



MASTER OF FAMILY MEDICINE

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**Health Seeking Behaviour of Caregivers of Children Under Five Years Old
with Diarrhoea in Maun.**

By

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RESEARCH DISSERTATION

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Declaration

I, Balisi Tshuma hereby declare that the work on which this research is based, is original(except where acknowledgements indicate otherwise) and that neither the whole or any part of it has been, is being or will be submitted for another degree at this or any other university.

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I acknowledge and thank Mr Metadel Adane who provided us with a questionnaire from his study from which we modified and developed our questionnaire.

Dedication

I would like to dedicate this work to my loving and supportive family.

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Abbreviations

IMCI - Integrated Management of Childhood Illness

IRB – Institutional Review Board

MDG - Millennium Development Goals

ORS - oral rehydration solution

UB – University of Botswana

UNICEF - United Nations International Children’s Fund

WHO - World Health Organisation

ABSTRACT

Background

Diarrhoea contributes significantly to the global burden of disease and associated mortality in children under the age of five. Despite the availability of cost effective treatment and preventive measures, diarrhoea is still one of the leading causes of child mortality in Botswana and there are concerns that inappropriate health seeking behaviour of caregivers results in treatment delays and in some cases no treatment at all. Dehydration and resultant death from diarrhoea is preventable and appropriate health seeking behaviour by caregivers is crucial in this regard.

Aim

To determine factors associated with health seeking behaviours among caregivers of children under five years old with diarrhoea in Maun.

Methods

This was a cross sectional study. Data on socio-demographic and diarrhoea related variables was collected from 238 caregivers who had children less than five years old that had experienced diarrhoea in the past using a researcher administered questionnaire. Data collection was done from March to April 2018 in six clinics that offer child welfare services in Maun, Botswana. Logistic regression analysis was used to examine the association between health seeking behaviour and factors related to diarrhoea among children under five years as well as caregivers' demographic characteristics.

Results

Only 40.3% of caregivers were found to have appropriate health seeking behaviour. Caregivers in the age range of 26 – 35 years (OR=0.50, 95%CI: 0.003 – 0.986) compared to the reference age group of 15 – 25 years and those with a household income of >1200 – 4000 Pula (OR=0.201, 95%CI 0.043 – 0.943) and >8000 – 12 000 Pula (OR=0.255, 95%CI: 0.066 – 0.989) compared to reference group earning 0 – 1200Pula were found to have lower odds of appropriate health seeking behaviour. We did not find any diarrhoea related variables that was associated with appropriate or inappropriate health seeking behaviour.

Conclusion

This study found that most caregivers had inappropriate health seeking behaviour regarding episodes of acute diarrhoea in children under five years old. Except for young age of caregivers and low household income of caregivers, no other factors were found to be associated with appropriate health seeking behaviour of caregivers of children under five years old. Older age and higher income were associated with inappropriate health seeking behaviour.

DEFINITION OF OPERATIONAL TERMS

Diarrhoea as defined by WHO is the passage of three or more loose stools per day or more frequent than is normal for the child.¹

Under 5 children: Children from 0 – 59 months

Caregiver: The person responsible for taking care of a child. They can be the mother or a relative of the child.

Health seeking behaviour is defined as steps taken by individuals to rectify perceived illness.² This includes self-care and self-treatment. In the case of children, self-care is the treatment given by the caregiver.

CHAPTER 1

1.1 Introduction

Globally, there are about 1.7 billion cases of diarrhoea each year and 525 000 deaths worldwide occur in children under five years old.³ In 2006, Botswana recorded 532 deaths from a diarrhoea outbreak between January and March.⁴ The under-five mortality rate in Botswana was 44 deaths per 1000 live births in 2015 while the target for that year was 18 deaths per 1000 live births.⁵ Efforts to reduce the burden of diarrhoeal diseases among under-five children by the Ministry of Health and Wellness in Botswana include campaigns to make oral rehydration solution (ORS) and zinc tablets freely available in all households with children in this age bracket so that treatment can be started as soon as possible before contact with health facilities.⁶ Therapeutic trials of zinc supplementation have shown a decrease in duration and severity of acute diarrhoea in children.⁷ In the case of persistent diarrhoea, zinc supplementation resulted in a reduction of the duration but had no impact on the severity of the diarrhoea.⁸ When given early in diarrhoea, ORS prevents dehydration and helps early recovery from the disease.⁹

The Ministry of Health and Wellness in Botswana expects households with children under the age of five to have an ORS sachet that can be readily prepared and given to the child at the beginning of a diarrhoeal illness. When the child presents to a health facility, they will be given further ORS and zinc tablets. In Botswana, during primary care clinic visits, caregivers of children are taught how to prepare ORS and how much fluid to give when indicated as well as how to recognise the signs that would prompt them to take the ill child back to a health facility. Despite these initiatives, the morbidity and mortality burden of diarrhoeal diseases remain high and Botswana failed to reach its target for the Millenium Development Goal 4.⁵

When caregivers recognise illness in a child, they may treat the child at home or seek help outside the home. Health seeking behaviour is a sequence of actions taken by an individual who perceives an illness in order to remedy the illness.¹⁰ Children are thus dependent on their caregivers for their wellbeing. The health belief model proposes that the degree to which the disease is perceived and the degree to which the health behaviour is believed to be effective in reducing the negative health outcome are two major factors that influence a particular health behaviour.¹¹ Thus the health seeking behaviour of the caregiver is based on a number of factors which include client based factors,

provider related issues, caregiver perceptions, social and demographic factors, social networks and biological signs and symptoms.¹¹ Outside the home, caregivers may consult a western trained healthcare practitioner, a traditional healer or a faith healer.¹² Appropriate management of the child can be delayed by treating the child inappropriately at home or taking the child to a traditional or faith healer before eventually consulting a western trained healthcare practitioner. Studies in Africa have shown that traditional healers did not attribute signs of severe dehydration to be caused by diarrhoea and their treatment was not tailored to rehydrating the child and so such children did not receive appropriate treatment.^{12,13}

With the high burden of diarrhoea worldwide, the health seeking behaviour of the caregiver plays a vital role in the reduction of child morbidity and mortality and as such factors that influence it should be assessed.

1.2 Motivation and aims

Although the Letsholathebe II Memorial Hospital (LIIMH) and primary care clinics in Maun use established World Health Organization (WHO) guidelines for classifying and managing children with diarrhoea, children with diarrhoea are brought to hospitals and clinics at different levels of dehydration. It is not clear as to what drives this delay in accessing treatment in Maun, a village in Botswana with high under five mortality rate. Clinical encounter with these children and their caregivers are concerning for the existence of inappropriate health seeking behaviour as some children are brought to the health facilities late and some are brought in dead following a recent history of diarrhoea. The decision to take a child to a healthcare facility is taken by the child's parents or caregivers. It is important to understand the factors associated with health seeking behaviour of caregivers of children with diarrhoea. This may enable planning for interventions that address morbidity and mortality due to diarrhoeal diseases in children under five years of age. The aim of this study was to determine factors associated with health seeking behaviour among caregivers of children under five years old with diarrhoea in Maun.

1.3 Research Question

What factors are associated with health seeking behaviour of caregivers of children under five years old with diarrhoea in Maun?

Chapter 2

2.0 Introduction

This literature review section addresses the methods of literature search, discusses the existing literature on diarrhoea in children, health seeking behaviour, health seeking behaviour and factors associated with health seeking behaviour.

