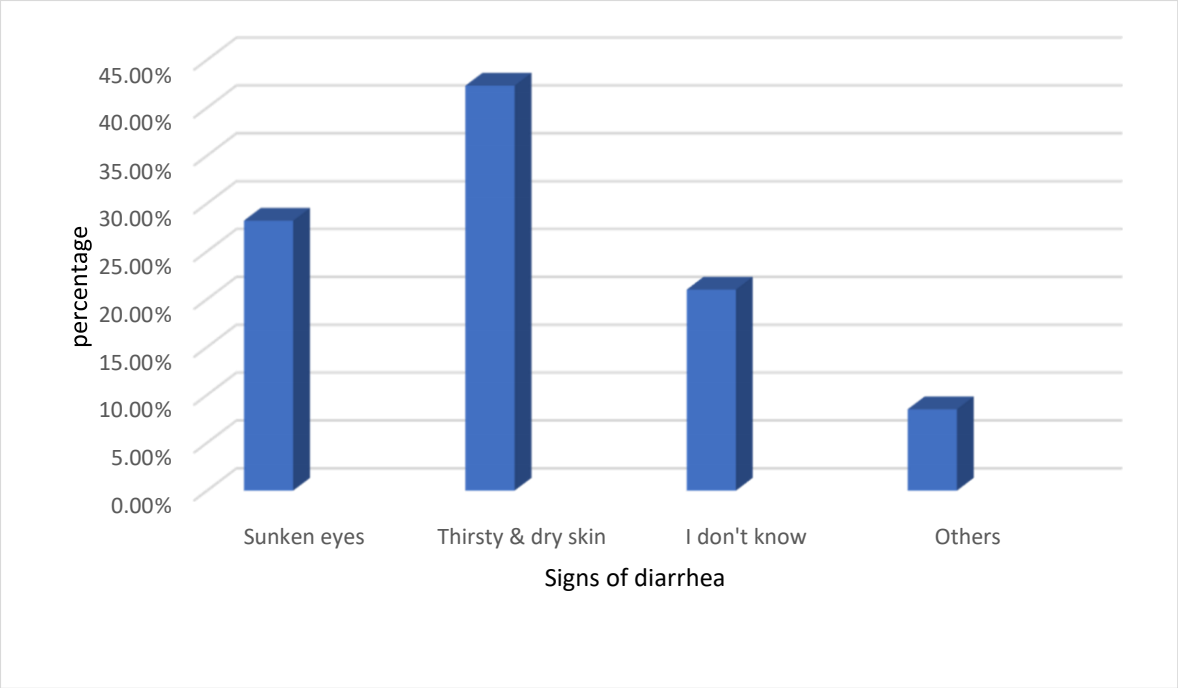


Figure 1 shows that majority of the respondents (42.3%) agreed that they can identify a child who has diarrhoea on thirsty and dry skin, 28.2% said they can identify a child who has diarrhoea on sunken eyes, 21% of the respondents said they don't know while 8.5% of the respondents said they can identify a child with diarrhoea through other features like weight loss and general body weakness.

