

Caregiver's knowledge on factors contributing to diarrhoeal diseases among children under five years at selected clinics of Vhembe district, Limpopo province

Abstract

Background: Diarrheal disease is still the leading cause of mortality and morbidity among children under 5 years. World Health Organization (WHO) estimates that globally 525,000 children under five years die due to diarrheal diseases every year with 1.7 billion cases of diarrheal disease.

Aim: The aim of this study was to determine the caregiver's knowledge on factors contributing to diarrhoeal disease among children under 5 years at a selected public clinics, in Vhembe district, Limpopo Province.

Study setting: The study was conducted at a selected public clinics in Vhembe district. Vhembe District is located in the northern part of Limpopo Province—bordered by Capricorn District in the South-West and Mopani in the East of Vhembe.

Methodology: A quantitative approach using cross-sectional descriptive survey design was conducted among 185 caregivers to be conveniently selected from five clinics in Thulamela B sub district. Convenience sampling method was used to sample 185 respondents and purposive sampling was used to sample five health care facilities. Self-administered closed-ended questionnaire was used to collect data in this study. Development of instrument was guided by a wide range of literature and inputs of experts. The instrument was test-retested for reliability whereas validity was ensured through face and content validity. Data was analysed using Statistical Package for Social Sciences (SPSS) version: 26.0 Ethical measures were considered throughout the study.

Results: The study found that dirty water, poor hygiene, mix feeding (exclusive breast feeding and formula milk feeding) were the most contributory factors to diarrhoea in children under five years of age.

Recommendations: The recommendations were done based on the study results.

Conclusion: This study concluded that health education for mothers, in particular, should be used to improve knowledge and behaviour for managing diarrhoea at home in children under the age of five.

Keywords: caregiver, children, diarrhoeal diseases, factors, knowledge

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Abbreviations: SPSS, statistical package for social sciences; WHO, world health organisation

Introduction

Childhood diarrhoea is one of the leading causes of death in children under 5 years and is a major threat to child health.¹ Diarrhoea is defined as the passing of three or more loose or watery stools per 24 hours or an increase in stool frequency or liquidity considered abnormal by the mother.²

According to the WHO³ diarrhoeal diseases were also confirmed to be a leading cause of child mortality and morbidity in the world and mostly from contaminated food and water sources. Globally 780 million caregivers or individuals lack access to improved drinking water and 2.5 billion lack improved sanitation. Diarrhoea due to infection is widespread throughout developing countries. In developing countries children under three years of age experience an average of three episodes of diarrhoea every year. Each episode

deprives the child of the nutrition necessary for growth. As a result diarrhoea is a major cause of malnutrition and malnourished children are more likely to fall ill from diarrhoea.

A study conducted in Cambodia by Well,⁴ found that type of food eaten by the mother and child was also reported as a believed cause of diarrhea. In Hyderabad, India, respondents noted that hot food, which was classified as wheat, eggs, meat, and green mangos, contributed to diarrheal disease.⁵ Most African countries also experienced a very disturbing problem when it comes to diarrhoea in children under 5 years especially when the caregivers don't have relevant knowledge about contributory factors to diarrhoea.

Material and methods

Study design

A quantitative, cross-sectional descriptive survey design was used in this study to determine caregiver's knowledge on factors contributing to diarrhoea disease among children under 5 years of age.

Study setting

The study was conducted at a selected public clinic in the Vhembe district. Vhembe District is located in the northern part of Limpopo Province, South Africa – boarded by Capricorn District in the South-West and Mopani in the East Vhembe. The district is comprised of four (4) sub-districts namely Collins Chabane, Makhado, Musina, and Thulamela. The research was done in four clinics under Vhembe district namely Damani, Makonde, Tshiombo, Thengwe and Rambuda. The district covers 27 969 148 square km of land with total population of 1 393 949 people according to stats SA, 2016 of which is going to change after 2022 census done.

Population and sample size

Target population of the study was 280 caregivers served in five different clinics with the sample size estimated at n=182. Purposive sampling was used to select clinics identified as having a high rate of children under five that presented with diarrhoea. Convenience sampling method was used to select the caregivers of 18 to 35 years as respondents and only those who consented to participate in the study.