2.1 Methods of literature search

Literature was obtained from electronic journals through search engines that included Google Scholar, PubMed and Ebscohost. Relevant articles published in English were retrieved and reviewed. Preference was given to articles published within 10 years of the search. Keywords and combinations used for internet searches were as follows:

Health seeking behaviour

Health seeking behaviour AND diarrhoea

Health seeking behaviour AND children AND diarrhoea

Health seeking behaviour AND mothers AND children

Health seeking behaviour AND caregivers

Care giver AND diarrhoea

Mothers knowledge on diarrhoea

Botswana AND diarrhoea in children

2.2 Diarrhoea in children

Diarrhoea as defined by WHO is the passage of three or more loose stools per day or more frequent than is normal for the child.¹ The majority of child deaths are caused by infectious diseases like pneumonia, diarrhoea, and neonatal complications.² Diarrhoea is the second leading cause of mortality worldwide in children less than five years old³ amounting to about 1.7 billion cases each year and 525 000 deaths worldwide among children under five years old.¹⁴ In this age group, the majority of the deaths occur in Africa and South Asia.^{15,16}

A population based European study evaluating the burden of acute gastroenteritis and healthcare-seeking behaviour revealed the peak of gastroenteritis to be in the 0 – 5 years age group.¹⁷ The consultation rate was 40.3% (95% CI :28.5 – 53.4) in children less than five years old and reasons put forward for consulting were prolonged symptoms, vomiting, diarrhoea and unusual symptoms.¹⁷ When these authors looked at the determinants of consultation for acute gastroenteritis, there was no statistically significance difference found with the number of children less than five years old in a household (P=0.98), number of persons in the household(P=0.31) , having state insurance for those with low income and resources (P=0.85), the season(P=0.82) , occupation of the head of the household(P=0.60) and symptoms.¹⁷

In China, a cross sectional study of acute diarrhoea in Pudong that looked at prevalence, risk factors and health seeking behaviour, found that the highest proportion of diarrhoea (57.6%) in that area was in children aged 2 – 4 years old. The 0 – 11 month age group had the highest (11%) estimated monthly prevalence of diarrhoea.¹⁸ The study found that the prevalence of appropriate health seeking practices for children less than five years old was 42 – 58 %.¹⁸ Younger age and a history of travel significantly predicted frequent diarrhoea occurrence in children less than five years old.¹⁸

In West Africa a study carried out in a rural health district of Burkina Faso to assess caregivers' recognition and management of acute diarrhoea as well as to determine factors associated with illness recognition, care seeking behaviour, and treatment practices, found that 55% of the caregivers of 1067 children sought care outside the home.¹⁹ In the study, 55% of the caregivers recognised diarrhoea when at least three liquid or semi liquid stools are present but when the frequency of liquid stool was six, the number of caregivers who recognised that this is diarrhoea rose to 78%.¹⁹

Collectively these studies across varying settings, show that many children are not taken to a health provider when they have diarrhoea. By extension, the studies point to caregivers' inappropriate health seeking behaviour. There is a paucity of data regarding health seeking behaviour of caregivers of children under five years old with diarrhoea in Botswana. No studies describing health seeking behaviour of caregivers of children under five years in Maun were revealed by the literature search.

In the Democratic Republic of Congo, researchers sought to understand local perceptions of acute watery diarrhoea in children and anticipated vaccine acceptance.²⁰ In part of the study, participants were given a vignette story of a child with acute watery diarrhoea and then asked questions to assess their perceptions and related treatment practices.²⁰ Contaminated food and water was identified by 86% of the participants while dirty environment was selected by 87% and lack of personal hygiene was perceived by 85% to be the cause of diarrhoea.²⁰ Oral Rehydration Solution(ORS) was the first choice of treatment in 58% of cases. The caregivers reported using self-administered antibiotics in 31% of the cases and 17% used herbal medicine. In 20% of cases a faith healer was consulted and 6% consulted a traditional practitioner. The number of cases that did not receive the appropriate treatment of ORS is high and consulting untrained traditional practitioners puts the child at risk of dehydration and death.

The WHO and the United Nations International Children's Fund (UNICEF) launched the Integrated Management of Childhood Illness (IMCI) more than 19 years ago in an effort to reduce childhood mortality.²¹ In spite of this, diarrhoea still remains the second leading cause of death in under five children.³

IMCI is an integrated approach to child health that promotes accurate identification of childhood illness, giving appropriate treatment, as well as early referral of severely ill children.²² The three main components of IMCI are improving case management skills of healthcare workers, improving health systems overall, and also improving family and community health practices.

Rotavirus is an important cause of diarrhoeal diseases in children under five years old worldwide.²³ By five years of age, almost all children will have had an episode of diarrhoea from rotavirus.²³The Rotavirus vaccine was introduced in 2012 to the Botswana Expanded Programme of Immunisation. Despite efforts made to fight diarrhoea, Botswana did not achieve the fourth Millennium Development Goal of reducing mortality by two thirds in under five children between 1990 and 2015.¹⁶ The under-five mortality rate was 54 deaths per 1000 live births in 1990 and in 2015 it was 44 deaths per 1000 live births.¹⁶ The reasons for failure to achieve the fourth MDG in Botswana have not been fully elucidated. It is likely that multiple factors such as structural issues, human resources, unique community practices and caregivers' health seeking behaviour all contributed.

2.3 Health seeking behaviour

Health seeking behaviour is a sequence of actions taken by an individual who perceives an illness in order to remedy the illness.²⁴ It is a process of illness response.²⁵ Health seeking behaviour involves recognising an illness, the time from onset of illness and getting in touch with a health professional, the type of healthcare provider sought, compliance with recommended treatment, reasons for and against healthcare professions.²⁴ Health seeking behaviour has been described as the process of illness response whereas health care seeking behaviour emphasizes more on utilisation of the formal system which is the end point .²⁵

2.4 Studies on health seeking behaviour

In the United States, a study in Los Angeles enrolled 229 African American and Hispanic caregivers and assessed their knowledge and practice when they have a child under five years with diarrhoea.²⁶ They found that 74.5% of the caregivers had used ORS and among these, 50% started ORS without being instructed by a healthcare worker while 14.6% gave ORS after being instructed by a doctor.²⁶ Looking at the first action taken by the caregivers upon recognising that a child has diarrhoea, 34.4% gave fluids to drink while 59.9% called a doctor or went to a health facility and 5.2% either waited or called a family member.²⁶ The reasons for seeking medical attention were, if the diarrhoea worsened (45.7%), if diarrhoea does not stop (34.1%), if vomiting is present (10.9%) and 9.3% if the child does not drink fluids.²⁶ From this study the researchers recommended programmes to increase the knowledge of caregivers on causes and signs of diarrhoea and dehydration, and appropriate treatment with ORS.²⁶

Studies in Africa have reported varying prevalence of caregivers seeking care from traditional healers when their children have diarrhoea. The majority of caregivers who sought care outside the home, 77.5% consulted in a public health clinic while 22% sought care at a traditional healer or drug vendor in Burkina Faso.¹⁹ A health utilisation and attitude survey on 1000 randomly selected children in Mali, found that 57% of caregivers sought care from a traditional healer while 27% visited a government health centre for a child with diarrhoea.²⁷

Findings from a Kenyan study conducted in the slums of Nairobi showed that care was sought outside the home for 60.5% of the children who were reported ill.²⁸ It was found that 28.1% of the children were not taken to a healthcare facility because the caregivers did not perceive the

illness to be serious.²⁸ Another study in an informal settlement of Nairobi found that 55% of the caregivers did not seek appropriate healthcare for their children with diarrhoea and 35% did not seek care at all.²⁹ These findings show that appropriate healthcare seeking remains a challenge in poor African urban populations.²⁹

A study done during an outbreak of diarrhoea in 2006 in three districts of Botswana namely Francistown, Central district and North-East district found that 90.5% of the parents of children with diarrhoea said their children received treatment for diarrhoea.³⁰ From these, 94.8% consulted a physician or nurse while 2.6% visited a traditional healer. Notably, the use of traditional healers in Botswana is lower than reported in other settings.³¹ The majority of caregivers reported giving less food and something to drink to their children during an episode of diarrhoea.³⁰ A limitation to this study was the three month recall period which is long and likely to be unreliable.³⁰ Additionally the study did not explain how long the caregivers took before seeking care at the clinic. There could have been delays in seeking healthcare and when the child's illness got severe, the caregiver could have then gone to a health facility. Furthermore, this study was done before the campaign to avail ORS in every household with an under five child and thus there are no current reports on the practice following the policy change.

2.5 Factors associated with health seeking behaviour

2.5.1 Symptomatology

The presence of certain symptoms like fever, vomiting and anorexia and longer duration of illness have been shown to be important factors associated with seeking care outside the home.¹⁹

Signs like coma/loss of consciousness had 5.16 times higher odds (95% CI:1.24-21.49) of a traditional healer being consulted. Decreased urine output also increased the odds of a child being taken to a traditional healer and wrinkled skin as a sign of dehydration was inversely associated with traditional healer consultation.²⁷

In Edo State in Nigeria, a study found that certain symptoms like fever and vomiting were regarded as serious while others like drinking poorly and fast breathing were not recognized to be serious.³² The poor knowledge of other danger signs was blamed on the health education programmes that limited the information it disseminated to the caregivers. Sometimes even with

the knowledge of the danger signs, caregivers found long waiting times in health facilities and cost of treatment being barriers to seeking care.³²

2.5.2 Caregivers characteristics and perception

A mother's perception of the severity of illness influences her decision to seek healthcare for her child. Studies have shown that delay in seeking healthcare for children with diarrhoea can occur because mothers do not know the signs of dehydration.³²⁻³⁴ It is thus important to determine what mothers and other caregivers know about diarrhoea and address the knowledge gaps where possible in an effort to reduce under five mortality.