Figure 2: Showing types of fluids used for managing diarrhoea. n=71

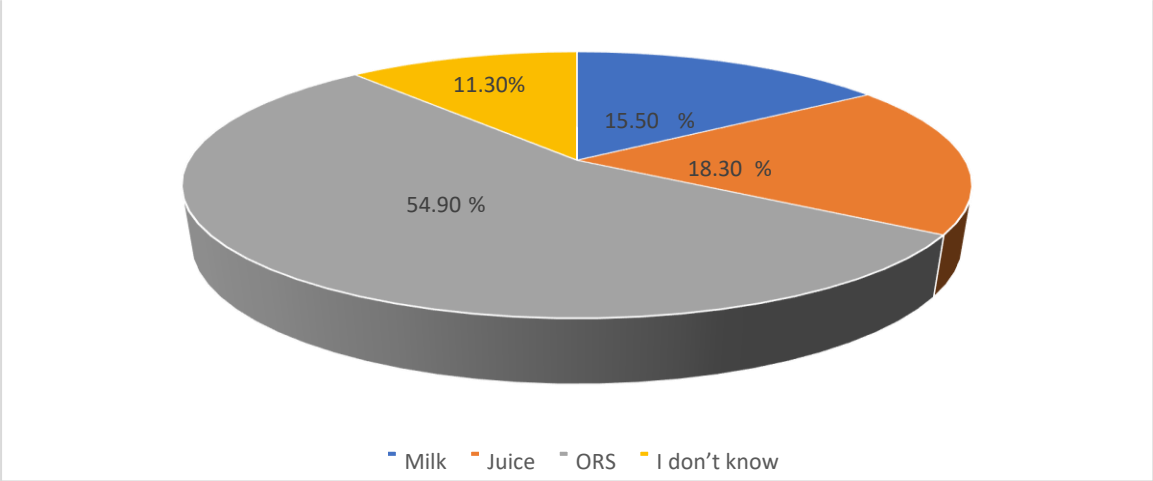


Figure 2 indicates that majority of the participants (54.9%) agreed that ORS is the type of fluid used to manage diarrhoea, 18.3% of the participants said that juice is the type of fluid used to manage diarrhoea, 15.5% of the respondents agreed that milk is the type of fluid used to manage diarrhoea while 11.3% of the participants agreed that they don't know the type of fluid used to manage diarrhoea.

Table 3: showing knowledge on prevention of diarrhoea

Variable	Category	Frequency(n=71)	Percentage
Prevention of diarrhoea in children	Through breastfeeding exclusively	19	26.8%
	By practising personal hygiene before handling the child	29	40.8%
	By taking the child for immunisation	21	29.6%
	I don't know	2	2.8%

Table 3 shows that most of the respondents (40.8%) reported that diarrhoea can be prevented by practising personal hygiene before handling the child, 29.6% of the respondents agreed that diarrhoea can be prevented by taking the child for immunisation, 26.8% said diarrhoea can be prevented by breastfeeding exclusively, while 2(2.8%) didn't know how diarrhoea can be prevented.

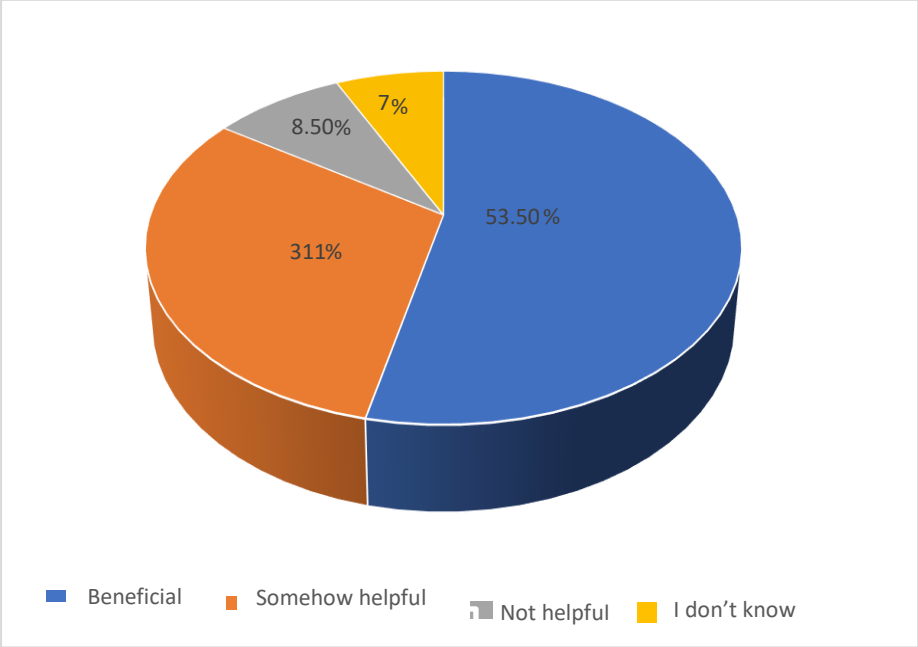
Attitude of caretakers on prevention and management of diarrhoea

Table 4: Showing views of respondents on diarrhoea, n=71

Variable	Category	Frequency (n=71)	Percentage
Diarrhoea is a serious condition that can lead to dehydration or death	Yes	60	84.5%
	No	11	15.5%
Oral Rehydration Salts are the best way to manage diarrhoea	Yes	58	81.7%
	No	13	18.3%
Diarrhoea can be effectively managed at home	Yes	34	47.9%
	No	37	51.1%