Data collection instrument

A self-administered questionnaire was used as an instrument for data collection in this study. Relevant questions were designed after the literature review. The questionnaire was developed by the researcher guided by the objectives of the study. The questionnaire was submitted to the supervisors and the Statistician for review and it was made up of close and open-ended questions. The questionnaire was written in English and for those who do not understand the question the researcher was present for any clarity. Those who do not understand English at all was excluded or not be part of the study. The questionnaire included instructions that the respondents need to follow when completing it. All covid-19 measures were adhered to throughout the data collection.

To ensure reliability the instrument was pre-tested in clinics under Shayandima local area. The researcher selected two clinics with a total of 10 respondents, 5 caregivers from each clinic, which don't form part of the study but having the same characteristic. Caregivers who met criteria from 18 to 35 years who brought their infants for immunization at selected clinics that agreed to take part in the study were aided to fill in the questionnaires instrument.

Data analysis

All the questionnaires were scrutinised for completeness, consistency and plausible values before starting with data analysis. Data were coded and entered. Statistical Package for Social Sciences (SPSS) version 26.0 was then used to analyze data. Demographic variables and attitude scores were summarised using descriptive summary measures and Pearson correlations. Categorical variables were presented as proportions, graphs and cross tabulations.

Ethical consideration

All ethical issues were adhered to and ethical certificate was obtained from the University of Venda for the research to be carried out. Permission to conduct the study was also sort from the Limpopo provincial Department of Health and Vhembe district. Respondents were informed about the purpose of the study, its significance, and the method which will be used to collect data. This was done before the data collection process begins. All the detailed information about the study was given to the caregivers using their home language before

consent to participate. Those who were willing to participate were given an informed consent form where they had agreed to be part of the study by signing. Ethical principles like anonymity, confidentiality and voluntary participation of the respondents were also adhere to.

Results

Out of 165 respondents who completed the questionnaire, 89.1% were mothers, 3% were fathers or aunts, and 4.8% were other relatives. The findings reveal that all primary caregivers category responded in the study, but the majority of the respondents were mothers and this shows that they are the ones who took more care about their children than other category and seems to be hands on when it comes to look after their children (Figure 1).

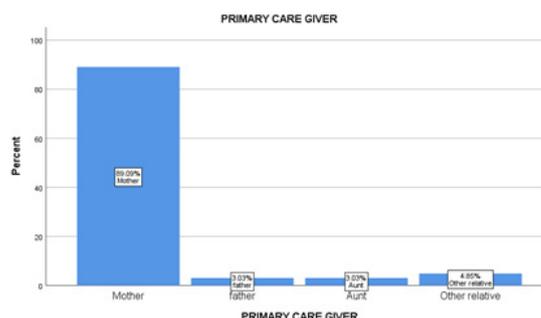


Figure 1 Primary caregivers.

Table 1 shows an analysis of respondents ages, 67 (40.6%) were from 18 to 25 years, 45 (27.3%) were from 26 to 30 years, 30 (18.2%) were from 30 to 35 years and 23 (13.9) were from 35 years and above. The findings reveal that all age groups responded in the study, but the largest respond was from those of 18 to 25 years age distribution was important in this study for identification of the ages of the respondents who completed the questionnaire and most participated.

Table 1 Age of primary caregivers

		Frequency	Percent	Valid percent
Valid	18-25	67	40.6	40.6
	26-30	45	27.3	27.3
	30-35	30	18.2	18.2
	35 and Above	23	13.9	13.9
	Total	165	100	100

Several Christian faiths were represented in the sample, as seen in Table 2, but no one represented the Moslems. Only two respondents did not respond to questions, with 151 (91.5%) being Christian, 11 (6.7%) being traditional, and 1 (0.6%) being other faith. This means that the respondents were mainly Christian who believe in praying to God and sometimes disregard medical treatments as advised by the health care practitioners.

Out of 165 respondents who completed the questionnaire, 13 (7.9%) had no formal education 7 (4.2%) have primary education level, 75 (45.5%) have secondary educational level and 70 (42.4%) have tertiary education level. It was necessary to include educational qualifications in this study for the researcher to know the educational background of the respondents in order to know the knowledge and understanding that the respondents have (Table 3).