A study in India in the state of Kerala where most people are literate, found that parents who recognized their children's illness to be mild did not seek formal healthcare for them.¹⁰ In this study, it was found that women with fewer antenatal visits were less likely to take their ill children to a healthcare facility.¹⁰ Although the researchers had a criteria for classifying illness into various categories of severity, there still is a likelihood of misclassification bias as caregivers may not have recognised certain signs and wrongly classified the child's illness as mild and hence not seek appropriate care for that child.

A Mexican study looking at the health seeking behaviour of Tzotzil speaking Mayans in the highlands of Chiapas found that when a child's diarrhoea was perceived to be severe, then healthcare out of the home would be sought early.³⁵ Conversely, if the disease was not perceived to be severe then home treatment with remedies was used.³⁵ Interestingly, parental educational level did not play a significant role in health seeking behaviour in this South American study.³⁵

Some studies have shown that better levels of education of mothers makes them more likely to seek appropriate healthcare.³⁶⁻³⁹ In Nepal, higher levels of education of mothers had a positive relationship with health seeking behaviour.³⁶ However, others have reported that the more educated the mother was, the less likely she would seek care for a child with mild illness.¹⁰ Durrani *et al*, on the other hand did not find any difference in health seeking behaviour based on mother's education level.⁴⁰ Data from Ethiopia showed that delay in healthcare seeking for children with diarrhoea was more likely in younger caregivers and less educated caregivers compared to older and more educated caregivers.⁴¹ Women's level of health education on issues of breastfeeding and hygiene contributed to the morbidity and mortality of children in Botswana.⁴² There is a large

body of evidence that education of caregivers is associated with appropriate health seeking behaviour. This is encouraging as education can be an intervention in reducing the burden of diarrhoea among under five years old children. The utility of education has been shown as caregivers who had visited a health facility in the past and received teachings on the importance of timely treatment seeking for diarrhoea had improved health seeking behaviour.⁴¹

Older mothers in Malawi were less likely to visit a health facility (OR=0.98;95%CI:0.97, 1.00,P=0.018) when their children had diarrhoea.⁴³ This inappropriate health seeking behaviour among older mothers is thought to be a result of them being experienced in diarrhoea management and having knowledge of other traditional methods of treating diarrhoea.⁴³ Mothers from communities with a Village Health Committee (one of whose function was to distribute free ORS) were more likely to administer ORS to a child with diarrhoea but were less likely to visit a health facility for that child.⁴³

Literature from Africa suggests that lower maternal parity may be associated with inappropriate health seeking behaviour. The odds of seeking care from an allopathic health provider were higher when there was lower maternal parity in a study from Burkina Faso.¹⁹ These finding appears to be unique as it has not been reported elsewhere.

2.5.3 Child's characteristics

A number of children's demographic characteristics have been reported to be associated with caregivers' health seeking behaviour. Some studies have reported caregiver health seeking behaviour for a child to be influenced by the gender and age of the child.^{10,31,41}

A statistically significant relationship between gender and health seeking behaviour where male children had higher chances of the mothers seeking healthcare early was reported in Nepal.³⁶ However, the illness in this study was not limited to diarrhoea only.³⁶ Conversely, In India, male children were taken more to the alternative provider system instead of the allopathic physician who practised modern western medicine.¹⁰The gender of the child was not found to affect decision of seeking for healthcare but instead, it was found to influence the type of healthcare sought.¹⁰ In Ethiopia, researchers also found that mothers are less likely to seek treatment for girls than for boys.⁴¹ They explained the disadvantages of the female child to result from cultural influences and

gender inequalities in the community.⁴¹ In Kenya, on the other hand, no significant differences were found in health seeking behaviour of the caregiver based on the gender of the child.²⁹

Another factor associated with health seeking behaviour is the child's age. Studies have consistently shown that the younger a child is, the more likely the caregivers would seek healthcare.^{28,29,37,41}

2.5.4 Physical access

Having health facilities within 15 minutes walking distance was found to be an enabling factor associated with positive health seeking behaviour in Ethiopia.³⁸ Increasing the proximity of health facilities to the end user, may promote appropriate health seeking behaviour.³⁸ Increased distance between healthcare provider and caregivers resulted in the majority of the caregivers not seeking immediate treatment for their children in Nigeria.³² In Burkina Faso, the odds of seeking care from an allopathic health provider were higher when the family resided closer to the health centre.¹⁹

Caregivers that lived greater distances from a health facility were less likely to use a health facility and ORS. When distance is a barrier to accessing a health facility and ORS, caregivers used other fluids or solutions to treat diarrheal illness.⁴³ However, the study did not specify whether these other fluids or solutions were recommended or not by WHO. Transport problems like damage to roads linking village to a health facility during rainy season and failure to find transport to take the villagers to a health facility reduces visitations to health facilities and limits access to resources like ORS.⁴³

2.5.5 Finances

Household income is known to influence the type of healthcare sought. High income is associated with greater use of private healthcare as opposed to public healthcare, as the private sector is viewed to have better quality of care.⁴⁴ Furthermore, access to free healthcare was found to increase healthcare seeking behaviour in contrast to paid healthcare.⁴⁴

Household monthly income of 50 U.S dollars and above, was found to be an enabling factor associated with positive health seeking behaviour in Ethiopia.³⁸ Others have also reported that where there is free public health service, indirect costs of healthcare such as transport can hinder access to healthcare.⁴⁵

2.5.6 Cultural beliefs

Cultural beliefs are also known to influence health seeking behaviour. In some cases this influence can be negative resulting in delay or inappropriate treatment of a child.⁴⁶

In the Democratic Republic of Congo, from the magico-religious view, 39% felt it was God's will for diarrhoea to occur while 25% felt the cause was breach of a taboo.²⁰ Eating forbidden food was chosen by 20% and witchcraft was perceived by 51% of the participants as a cause of diarrhoea.²⁰

Kaltenthaler *et al* carried out a study in villages located in the North East district of Botswana.⁴⁷ They reported factors that the villagers perceived to be the cause of diarrhoea. One finding was that a sunken fontanel was believed to be caused by a worm in the brain and that the sunken fontanel was the one actually causing the diarrhoea and not the result of diarrhoea.⁴⁷ Other traditional beliefs were that breast milk becomes bad if the mother is unfaithful and the child will get diarrhoea.⁴⁷

2.6 Summary

Diarrhoea contributes significantly to the global burden of disease and associated mortality in children under the age of five. The role played by caregivers in childhood illness has been a subject of several studies across different settings. These studies have reported on factors that influence caregivers' health seeking behaviour and documented notable differences in the different settings. Taken together, results of these studies suggest that health seeking behaviour of the caregivers varies by the different age groups (of caregivers as well as children), the educational level of the caregivers, the employment status and the household income of the caregivers. Furthermore, caregivers' perception of the cause of diarrhoea also influences health seeking behaviour. Reports regarding the influence of a child's age and gender on health seeking behaviour of the caregiver are inconsistent. Additionally, the association between increased distance and difficulty accessing a health facility has not been fully elucidated but available literature suggests that increased distance to a health facility may hinder use of the facility and access to resources like ORS.

The literature review reveal limited data from Botswana evaluating health seeking behaviour of caregivers to children under the age of five. The few published studies from Botswana report on

perceived causes of diarrhoea¹² and the contribution of breastfeeding and hygiene to paediatric morbidity and mortality in the country.³⁰ None of these studies were conducted in Maun.

It is important to understand the factors associated with health seeking behaviour of caregivers of children with diarrhoea in the local context. This may enable planning for interventions that address morbidity and mortality due to diarrhoeal diseases in children under five years of age. The aim of this study was to determine factors associated with health seeking behaviour among caregivers of children under five years old with diarrhoea in Maun.

Chapter 3

3.0 Methodology

3.1 Aim

To determine factors associated with health seeking behaviour among caregivers of children under five years old with diarrhoea in Maun.

3.2 Objectives

1. To describe the sociodemographic characteristics of caregivers of children under five years old with diarrhoea in Maun.
2. To describe the types of health seeking behaviours among caregivers (categorized as appropriate or inappropriate).
3. To explore associations between sociodemographic characteristics and categories of health seeking behaviours.
4. To explore associations between diarrhoea-related symptoms and categories of health seeking behaviours.
5. To determine significant predictors/correlates of appropriate and inappropriate health seeking behaviours.