Table 4 shows that the majority of the participants, 60(84.5%), agreed that diarrhoea is a serious condition that can lead to dehydration or death, while 11(15.5%) of participants disagreed that diarrhoea is a serious condition that can lead to dehydration or death. The majority of the respondents, 58(81.7%), agreed that they think oral rehydration salts are good for managing diarrhoea, and the rest of the respondents, 13(18.3%), disagreed that oral rehydration salts are good for managing diarrhoea. The majority of the participants (51.1%) disagreed that diarrhoea can be effectively managed from home, while 47.9% agreed that diarrhoea can be effectively managed from home.

Figure 3: Showing views of participants on exclusive breastfeeding in prevention and management of diarrhoea n = 71



From the pie-chart, the majority of the respondents (53.5%) agreed that they rate the benefit of exclusive breastfeeding in the prevention and management of diarrhoea as beneficial; 31% rated exclusive breastfeeding as somewhat helpful in management and prevention of diarrhoea; 8.5% rated it as not helpful, while 7% of the respondents said they didn't know.

Table 5: Showing caretakers' view on immunisation

Variable	Category	Frequency (n=71)	Percentage
Whether immunisation is important in prevention of diarrhoea in children	Yes	59	84.1%
	No	12	16.9%
Immunisation Status of Child:	Not immunized	7	9.9%
	Partial/incomplete immunisation	22	31%
	Fully immunized	42	59.1%

Table 5 indicates that the majority of the respondents, 59(84.1%), said that they think immunisation is of importance in the prevention of diarrhoea, while 12(16.9%) disagreed that immunisation is important in the prevention of diarrhoea in children. The majority of the respondents (59.1%) reported full immunisation of their children, 31% reported partial immunisation, while 9.9% reported no immunisation of their children.

Practice of caretakers on prevention and management of diarrhoea

Table 6: Showing the practice level of the respondents.

Variable	Category	Frequency (n=71)	Percentage
Whether you breastfed your child exclusively	No	52	73.2%
	yes	19	26.8%
Management of diarrhoea at home	Give juice	18	25.4%
	Give ORS	21	29.6%
	Give water	23	32.4%
	I don't know	9	12.6%

Table 6 shows that the majority of the respondents, 52(73.2%), agreed that they never breastfed their children exclusively, while 19 (26.8%) of the respondents agreed that they breastfed their children exclusively. Majority of the participants 23(32.4%) used water for management of diarrhoea, 21(29.6%) used ORS, 18(25.4%) used juice while 9(12.6%) didn't know about management of childhood diarrhoea at home