Table 4 outlines that out of 165 respondents, 110 (67.7%) were single, 48 (29.1%) were married, 2 (1.2%) were divorced, 5 (3.0%) were widow. The findings revealed that more than half of respondents

were single (67%). This was seen to be an important information to see if mothers had full support from their husbands

Table 2 Religion of primary caregiver

Religion		Frequency	Percent	Valid percent	Cumulative percent
	Christian	151	91.5	92.6	92.6
	Traditional	11	6.7	6.7	6.7
	Other	1	0.6	0.6	0.6
	Total	163	98.8	100	100
Missing	System	2	1.2		
Total		165	100		

Table 3 Educational level of primary caregivers

Education level		Frequency	Percent	Valid percent	Cumulative percent
No formal education		13	7.9	7.9	7.9
Primary		7	4.2	4.2	12.1
Secondary		75	45.5	45.5	57.6
Tertiary		70	42.4	42.4	42.4
Total		165	100	100	100

Table 4 Marital status

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Single	110	66.7	66.7	66.7
	Married	48	29.1	29.1	29.1
	Divorced	2	1.2	1.2	1.2
	Widow	5	3	3	3
	Total	165	100	100	100

Occupation of the primary caregivers is highlighted in the above Figure 2, and 59 (35.8%) were housewives, 14 (8.5%) have a business, 56 (33.9%) were students, 31 (18.8%) were employed, and 4 (0.6%) respondents did not respond to questions.

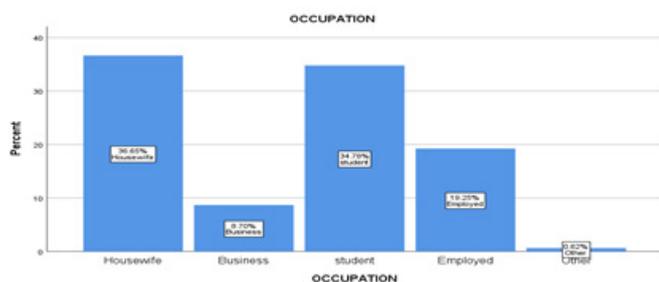


Figure 2 Occupation of Primary caregivers.

The above Figure 3 indicates that 31 (18.8 %) of the respondents have one child, 42 (25.5 %) have two children, 37 (22.7 %) have three children, and 54 (32.7 %) have four or more children. The fact that most respondents had four or more children indicates that most caregivers had experience caring for a child and are able to manage those who have diarrhoea. However, the number of children living in a household can be linked to a children's diarrhoea episode especially if there are more than four children of the same age in a household with only one caregiver, it's difficult to monitor those children especially when they are playing as children use to share everything including

contaminated foods. As a result, having more children of the same age in a household could be a significant contributor to diarrhoea.

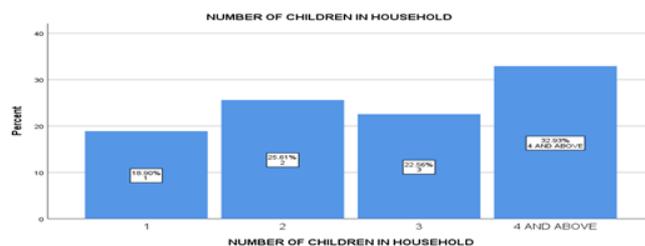


Figure 3 Number of children living in the household.

Out of 165 respondents who completed questionnaires, 101 (61.2 percent) had children aged 0-1 years, 33 (20.0 percent) had children aged 1-2 years, 16 (9.7 percent) had children aged 2-3 years, 10 (6.1 percent) had children aged 3-4 years, and 3 (1.8 percent) had children aged 4-5 years. According to the above bar graph, the majority of caregivers who participated had children under the age of one year, which is the age group that is mostly prone to diarrhoea due to a variety of factors such as mixed feeding, poor feeding techniques, and other unsanitary practices. As a result, the researcher concluded that the child's age is more likely to be associated with diarrhoea (Figure 4).

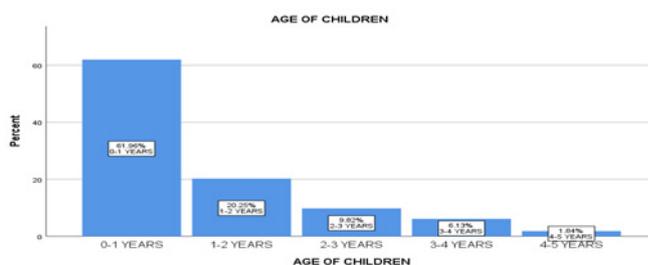


Figure 4 Age of the children.