3.3 Study design

This is a cross sectional study.

3.4 Study population

The study population was the caregivers to under five children in Maun who presented to a clinic for routine monthly child welfare services.

3.4.1 Inclusion criteria

The following inclusion criteria were used;

- Adult (>18 years old) primary caregivers of children under 5 years of age, resident in Maun, regardless of marital status
- Mothers under 18 years who are caring for children under five years, who assent to the study, and have their consent form signed by their legal guardians

- The children with a current or past history of diarrhoea.

3.4.2 Exclusion criteria

- Children in institutionalised care such as foster homes.

3.4.3 Recruitment

The researcher and research assistants recruited participants from the clinics (six child welfare clinics in Maun) who were attending child wellness clinics. Potential participants were approached and told about the study and those that volunteered then signed a consent form (appendices A and B). Participants were selected through a systematic random sampling technique. The sampling frame (n) was determined by reviewing the list of all under five children seen the previous clinic day to estimate the number of potential participants likely to be available on the day of recruitment. The sampling interval (SI) was determined each day by dividing the number of children under five on the sampling frame (n) by the expected number to be enrolled (N). The first participant was selected at random and subsequent participants were selected based on the sampling interval. Where a selected participant is not eligible, the next participant was chosen following the SI until the daily enrolment quota was attained. We enrolled at least 10 participants a day on average.

3.4.4 Sample size

Using an online sample size calculator, the estimated sample size was 238.⁴⁸ The following assumptions were made; the population was set to 623 which was the number of diarrhoea cases in under five children recorded in the six clinics that offer child welfare services in 2016 in Maun and confidence interval of five and confidence level set at 95%.

Using the proportions of cases contributed by each clinic in 2016, we worked out how many participants should be interviewed from each clinic. The numbers are shown in the table below.

Clinic	Number of cases in 2016	Sample size for study
Moeti	105	40

Boseja	215	82
Disaneng	50	19
Sedie	78	30
Maun clinic	128	49
Matshwane	47	18
Total	623	238

3.4.5 Data Collection

Data was collected using a structured questionnaire administered by the researchers (appendix C). The validated questionnaire was adapted from a similar study carried out in Ethiopia.³⁴ The adaptations made were to change to locally accepted language. Two experts working with children under five years in the local environment, one a paediatrician and the other a family physician then reviewed the questionnaire to see if it will capture the required information thus ensuring content and face validity.

The questionnaire collected information on socio-economic and demographic factors such as age of caregiver, gender, educational status, marital status, household income, family size, number of rooms at the caregivers' residence, and ownership of assets like radio, fridge and car. The source and storage of water as well as sewage disposal methods was obtained. Information of the child like age, gender and feeding methods was also obtained. The presence of danger signs of dehydration was asked and the treatment options were recorded.

The questionnaire was then piloted on 12 caregivers attending the Letsholathebe II Memorial hospital outpatients' department and one health post in Maun. Data from the piloted questionnaires were not used for the final study.

To standardise data collection, two research assistants were trained by the researcher and researcher's supervisor for data collection. The one-day training was on the research topic, research ethics and a practical session on how to administer the questionnaire. The research

assistants were fluent in the local language and during the piloting they all had practice of asking the questions in the local language.

A room was identified at the clinic that was used to provide a quiet environment so that no disturbance was encountered during data collection. Data collection took place from 23 March up to 27 April 2018.

Every morning the researcher would start at one clinic with one research assistant then will go the next clinic to see how the other research assistant was doing.

The researcher would sit in on some interviews of both research assistants as a form of supervisory support visits so as to see if they are facing any challenges.

3.4.6 Data analysis

Data were captured and analysed using Statistical Package for Social Sciences (SPSS) software (version 20). The responses of each caregiver were compared to the criteria set to identify appropriate and inappropriate health seeking behaviour and the researcher assigned the behaviour accordingly. After entering the data into SPSS software, a search for errors that might have occurred was done by the researcher and an assistant independently checking that the data on the questionnaire are the same as that captured on the software.

Categorical data are presented as frequencies and percentages. Health seeking behaviour was set as the dichotomous dependent variable and binary logistic regression was used to assess independent variables' unadjusted effect on the dependent variable. A second logistic regression model was fit in order to see the net effect of socio-demographic and diarrhoea related factors on health seeking behaviour. The associations between the dependent variables were interpreted using odds ratios and the confidence interval set at 95%. A p-value of less than 0.05 was considered significant.

Health seeking behaviour was the dependent variable for the purpose of this study and was dichotomised as appropriate or inappropriate.

Health seeking behaviour was considered to be appropriate if all of the following criteria were met:

1. Care was sought from qualified healthcare providers in hospital, clinics and private centres registered with the Botswana health professions council
2. A child was given fluids as recommended by WHO
3. Care is sought within 24 hours of the child becoming ill

Health seeking behaviour was considered to be inappropriate if;

1. Care was sought from traditional or spiritual healer first
2. There was restriction of fluids given to a child
3. The child was given medicines or treatment not recommended by WHO
4. There was a delay of more than 24 hours before going to a health facility after commencement of diarrhoea

3.4.7 Ethical consideration

Approval was sought from the Ministry of Health and Wellness research committee (HPDME:13/18/10), University of Botswana Institutional Review Board (UBR/RES/IRB/BIO/GRAD/022) and Letsholathebe II Memorial Hospital (M6/50/12 I).

The participants entered the study voluntarily and a signed consent was obtained for all participants. For mothers who were less than 18 years old, consent was obtained from their guardians after they assented to participate.

There was no information on the questionnaire that can lead to the identification of the participants. Data from this study were locked in a cabinet and only the principal investigator had the keys. The lockable cabinet is kept in a room that has restricted access. Only University of Botswana registered personnel with an access card can enter the room.

The participants could withdraw from the study at any point and they were given contact details of the researcher and the Letsholathebe IRB should they feel the need to raise any issues related to the research. No harm was perceived to result from this study.

3.5 Study setting

Maun is a village located in the North West district of Botswana. According to the 2011 census the population of Maun was 60 257. Of this population, 7 357 were children under 5 years of age.

Maun is as modern village having shopping centres with almost all the major banks and retail shops found in Botswana. It has several educational institutions both government and private that offer education from primary to tertiary level. The tarred road network and public transport services in the form of taxis and commuter mini buses (*combies*) enable the villagers to have access to all government facilities. The roads in the residential areas are mostly gravel. Electricity and piped water are available in all the residential wards. Maun boasts of an international airport that has numerous air charter operations into the Okavango delta. Maun serves as the gateway to the tourist attraction of the Okavango delta and as such there are several hotels, lodges and camping sites for tourists transiting through the town. Fishing is another income generating activity for many Maun residents. The Tamalakane river traverses the town and boat cruises on the river draws both local and foreign tourists.

Maun is serviced by one district hospital, Letsholathebe II Memorial Hospital, with a bed capacity of 300. There are seven primary care clinics and three health posts around Maun. Child welfare services are available in six of the clinics and in all the three health posts. Currently there are 11 private health care practices in Maun.

Chapter 4

4.0 Results

In this chapter results are presented in the form of frequency tables and charts. The socio-demographic characteristics of the study participants are described followed by results on treatment given. The chapter concludes by describing the association between caregiver's health seeking behaviour and diarrhoea related clinical signs of children under five years.

4.1 Socio-demographic data

The socio-demographic characteristics of the participants are presented in Table 1. The majority of caregivers (56.7%) were in the 26 – 35 age group followed by the 36 – 45 age groups (24%). Only 3 out of 238 (1.7%) caregivers were male.

Two thirds of the caregivers (68.9%) were single, while married caregivers constituted 24.8% of the participants.