Figure 4: Showing waste management practices by caretakers, n=71

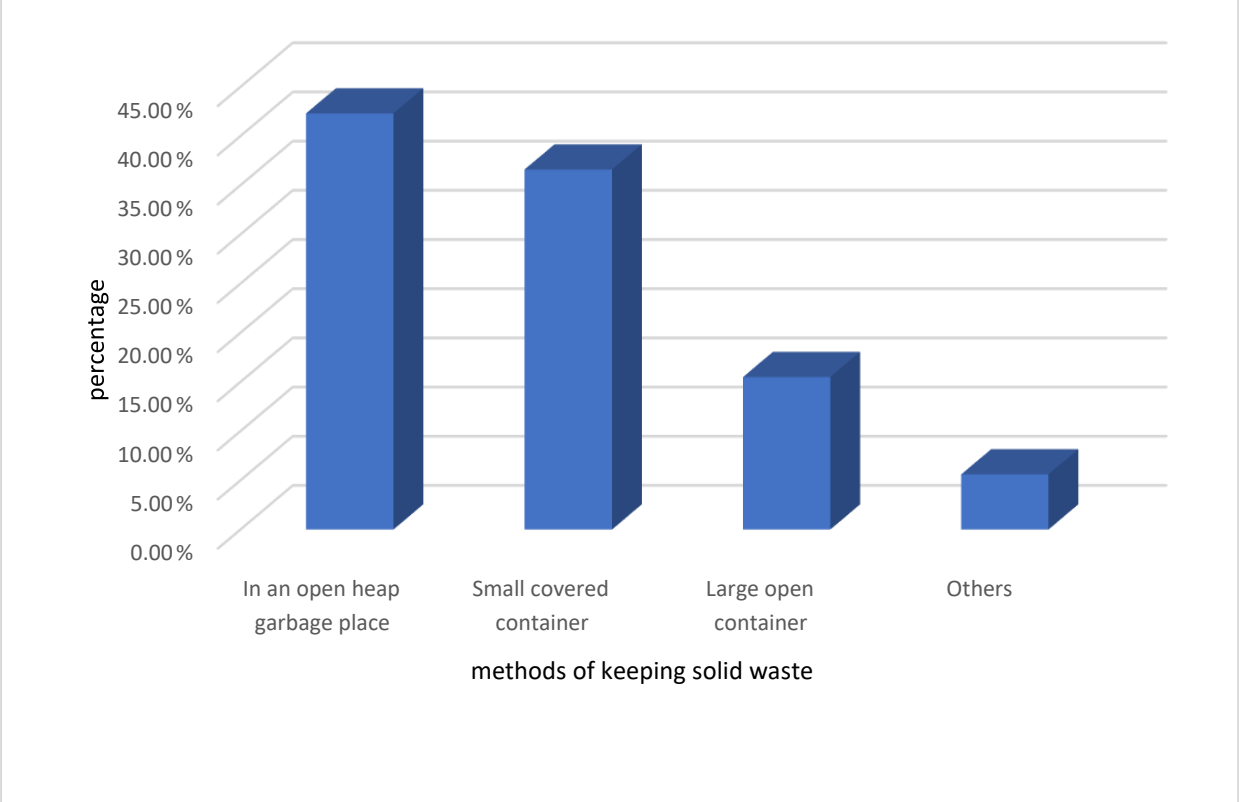


Figure 4 shows that majority of the participants (42.3%) agreed that they keep solid waste in an open heap garbage place at home, 36.6% of the participants agreed that they keep solid waste in small covered containers at home, 15.5% of the participants said they keep solid waste in large open container while 5.6% agreed that they keep solid waste solid in other places like bush, trenches and roadsides while at home.

Figure 5: Showing how often caretakers practice personal hygiene n=71

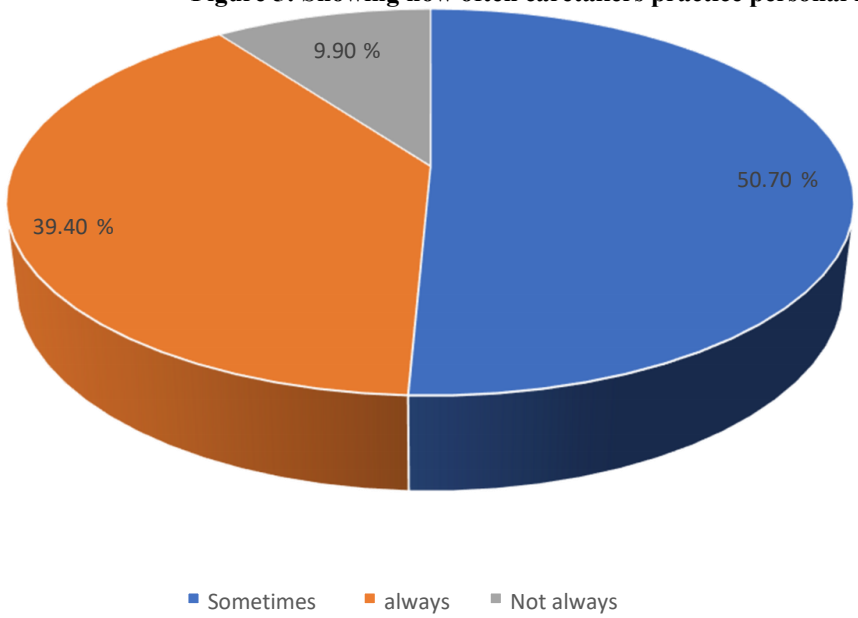


Figure 5 shows that the majority of the respondents (50.7%) reported that they practice personal hygiene sometimes, 39.4% said they practice personal hygiene always, while 9.9% of the respondents said they do not always practice personal hygiene.