Out of 165 primary caregivers, 90% (131) indicated that there is no presence of faeces around or near the household, and only 10 % (15) indicated that there is presence of faeces around or near the household, which gave the results of less chance diarrhoeal transmission. Out of 165 primary caregivers, 60 % (88) indicated that there is no presence of flies around or near the household, whereas 40 % (58) said there is a presence of flies around or near household. Out of 165 primary caregivers, 90 % (149) indicated that there is no presence of rubbish around or near the household, whereas 11% (16) indicated that there is a presence of rubbish around or near household. Respondents were aware that presence of faeces, flies and rubbish around the household is an indication of poor hygiene that contributes to diarrhoea in children under five years (Table 5).

Out of 165 primary caregivers who completed questionnaires 97 (58.8%), agreed that dirty water can cause diarrhoea in children while 68 (41.2%) disagreed that dirty water does not cause diarrhoea. The results show that 41% of caregivers show lack of understanding about the cause of diarrhoea in children (Table 6).

Out of 165 primary caregivers who completed questionnaire, 69 (41.8%) agree that poor personal hygiene can cause diarrhoea in children, while 96 (58.2%) disagree that poor personal hygiene can cause diarrhoea. The results show that more than half of caregivers did not consider poor personal hygiene as a contributing factor. Therefore, it was an indication that the mothers and caregivers lacked knowledge on the contributory factors to diarrhoea because poor personal hygiene is one of the most contributory factors of diarrhoea (Table 7).

Table 5 Assessing level of knowledge among caregivers regarding factors contributing to diarrhoea disease amongst children under 5 years of age.

	N %	Presence of faeces		Presence of flies near household		Presence of rubbish near household	
		Yes	No	YES	NO	Yes	No
Primary care giver	Count	10.30%	89.70%	39.70%	60.30%	11.00%	89.00%
		15	131	58	88	16	129

Table 6 Dirty water

		Frequency	percent	Valid percent	Cumulative percent
Valid	YES	69	41.8	41.8	41.8
	NO	96	58.2	58.2	58.2
	Total	165	100	100	100

Table 7 Poor personal hygiene

		Frequency	percent	Valid percent	Cumulative percent
Valid	Yes	97	58.8	58.8	58.8
	No	68	41.2	41.2	100
	Total	165	100.0	100.0	

Discussion

According to the findings of this study, age of the caregiver was found to be a contributing factor to children's diarrhoea. Caregivers especially women under the age of 18 were seen to be the ones contributing to children diarrhoeal disease because most of them are first-time mothers who lack expertise and maturity in child care. This findings concur with the findings of the study done by Ansari et al.⁶ who revealed that the majority of the mothers in their study were between the ages of 16 and 30 and their children were younger than 12 months. The findings were also similar to those of⁷ who found that the majority of study participants had children under the age of one year, and the prevalence of diarrhoea was highest in the 7-12 month age group, followed by the 13-24 month age group.

Findings of this study further revealed that respondent's religion was found to be playing a significant role in diarrhoeal diseases of children under 5 years. The study found that most caregivers do not have knowledge on the causes of diarrhoea in children under the age of five years. Moreover, they do not even follow the health care professional's instruction when their children are sick as they believe in prayer. Similar findings were found in a study done in Nigeria, by Akinyinka⁸ who claimed that the majority of the respondents were Christians (85.4 %). It was a key factor contributing to diarrhoea since most of them believed in the curative power of holy water and few followed proper diarrhoea management and took their children to the hospital during diarrhoea episodes. This is because most faith groups promote prayer as a supplement to medical therapy. Since majority of respondents in this study were Christians, therefore the researcher concluded that religion is a contributing factor to diarrhoea. Some religious groups, on the other hand, go even further, teaching their members that those specific medical treatments are forbidden or that members should refuse medical treatment in favour of prayer.

Caregiver's educational level was included in the study in order to determine the knowledge and understanding related to diarrhoeal diseases. The findings show that there is slightly difference between those who had secondary and tertiary educational level. Those who had no formal education and those with only primary education reflect the same knowledge regarding factors contributing to diarrhoea. The study revealed that maternal education level was significantly associated with cases of childhood diarrhoea diseases. Furthermore,

the study found that children with mother who had no formal education were more likely to develop diarrhoea. This is in line with Namutebi L⁹ who stated that lack of maternal education was one of the major determinants of persistent diarrhoea among children. This could be because educated mothers or caregivers are more informed about hygiene practices that reduces the chances of diarrhoea and are able to teach or instruct their nanny on how to take care of their children.¹⁰ Concur with these findings when he revealed that maternal education was significantly associated with childhood diarrhoea. This is because education is a key determinant of the lifestyle and status an individual enjoys in a society. Mother's educational attainment is inversely related to childhood mortality levels; children of less educated mothers generally have higher mortality rates than those born to more educated mothers.