Table 1. Socio-demographic characteristics of participants

Characteristics	Frequency	Percentage (%)
<i>Age category of Participants (yrs.)</i> n = 238		
15 - 25	22	9.2
26- 35	135	56.7
36 - 45	59	24.8
46 -55	18	7.6
55 and more	4	1.7
<i>Marital status</i> n = 238		
Single	164	68.9
Married	59	24.8
Divorced	5	2.1
Widowed	10	4.2
<i>Education level</i> n= 238		
No formal education	15	6.3
Primary	74	31.1
Secondary	89	37.4
Tertiary	60	25.2
<i>Gender of caregiver</i> n= 238		
Female	235	98.7
Male	3	1.3
<i>Caregiver employment status</i> n= 238		
Employed	118	49.6
Unemployed	120	50.4
<i>Household income in Pula/month</i> n = 238		
1 200 or less	85	35.7
>1 200 - 4 000	66	27.7
>4 000 - 8 000	38	16.0
>8 000 - 12 000	24	10.1
>12 000	20	8.4
Did not know	5	2.1
<i>Type of toilet</i> n = 238		
Pit latrine	154	64.7
Flush water system	80	33.6
No facility, Bush, Field	4	1.7

The characteristics of the child that were used for analysis are shown below in Table 2.

Table 2: Child Characteristics

Characteristics	Frequency	Percentage (%)
<i>Age (months)</i>		
0 – 11	55	23.1
13 – 23	62	26.1
24 – 35	55	23.1
36 – 59	66	27.7
<i>Child gender</i>		
Female	129	54.2
Male	109	45.8
<i>Birth order</i>		
First child	54	22.7
Second or more	184	77.3
<i>Exclusive breast feeding for 6 months</i>		
Yes	157	66.0
No	80	33.6

The diarrhoea related variables are signs and symptoms that were associated with diarrhoea and are show below in table 3.

Table 3: Diarrhoea related variables

Symptomatology	Frequency	Percentage (%)
<i>Fever with diarrhoea</i>		
Yes	80	33.6
No	158	66.4
<i>Vomiting with diarrhoea</i>		
Yes	87	36.6
No	151	63.4
<i>Refuse food/drink/breastmilk</i>		
Yes	66	27.7
No	172	72.3

Thirst all the time

Yes	72	30.3
No	165	69.3

.....

The parameters that were assessed to classify health seeking behaviour as either appropriate or inappropriate are shown below in table 3

Table 4: Health seeking behaviour parameters

Health seeking behaviour	frequency	Percentage of participants
<i>Time before seeking help</i>		
0 - 24 hrs	107	45
>24 hrs or did not seek help	131	55
<i>Type of fluid given at home</i>		
ORS	173	72.7
Home recommended fluid	12	5
No fluids given	53	22.3
<i>ORS Treatment at place consulted</i>	196	82.4
<i>Amount of fluid given to child</i>		
More fluids	185	77.7
Less fluids	50	21
Does not know	3	1.3
<i>Place visited for help outside the home</i>		
Recommended		
Not a recommended place	197	82.8
	1	0.4

Table 5 shows the overall assessment of the appropriateness of health seeking behaviour among all the caregivers in the study.

Table 5: Overall health seeking behaviour of caregivers

Health seeking behaviour	Frequency(%)
Appropriate	96(40.3)
Inappropriate	142(59.7)
Total	238(100)

The health seeking behaviour of care givers and socio-demographic characteristics of caregivers and diarrhoeal symptoms is shown below in table 6.

Table 6: Health seeking behaviour of caregivers by their socio-demographic characteristics and diarrhoeal symptoms in their children

	Health seeking behaviour	
	appropriate	inappropriate
<i>Age of caregiver</i>		
15 - 25years	4	18
26 - 35years	65	70
36 - 45years	20	39
46 - 55years	5	13
56 and more years	2	2
<i>Marital status</i>		
Married	24	35
Single	69	95
Widowed	1	9
Divorced	2	3
<i>Education level</i>		
no formal education	3	12
primary	24	50
secondary	38	51
tertiary	31	29
<i>Gender of caregiver</i>		
male	1	2
female	95	140
<i>Caregiver employment status</i>		
employed	52	66
unemployed	44	76

<i>Household income in Pula /month</i>		
< or = 1200	27	62
>1200 - 4000	28	38
>4000 - 8000	16	22
>8000 - 12 000	11	13
> 12 000	14	6
<i>Type of toilet</i>		
no toilet/blair toilet	58	99
flush toilet	38	42
<i>Number of rooms</i>		
1 – 3	31	41
4 or more	64	101
<i>Have car at home</i>		
Yes	51	58
No	45	84
<i>age of child(months)</i>		
0 - 11	21	34
12 - 23	23	39
24 - 35	22	33
36 - 59	30	36
<i>Child gender</i>		
female	50	79
male	46	63
<i>Birth order</i>		
first child	23	31
second or more	73	111
<i>Exclusive breast feeding for 6 months</i>		
Yes		
No	61	96
	35	45
<i>Fever with diarrhoea</i>		
Yes	39	41
No	57	101
<i>Vomiting with diarrhoea</i>		
Yes	37	50
No	59	92
<i>Refuse food/drink/breast milk</i>		
Yes	34	32
No	62	110
<i>Thirst all the time</i>		
Yes	34	38
No	62	103

The results of the univariate logistic regression analysis for the association between socio-demographic factors and appropriate health seeking behaviour are shown in Table 6. Factors found to be statistically significant in the unadjusted logistic regression model were household income and educational status of the caregiver. Caregivers with a household income of >1200 – 4000 Pula

were less likely to have appropriate health seeking behaviour (OR=0.187; 95%CI:0.065 – 0.537). Also, caregivers with an income of >4000 – 8000 Pula were less likely to have appropriate health seeking behaviour compared to reference income of 0 – 1200 Pula (OR=0.316; 95%CI: 0.108 – 0.924). The caregivers with a household income >8000 – 12 000 Pula were shown to have a statistically significant result of them to have less likely exhibited appropriate health seeking behaviour (OR=0.312; 95%CI: 0.098 – 0.987).

With regard to education, our study found statistically significant results that caregivers who were less likely to have appropriate health seeking behaviour were those who attained primary education (OR=0.234; 95%CI: 0.060 – 0.914) and those who attained secondary education (OR=0.449; 95%CI 0.222 – 0.906).

The results of univariate logistic regression analysis of socio-demographic factors associated with appropriate health seeking behaviour are shown below in Table 7.

Table 7. Univariate logistic regression analysis of socio-demographic factors associated with appropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval		p - value
Age of caregiver/years	ref: 15 - 25				
	26 - 35	0.222	0.024	2.086	0.188
	36 - 45	0.929	0.127	6.786	0.942
	46 - 55	0.513	0.067	3.915	0.520
	56 and more	0.385	0.042	3.523	0.398
Employment status	ref: unemployed				
	employed	1.361	0.809	2.288	0.245
Marital status	ref: married				
	single	1.029	0.160	6.628	0.976
	widowed	1.089	0.177	6.696	0.926
	divorced	0.167	0.011	2.563	0.199
Household income (Botswana Pula)/month	ref: 0 - 1200				
	>1200 - 4000	0.187	0.065	0.537	0.002*
	>4000 - 8000	0.316	0.108	0.924	0.035*
	>8000 - 12000	0.312	0.098	0.987	0.048*
	>12000	0.363	0.104	1.264	0.111

Educational status of caregiver	ref:no formal education				
	primary	0.234	0.060	0.914	0.037*
	secondary	0.449	0.222	0.906	0.025*
	tertiary	0.697	0.361	1.346	0.282
Family size	ref: 2 - 5				
	6 - 10	2.344	0.880	6.244	0.088
	>10	2.272	0.818	6.306	0.115
Gender of child	ref: female				
	male	0.867	0.516	1.457	0.590
Age of child	ref: 0 - 11				
	12 -23	0.741	0.358	1.536	0.420
	24 - 35	0.708	0.349	1.436	0.338
	36 - 59	0.800	0.387	1.652	0.546
Birth order	ref: 1st child				
	2nd or more	1.176	0.634	2.182	0.607
Exclusive breastfeeding for 6 months	ref: no				
	yes	1.224	0.709	2.113	0.468
Toilet type	ref:no/Blair				
	flush system	0.648	0.375	1.117	0.118
Number of rooms	ref:1 - 3				
	4 or more	1.232	0.705	2.153	0.464
Have Car	ref: no				
	yes	0.609	0.361	1.027	0.063

*statistically significant; ref.=reference

The results of univariate logistic regression analysis of socio-demographic factors associated with inappropriate health seeking behaviour are shown below in Table 8.