Table 7: Showing sources of water for domestic use n=71

Variable	Category	Frequency	percentage
Water source for domestic use	Public tap	20	28.2%
	Public well/ water hole	24	33.8%
	Private tap	9	12.7%
	Rain water	18	25.3%

Table 7 revealed that the majority of the respondents (33.8%) reported that they use a public well/ water hole as a source of water for domestic use, 28.2% use a public tap, 12.7% use a private tap, while 25.3% use rainwater.

Discussion

Knowledge of caretakers towards prevention and management of diarrhoea among under-fives.

Findings revealed that all the respondents (100%) had ever heard about diarrhoea. This indicates that a significant number of the participants were conversant with the study context since the majority of them (43.7%) had information concerning diarrhoea from health facilities, which shows that health workers have done a great job of educating people attending health facilities.

Most of the respondents (42.3%) agreed that they can identify a child who has diarrhoea by thirst and dry skin, and 21% didn't know how to identify a child who has diarrhoea. This signifies that an average number of caretakers were aware of the signs and symptoms of diarrhoea.

The majority of the study participants (54.9%) knew ORS as the fluid used for management of diarrhoea. This could be attributed to the fact that health workers tend to teach caretakers about ORS and its use in the management of diarrhoea. The study results also revealed that the majority of the respondents (69.0%) knew how to prepare ORS, and 31% didn't know how to prepare ORS. This was because the majority of the respondents obtained information concerning diarrhoea from health workers who might have taught them about ORS. These study results were in line with those of the study carried out in Deradawa, Eastern Ethiopia, where the majority of the respondents (62%) knew how to prepare ORS and the rest didn't know how to prepare ORS. However, study results by(Getachew et al., 2018)were inconsistent with the above findings, where the majority of the respondents (68.6%) didn't know the procedure for ORS preparation and only 31.4% knew how to prepare ORS.

The study results also revealed that the majority of the respondents (40.8%) agreed that practising personal hygiene before handling a child is of importance in the prevention of diarrhoea in children, and 29.6% said taking children for immunisation was the best preventive measure for diarrhoea. This clearly shows that most of the caretakers had little knowledge about the importance of prevention of diarrhoea.

Attitude of caretakers towards prevention and management of diarrhoea among under-fives

Data generated from the study findings revealed that the majority of the respondents (84.5%) agreed that diarrhoea is a serious condition that can lead to dehydration or death. This was mainly attributed to the fact that a large number of caretakers might have observed or heard about children who passed away due to diarrhoeal disease. Based on the study findings, more than half of the respondents (81.7%) agreed that oral rehydration salts are good for managing diarrhoea. This could be attributed to the fact that most of the caretakers had never used ORS and their children's well-being improved. The study results were in disagreement with Workie et al, (2019), where findings indicated that (55%) of respondents disagreed with the provision of oral rehydration solution at home for treatment of under-five diarrhoeal disease. Furthermore, the majority of the respondents preferred to manage diarrhoea with ORS, and this could be a result of the simplicity that arises from the preparation of ORS and the observed quick recovery after management.

The findings of this study revealed that out of 71 respondents, 53.5% agreed that exclusive breastfeeding is beneficial in the prevention and management of diarrhoea. This implies that the majority of the respondents perceived exclusive breastfeeding as beneficial since it could boost the immunity of their children and prevent some sicknesses that could be related to diarrhoea. The study results revealed that most of the respondents (84.1%) agreed that immunisation is of importance in the prevention of diarrhoea in children. This clearly confirms that the majority of the caretakers have been educated about the importance of the Rota virus vaccine in the prevention of diarrhoea. The study results were similar to those of Getachew et al, (2018), where (44.2%) of the respondents agreed that immunised children are more diarrhoeal-preventable than unimmunized children (Choi, 2025).

Practice of caretakers towards prevention and management of diarrhoea among under-fives.

73.2% of the respondents did not breastfeed their children exclusively. This could be because of a lack of enough information concerning breastfeeding. The study results were, however, not in line with those of Okurut (2017), where 54% of the respondents breastfed their children exclusively.