Marital status was included in the study and the findings indicated that most mothers were single and their children were more likely to suffer from diarrhoeal diseases since they lack support from their spouses. These findings were consistent with those of Wamalwa EW,¹¹ who discovered that the odds of diarrhoea were higher in children of single mothers than in children of married mothers. The single mothers were either widowed, divorced, or dropped out of school as a result of a teenage pregnancy. Some mothers leave their children with caregivers who are untrained in childcare and are underpaid as they look for odd jobs to meet the family's needs because they are the sole breadwinner. Some people who cannot afford caretakers bring their infants to work, particularly those who are self-employed, such as street vendors. However, most of these environments are unsuitable for children and are often filthy, putting the infants at risk of diarrhoea. Due to a lack of time, these mothers also breastfeed their infants less frequently.

In this study, majority of the unemployed caregivers were housewives, and those mothers get to spend more time at home caring for their children and supervising what they eat and the hygienic practises to reduce diarrhoea. They tend to display knowledge acquired from the health care facilities about the contributing factors to diarrhoeal diseases when taking their children for the well-baby clinic. Hence, their children were less likely to suffer from diarrhoea diseases. Similarly, Karambu S et al¹² discovered that maternal employment status was significantly associated with cases of childhood diarrhoea diseases.¹³ Maintain that a mother is a primary caregiver of the family and most importantly teaching children about proper hygienic practices. Children whose mothers were employed were more likely to develop diarrhoea, according to Desta BK et al.¹⁴ Consequently, working (employed) mothers do not have enough time to care for their children since they spend most of their time at work to increase family income despite the instructs they give to those who assisted them at home. Hence, mothers who do not work currently usually have time to care for their children and can minimize the exposure of their children from contaminated objects.

This study revealed that the presence of flies denotes poor hygiene whereas absence of flies is a good indicator that could not lead one to diarrhoea because the environment is free from faeces and rubbish. Furthermore, the majority of mothers and caregivers in this study, reported that there were no faeces or flies present, indicating that the

surroundings were clean. As a result, the caregivers demonstrated that they have knowledge and are aware that faeces can induce diarrhoea and that faeces attract flies, which can contaminate food and cause diarrhoea. The current study's results are similar to those of Doza S, et al¹⁵ who found that faeces and flies were the most common contributory factors to diarrhoea, and that the participants were aware that faeces, garbage, and flies were all contributing factors. However, health education should be offered to the small minority of people who still lack knowledge and are unaware that flies, garbage, and excrement contribute to diarrhoea. Similar study was done in Gambia, by Sillah F et al¹⁶ who highlighted that few mothers and caregivers indicated that diarrhoea is caused by poor personal hygiene.

Dirty water was also found to be causing diarrhoea in children under the age of five years. Caregivers were not giving their children previously boiled water to drink despite the fact that the water were not purified and were fetched straight from the river. However, nurses should give health talks about diarrhoea in detail before they start immunisation vaccines on daily basis because drinking dirty and contaminated water is one of the most leading contributory factors to diarrhoea.¹⁷

The results of this study concur to those of Nguyen TYC et al¹⁸ who found that diarrhoea was caused by dirty, contaminated water and poor sanitation. According to Levy K¹⁹ study, children who lived in households with continuously low water quality had the highest incidence of diarrhoea.

Limitation of the study

- a) Only five clinics in Vhembe District of Limpopo Province were selected which was a limitation of which the findings cannot be generalised to all clinics in Vhembe districts of Limpopo Province.
- b) Structured questionnaires were used in this study and tend to limit the respondents who wished to elaborate more on factors that contribute to diarrhoeal diseases in children under five years.

Conclusion

According to the findings of this study, some mothers still have insufficient knowledge and bad habits when it comes to the home treatment of diarrhoea in children under the age of five. The mother's age and wealth status had a major impact on her level of knowledge. The age of the mother, who was most usually the child's caregiver was found to be a major factor in the degree of practice.

Recommendations

Based on the research findings, the study recommends that the Department of Health reinforce public awareness campaigns to teach mothers more on factors contributing to diarrhoea. Charts and pamphlets with information on diarrhoea management should be provided in their native language so that they can understand it.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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