Table 8: Univariate logistic regression analysis of socio-demographic factors associated with inappropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval		p - value
Age of caregiver/years	ref:15 - 25				
	26 - 35	4.500	00.479	42.248	0.188
	36 - 45	1.077	0.147	7.869	0.942
	46 - 55	1.950	0.255	14.888	0.520
	56 and more	2.600	0.284	23.814	0.398
Employment status	ref: unemployed employed	0.735	0.437	1.235	0.245
Marital status	ref: married				
	single	0.972	0.151	6.265	0.976
	widowed	0.918	0.149	5.642	0.926
	divorced	6.000	0.390	92.277	0.199
Household income (Botswana Pula)/month	ref: 0 - 1200				
	>1200 - 4000	5.358	1.860	15.431	0.002*
	>4000 - 8000	3.167	1.082	9.267	0.035*
	>8000 - 12000	3.208	1.013	10.163	0.048*
	>12000	2.758	0.791	9.613	0.111
Educational status of caregiver	ref:no formal education				
	primary	4.276	1.094	16.705	0.037*
	secondary	2.227	1.103	4.495	0.025*
	tertiary	1.435	0.743	2.770	0.282
Family size	ref: 2 - 5				
	6 - 10	0.427	0.160	1.136	0.088
	>10	0.440	0.159	1.222	0.115
Gender of child	ref: female male	1.154	0.686	1.940	0.590
Age of child	ref: 0 - 11				
	12 -23	1.349	0.651	2.795	0.420
	24 - 35	1.413	0.697	2.866	0.338
	36 - 59	1.250	0.605	2.581	0.546
Birth order	ref: 1st child 2nd or more	0.850	0.458	1.577	0.607

Exclusive breastfeeding for 6 months	ref: no yes	0.817	0.473	1.410	0.468
Toilet type	ref:no/Blair flush system	1.544	0.895	2.665	0.118
Number of rooms	ref:1 - 3 4 or more	0.812	0.465	1.419	0.464
Have Car	ref: no yes	1.641	0.974	2.767	0.063

*statistically significant; ref.=reference

Table 9 shows the adjusted odds ratios from logistic regression analysis of socio-demographic factors that influence health seeking behaviour. The 26 - 35 age group were less likely to have appropriate health seeking behaviour (OR=0.50; 95%CI: 0.003 – 0.986). After adjusting for confounders, the caregivers with statistically significant results found to have lower odds of appropriate health seeking behaviour were those with an income of >1200 – 4000 Pula (OR=0.201; 95%CI: 0.043 – 0.943) and those with an income >8000 – 12 000 Pula (OR=0.255; 95%CI: 0.066 – 0.989)

Table 9. Multivariable logistic regression analysis of socio-demographic factors that influence appropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval	p - value
Age of caregiver/years	ref:15 - 25			
	26 - 35	0.50	0.003 0.986	0.049*
	36 - 45	0.196	0.012 3.073	0.246
	46 - 55	0.115	0.007 1.808	0.124
	56 and more	0.237	0.014 3.906	0.314
Employment status	ref: unemployed employed	0.975	0.519 1.831	0.936
Marital status	ref: married			
	single	0.494	0.050 4.838	0.544
	widowed	0.598	0.062 5.823	0.658
	divorced	0.084	0.003 2.063	0.129

Household income	ref: 0 - 1200 >1200 - 4000 >4000 - 8000 >8000 - 12000 >12000	0.201 0.265 0.255 0.325	0.043 0.065 0.066 0.078	0.943 1.090 0.989 1.346	0.042* 0.066 0.048* 0.121
Educational status of caregiver	ref: no formal education primary secondary tertiary	0.454 0.717 1.069	0.062 0.229 0.426	3.342 2.244 2.684	0.438 0.568 0.887
Family size	ref: 2 - 5 6 - 10 >10	1.968 2.178	0.591 0.653	6.551 7.267	0.270 0.205
Gender of child	ref: female male	0.757	0.414	1.386	0.367
Age of Child	ref: 0 - 11 12 - 23 24 - 35 36 - 59	0.964 0.864 0.823	0.412 0.384 0.357	2.251 1.943 1.895	0.932 0.723 0.647
Birth order	ref: first child 2nd or more	1.088	0.506	2.340	0.828
Exclusive breastfeeding for 6 months	ref: no yes	1.302	0.695	2.439	0.409
Toilet type	ref: no/Blair flush system	1.250	0.540	2.892	0.603
Number of rooms	ref: 1 - 3 4 or more	1.864	0.899	3.864	0.940
Have Car	ref: no yes	0.620	0.268	1.434	0.264

*statistically significant; ref.=reference

The multivariate logistic regression analysis of socio-demographic factors that influence inappropriate health seeking behaviour are shown below in Table 10.

Table 10: Multivariate logistic regression analysis of socio-demographic factors that influence inappropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval	p - value
Age of caregiver/years	ref: 15 - 25			
	26 - 35	20.095	1.014 398.237	0.049*
	36 - 45	5.114	0.325 80.368	0.246
	46 - 55	8.693	0.553 136.658	0.124
	56 and more	4.218	0.256 69.479	0.314
Employment status	ref: unemployed			
	employed	1.026	0.546 1.928	0.936
Marital status	ref: married			
	single	2.026	0.207 19.861	0.544
	widowed	1.671	0.172 16.259	0.658
	divorced	11.874	0.485 290.797	0.129
Household income	ref: 0 - 1200			
	>1200 - 4000	4.971	1.060 23.299	0.042*
	>4000 - 8000	3.768	0.917 15.481	0.066
	>8000 - 12000	3.923	1.011 15.229	0.048*
	>12000	3.079	0.743 12.765	0.121
Educational status of caregiver	ref: no formal education			
	primary	2.202	0.299 16.207	0.438
	secondary	1.395	0.446 4.365	0.568
	tertiary	0.935	0.373 2.348	0.887
Family size	ref: 2 - 5			
	6 - 10	0.508	0.153 1.692	0.270
	>10	0.459	0.138 1.532	0.205
Gender of child	ref: female			
	male	1.320	0.722 2.415	0.367
Age of Child	ref: 0 - 11			
	12 -23	1.038	0.444 2.424	0.932
	24 - 35	1.158	0.515 2.604	0.723
	36 - 59	1.216	0.528 2.801	0.647

Birth order	ref: first child 2nd or more	0.919	0.427	1.975	0.828
Exclusive breastfeeding for 6 months	ref: no yes	0.768	0.410	1.438	0.409
Toilet type	ref:no/Blair flush system	0.800	0.346	1.852	0.603
Number of rooms	ref:1 - 3 4 or more	0.536	0.259	1.112	0.940
Have Car	ref: no yes	1.614	0.697	3.733	0.264

*statistically significant; ref.=reference

Table 11 shows the univariate analysis odds ratios of diarrhoea related variables and health seeking behaviour. The results were not statistically significant.

Table 11. Univariate logistic regression analysis of the relationship between appropriate health seeking behaviour and diarrhoea related variables

variable	category	odds ratio	95% confidence interval	p - value
Fever with diarrhoea	ref: no yes	0.593	0.344 1.024	0.061
Vomiting and diarrhoea	ref: no yes	0.867	0.507 1.482	0.601
Refuses food/ Drink/breast milk	ref: no yes	0.530	0.299 0.942	0.031
Thirst all the time	ref: no yes	0.673	0.384 1.177	0.165

*statistically significant; ref.=reference

Multivariate logistic regression analysis of socio-demographic factors that influence inappropriate health seeking behaviour are show below in Table 12.

Table 12: Univariate logistic regression analysis of the relationship between inappropriate health seeking behaviour and diarrhoea related variables

variable	category	odds ratio	95% confidence interval	p - value
Fever with diarrhoea	ref: no yes	1.685	0.977 2.908	0.061
Vomiting and diarrhoea	ref: no yes	1.154	0.675 1.973	0.601
Refuses food/ Drink/breast milk	ref: no yes	1.885	1.061 3.348	0.031
Thirst all the time	ref: no yes	1.486	0.849 2.602	0.165

*statistically significant; ref.=reference

The results of multivariable logistic regression analysis for diarrhoea related variables and health seeking behaviour are shown in Table 13.

Table 13. Multivariable logistic regression analysis of diarrhoea related variables and appropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval	p - value
Fever with diarrhoea	ref: no yes	0.757	0.410 1.396	0.373
Vomiting and diarrhoea	ref: no yes	0.963	0.549 1.687	0.894

Refuses food/ Drink/breast milk	ref: no yes	0.634	0.332 1.212	0.168
Thirst all the time	ref: no yes	0.771	0.430 1.381	0.381

*statistically significant; ref.=reference

The results of multivariable logistic regression analysis diarrhoea related variables and inappropriate health seeking behaviour are shown below in Table 14.