Most of the participants, 23(32.4%), used water for managing diarrhoea, while 9(12.6%) didn't know what to use, which indicated poor practice of caretakers in the management of diarrhoea in children. This was because of inadequate knowledge of the caretakers about diarrhoea and poor health-seeking behaviours. Most of the respondents (42.3%) reported that they keep solid wastes at home in open heap garbage places. This confirms that poor management of solid wastes increases the risk of diseases such as diarrhoea and hence lowers the immunity of children. Study results reveal majority of the respondents (50.7%) reported that they sometimes practice personal hygiene; therefore, this clearly indicates that the caretakers were reluctant to maintain personal hygiene, hence exposing their children to diseases such as diarrhoea. This was inconsistent with Workie et al, (2019), where findings showed that most (67.8%) of the respondents said that they usually wash their hands before preparing food and after defecation, respectively.

To end with, most of the respondents 33.8% reported that they use a public well/ water hole, while the least (12.7%) reported that they use a private tap as their source of water for domestic use. This indicated poor practice, as water from a public well/ water hole is not well protected from micro-organisms since animals access it as well, which predisposes children below five years to a great risk of getting diarrhoeal diseases. The results are consistent with those of Tiko (2018), which revealed that the majority of respondents (43.39%) used public well/water hole to get water for domestic use, while the least (9.22%) used private taps.

Conclusion

The study aimed to assess caretakers' knowledge, attitude and practice on management and prevention of diarrhoea among children under five years attending Masaka Regional Referral Hospital in Masaka City, and therefore the study concluded that. The majority of the respondents had good knowledge about diarrhoea management and prevention since all of them had ever heard of diarrhoea, the majority had got some information concerning diarrhoea, and most of them could identify a child who has diarrhoea; the majority of them knew that practising personal hygiene helps in prevention of diarrhoea, and the majority agreed that ORS is used to manage diarrhoea. The attitude was also good since most of the respondents agreed that immunisation was good in

managing diarrhoea, majority agreed that breastfeeding was beneficial as well as ORS in the management of diarrhoea**.** However, practices were poor since most of the respondents never breastfed their children exclusively, kept solid waste in an open heap area and also poorly practised personal hygiene.

Study Limitations

The research was carried out in a limited time by working hard to achieve the intended goal; limited funds to finance the research were addressed by adhering to the budget; some respondents expected money from the researcher in return for their participation, which was addressed by explaining the aim of the study, and language barriers were managed by recruiting a translator.

Recommendations

The Ministry of Health should put more efforts on sensitizing caretakers about diarrhoea to increase awareness and enable putting the knowledge into practice by caretakers to reduce risks of diarrhoea. The Government, through the village health teams and local councils, should enforce hygiene by visiting homesteads to ensure they have pit latrines and proper waste management. Caretakers should also try to implement the knowledge they have by breastfeeding exclusively, for example, to reduce risks of diarrhoeal illness. Villages and sub-counties in Masaka City, through their leaders like village chairpersons, should ensure good protection and maintenance of water sources to prevent contamination of water for domestic use. Future researchers should also put more emphasis on the different categories of population in studies concerning prevention and management of diarrhoea, since this study has targeted only children under five years.

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Abbreviations and acronyms

WHO: World Health Organisation
UNICEF: United Nations Children's Emergency Funds
UCG: Uganda Clinical Guideline
HIV: Human Immunodeficiency Virus
ORS: Oral Rehydration Solution
UBOS: Uganda Bureau of Statistics
IPI: International Paramedical Institute

Source of funding: The study received no external funding.

Conflict of interest: The authors declared no conflicts of interest.

Author contribution: Warid Kisalita conceptualised the study, developed the proposal, collected and analysed the data, interpreted the findings, and prepared the final research report.

Vincent Jjuuko supervised the whole research process.

Data availability: Data supporting the findings may be obtained upon request from the corresponding author.

Ethical approval: The study was reviewed and cleared for data collection by the Masaka Regional Referral Hospital Research Ethics Committee.

Informed consent

Written informed consent was obtained from all participants before their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Author biography
Warid Kisalita is a student of International Paramedical Institute Maya, Uganda, pursuing a diploma in clinical medicine and community health.
Vincent Jjuuko is a tutor at the International Paramedical Institute Maya, Uganda.
Mayanja M. Magala is the principal of the institute.

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