Table 14: Multivariable logistic regression analysis of diarrhoea related variables and inappropriate health seeking behaviour

Variable	Category	odds ratio	95% confidence interval	p - value
Fever with diarrhoea	ref: no yes	1.321	0.716 2.437	0.373
Vomiting and diarrhoea	ref: no yes	1.039	0.593 1.821	0.894
Refuses food/ Drink/breast milk	ref: no yes	1.577	0.825 3.015	0.168
Thirst all the time	ref: no yes	1.297	0.724 2.324	0.381

*statistically significant; ref.=reference

Tables 11 and 13 show that the children with danger signs (diarrhoea related variables) were no more less likely to receive appropriate health seeking behaviour compared to their counterparts who were not reported to have danger signs.

Caregivers reported different treatment options given at home for children with diarrhoea. The use of ORS together with zinc sulphate was the most commonly used treatment option with 37.4% followed by use of ORS without zinc in 35.3% of cases. Very few caregivers (5%) used home recommended fluid in 53 cases no fluid was given. These results are shown below in Table 15.

Table 15. Treatment given at home before seeking help outside home

Treatment given at home	Frequency(%)
ORS	84(35.3)
ORS + Zinc	89(37.4)
Home-recommended fluid	12(5.0)
Total	185(77.7)
No fluids given	53(22.3)
Total	238(100)

*ORS-Oral Rehydration Solution

Table 16 shows the distribution of participants according to the place outside the home that caregivers used. The majority of caregivers sought care at a government health facility and the least visited place outside the home was the traditional healers.

Table 16. Place consulted outside the home

Place consulted	Frequency(%)
Public (government) health institution	188(79)
Private health institution	9(3.8)
Traditional healer	1(0.4)
Total	198(83.2)
Missing	40(16.8)
Total	238(100)

The caregivers' reasons for not seeking care outside the home for children with diarrhoea are presented in Table 17. Most caregivers cited perceiving that the child's illness was not serious while lack of money was the least cited reason for not seeking care outside the home.

Table 17. Reasons for not seeking care outside the home

Reason	Number of caregivers who did not seek help outside the home (N =41) n(%)
Illness not serious	37(90.2%)
Thinking new teething	16(39.0%)
Caregiver busy	5(12.2%)
Lack of money	2(4.9%)
Health facility far	3(7.3%)

Chapter 5

5.0 Discussion

The aim of the study was to determine factors associated with health seeking behaviour among caregivers of children under five years old with diarrhoea in Maun. Results from our study showed that only 40.3% of caregivers sought appropriate care for the children under their care. This finding of low levels of appropriate health seeking behaviour was also found by Mukiira in a study of healthcare seeking practices of caregivers of under-five children with diarrhoeal diseases in two informal settlements in Nairobi, Kenya, where 55% of the caregivers were found to have practised inappropriate healthcare seeking behaviour compared to 59.7% in our study in Botswana.²⁹ It is concerning to find that only 40.3% of caregivers in Botswana sought appropriate care in this study since IMCI guidelines have been implemented in the country. This is particularly worrying as this negatively impacts the fight to reduce child mortality in Botswana. The policy to avail ORS and zinc tablets to every household that has an under five child should be supported with measures to help caregivers give appropriate amounts of ORS and to seek consultation early from registered health institutions.

The majority of the caregivers (83.2%) in this study sought health care outside the home. In this group, 94.9% visited government health institutions and 4.5% went to private health facilities. Only 0.5% reported visiting traditional healers. In contrast to our finding, one study in Ethiopia, reported that 56.6% children sought care for diarrhoea outside the home, with a lower proportion (76.9%) than revealed in our study seen at a government health facility, while 18% were attended in a private facility and 5.1% were taken to traditional healers.³⁸ A comparative figure (54.9%) of caregivers was reported to have sought care outside the home in a study in Burkina Faso.¹⁹ Similar to our study, the places most caregivers sought help outside the home were public health clinics (77.5%). The other caregivers went to traditional healers and drug vendors (22%).¹⁹ The availability and accessibility of government health facilities has probably made them the preferred choice for the caregivers. Thus the ministry of health has a platform to implement programs designed to reduce child morbidity and mortality such as immunisation programmes and in particular the rota virus vaccine with regards to the fight against diarrhoea. For those who did not visit a registered health facility, more needs to be done to have them access health facilities. Children with diarrhoea related danger signs have higher odds of being taken to a traditional healer

²⁷ and as such the ministry of health needs to find a way to work with traditional healers so that childhood illnesses are treated appropriately.

Our findings indicate that the majority of caregivers (72.7%) administered ORS at home before seeking help outside the home. Similarly, one American study reported that 74.5% of caregivers used ORS in children with diarrhoea and 50% of these gave the ORS without being instructed by the healthcare worker.²⁶ Conversely, in the study by Mukiira in Kenya, only 1% of the caregivers reported giving ORS to children with diarrhoea.²⁹

In Burkina Faso, researchers reported that only 24% of children with diarrhoea were given ORS.¹⁹ The relatively high usage of ORS in our study may be a reflection of a successful campaign by the Ministry of Health and Wellness that aims at providing ORS and zinc sulphate tablets in every household with an under five child in Botswana in line with the WHO guidelines on ORS administration in the management of acute diarrhoeal diseases.²²

Some studies have reported a positive relationship between caregivers' care seeking behaviour and their level of education.^{31,37-39} Thus, we had expected that the more the level of education the more likelihood a caregiver would display appropriate health seeking behaviour. However, this was not the case for the primary and secondary level of education. Notwithstanding the differences in study settings, there may be other confounders like caregiver's previous experience with a child with diarrhoea and the influence of a family member on decision making that we had not considered that may have affected our results. The finding of a higher proportion of caregivers with no formal education compared to those with formal education exhibiting appropriate health seeking is supported by similar findings in a study by Pillai *et al* who found a negative relationship between maternal education and care seeking behaviour. The explanation that they gave for this finding was that educated mothers may wait for the illness to subside spontaneously knowing that should the illness worsen they have enough resources to get treatment.¹⁰ More educated mothers may be employed as such delegate the caring of the child to others. The more educated mothers may have other competing interests compared to the less educated mothers who are more likely to make clinic visits than the educated mothers. Mukiira in the study in two settlements in Kenya, found caregivers to less likely seek appropriate care for children under five with diarrhoea especially if the caregiver completed primary or higher level of education.²⁹ In our setting, the role of the health educators at the clinic could have helped because patients are regularly given health

talks in the morning before being attended to and also the campaign of giving ORS and a zinc tablet could also have had a positive contribution in that when the caregiver comes for routine child welfare visits, they are given one zinc tablet and one ORS sachet and told to give this to the child should he/she have diarrhoea and come to the clinic for assessment and more zinc at the nearest clinic. This MOHW recommendation is based on evidence that diarrhoea that is treated early in the home prevents dehydration and hence reduces deaths from diarrhoea.⁴⁹ Furthermore, previous encounter of a caregiver with a health care provider is known to improve health seeking behaviour.⁴¹

Although the caregiver's level of education was used to estimate health care literacy in our study and similar studies, a more meaningful assessment would be of the caregivers' knowledge with regards to diarrhoea as opposed to level of education.

Caregivers of lower income had more appropriate health seeking behaviour and the analysis for inappropriate health seeking behaviour confirmed this by finding higher odds of inappropriate health seeking behaviour for caregivers with higher household income. Our findings of higher proportion of caregivers in the lower income household category compared to the higher income caregivers having appropriate health seeking behaviour is supported by findings by Pillai *et al* who reported that families of higher economic status seek care less for illness they feel is mild and for the same reason given for level of education that this is done because they have the resources to get care should the illness worsen.¹⁰ In contrast to this finding, a study in Kenya did not find a positive association between wealth status and health care seeking behaviour of caregivers to their children under five years with diarrhoea.²⁹ Although higher income can mean better access to health facilities, in Botswana, 84% of the population live within 5 km radius to a health facility and have little limitation in accessing health care.⁵⁰ Thus health facilities are mostly within reach and treatment for children under five years old is free which allows equal access to health services regardless of household income. All children under five years of age regardless of the household income receive monthly food rations when available at all the clinics and health posts offering child welfare services in a bid to fight malnutrition. It is possible that this has resulted in more caregivers utilising the health care facilities and may explain why households of lower income who are more likely to feel the need for the food rations, were more likely to have appropriate health seeking behaviour.

Married caregivers had higher odds of having appropriate health seeking behaviour in our study. Similarly, in Ethiopia, being a married mother/caregiver was one of the factors found to be significantly associated with health seeking behaviour (COR=1.7; 95% CI 1.1 – 2.8).³⁸ Similarly, in Kenya, married women were found to seek more appropriate care compared to those who had never been married.²⁹ In communities where women have very low autonomy, marriage can result in delayed health seeking behaviour as permission has to be sought first from the husband or a designated head by the woman to seek treatment for herself and the children.⁵¹ In Mali, a study showed that mother in laws had a dominant role and they initiated treatment in the home for a child with diarrhoea as well as decided when during the course of home treatment should care be sought outside the home.⁵²

With regard to employment status, our results align to findings from India where there was no statistically significant association between employment status and health seeking behaviour.⁵³ The study in India showed that 55.2% of non-working mothers had appropriate health care seeking behaviour compared to 54.8% of the working mothers.⁵³ In this study, a caregiver was said to have appropriate healthcare seeking behaviour if action taken was either preventive or curative for a perceived illness.⁵³ The quality of the action taken was not the subject of the study. Our results may be a reflection of the great strides that the Ministry of Health and Wellness has taken to try and bring equity in health to all. Employment status has been shown to influence health seeking behaviour in settings where access to health is dependent on the caregiver being able to afford the cost of consultation and medications.^{52,54}

The proximity of health facilities and availability of public transport could be a reason why possessing a car was not found to be a variable that improved or resulted in more appropriate health seeking behaviour among the caregivers.⁵⁰

In support of our results, in Bangladesh, the toilet type was seen as a determinant of care seeking behaviour for those with improved toilet facilities which also translated to better hygiene.⁵⁵ Although not statistically significant, multivariable analysis showed that caregivers with improved toilet facilities had higher odds of displaying appropriate health seeking behaviour. Improved toilet facilities imply better access to sanitation and hygiene.⁵⁴ Such knowledge should be available for policy makers when developing laws on settlement and sewage disposals in residential plots.

An Ethiopian study showed higher levels of health care seeking behaviour among younger mothers compared to older ones.⁵⁶ However, respiratory disease was the focus of the study as opposed to diarrhoea.⁵⁶ Given the differences in the signs and symptoms characterising the two diseases, caregiver's perception on the severity of the illness is likely to be different between the two diseases and hence the response may differ. Our multivariable analysis also found more appropriate health seeking behaviours in the younger caregivers of 15 – 25 years' age group compared to older caregivers and this was statistically significant when they were compared to the 26 – 35 years old caregivers. The multivariable analysis for inappropriate health seeking behaviour found that caregivers in the 26 – 35 age group had higher odds of inappropriate health seeking behaviour when compared to the 15 – 25 age group. It could be that the younger caregivers are less experienced at child raising and so rely more on health care providers for advice and so seek help early. However, older mothers were found to be less likely to visit a health facility for a child with diarrhoea in Malawi as other fluids and traditional medicine are preferred treatment option for diarrhoea.⁴³

Our multivariable analysis did not show any statistically significant difference in the health seeking behaviour of caregivers of children under five years according to birth order. This differs from data from India suggesting an association between use of medical facilities and birth order. This observation may be a result of the sociocultural differences between the two countries.^{39,57}

Our results of higher odds for appropriate care seeking for sick children youngest age group (0 – 11) compared to the older age group categories are consistent with reports from Kenya.²⁹ However, contrary findings have been reported in Ethiopia with children less than 24 months noted to have higher odds of delay in seeking help for their diarrhoea. The differences in these findings may be influenced by varying cultural practices as caregivers in Ethiopia mostly believed that diarrhoea in this age group is associated with teething and as such mild and self-limiting.⁴¹

We found higher odds of appropriate health seeking behaviour among caregiver for female children compared to male children. Similar findings of higher odds of appropriate health seeking behaviour for female children were reported in Kenya.²⁹ This finding was in contrast to findings in Nepal and India where male children had higher chances of being taken to a health facility for

their illness.^{29,39} In Nepal and India, there is societal gender bias and culturally they prefer sons over daughters.⁵⁸ The male dominated society in these countries have cultural beliefs that put male children ahead of females.³⁹ There is more concern for the male child as they are regarded as the future bread winners.³⁹

Caregivers with family size larger than five members had higher odds of demonstrating appropriate health seeking. This could be due to the fact that the more people in a household the easier it is to have a member take a child to the clinic when they are not well. Also, the more the people the more likely it is to get someone with previous exposure of diarrhoea in an under five who might advise on appropriate actions to take. However, this finding did not reach statistical significant in the analysis. Other researchers have reported that larger family sizes resulted in delay seeking help for a child at a health facility.^{43,59} In certain childhood illnesses like malnutrition, large family size maybe a disadvantage in that limited resources will be shared resulting in members not getting adequate amounts of the resources.⁶⁰

Ironically, our univariate analysis showed that caregivers who reported their children to have reduced oral intake had higher odds of inappropriate health seeking behaviour compared to those who did not report reduced oral intake. This means that in the fight to reduce childhood morbidity and mortality, recognition of some danger signs by the caregiver may be unreliable in predicting for appropriate health care utilization by caregivers of under five children with diarrhoea. In a study in Edo state Nigeria, 70% of the respondents in one study did not know that being unable to eat or drink was a symptom of the child illness.³² Other researchers have reported that children with danger signs were not taken for licensed care even in situations where the caregiver recognised that the illness is life threatening.⁵⁴ This apparent inertia in accessing health care when indicated by reduced oral intake may partially explain the high mortality rates in the under five year old children in settings such as ours. Interventions responsive to this would need to integrate health education with other disease control strategies and to describe syndromes such as poor oral intake in the context of local terms.

An overwhelming majority of caregivers who did not present to a health facility when the child had diarrhoea, reported that the reason for not going to a health facility was that they perceived the

illness not to be serious and they felt they could manage at home. Various studies have shown that children are likely to receive care outside the home if the caregiver perceives the illness to be serious.^{32,37,54} This finding is important because if the caregiver does not know the danger signs, they might not perceive the illness to be serious and fail to seek appropriate care, the consequence of which potentially leads to poor outcomes. It is thus important for healthcare workers to seize the opportunity to teach caregivers about how to manage diarrhoea and recognise the danger signs of diarrhoea when they come for their routine child welfare visits. This can be done in the form of a brief health talk in the morning while the caregivers are waiting to register their children for child welfare clinic. Another way is to engage the media and have talks on radio and television broadcasts on diarrhoea and other common childhood illnesses. A cross-sectional clustered-randomised trial in Burkina Faso showed that radio was effective in increasing utilisation of health services in the intervention group.⁶¹ Mass media campaigns using television, radio and newspapers has been shown to produce positive changes and also prevent negative health-risk behaviours in large populations.⁶¹

The number of male caregivers in our study was not enough to make a reasonable comparison of their health seeking behaviour to that of female caregivers. However, other researchers have reported that male caregivers had a higher proportion of ignorance to the management of diarrhoea.⁶² Additionally, there is evidence from settings similar to ours that female caregivers with tertiary education are more aware of the use of zinc than their male counterparts.⁶²

From the above findings, there should be awareness that caregivers may not recognise danger signs and hence not present early to health facilities for children of certain age groups and gender so when developing programs for prevention and control of childhood diseases, measures must be put in place to capture these. Any cultural or religious barriers to health seeking behaviour must be taken into consideration and acceptable solutions found by the health institutions and the community working together.

5.1 Limitation of study

Several limitations are worth noting from our study.

The questionnaire was not directly translated to Setswana thus limiting its validity. Research assistants translated as they read the questions out. Although attempts to standardise this process were undertaken by observing the performance of the research assistants during piloting and through observation by the researcher, more consistency could have been achieved through written text and back-translation. Prior studies to subject the questionnaire to test of internal validity and reporting a Cronbach alpha were not available. Thus our results need to be interpreted with caution. Future use of the questionnaire will need more rigorous validation.

There is a possibility that the participants did not recall the influences to their decisions accurately when the diarrhoea was a long time ago. To try and minimise this recall bias, the caregiver was asked to give information on the most recent episode of diarrhoea that the child had. There is a chance that some caregivers responded to questions inaccurately so that they are not judged to have done wrong (Social desirability bias).⁴⁵

Another limitation is that the study was in health care facilities and so left out those people who do not use/frequent health facilities. The high level of child welfare clinic attendance for under five children for routine immunisation decreases this potential selection bias.⁶³

Chapter 6

6.0 Conclusion

This study found that most caregivers had inappropriate health seeking behaviour regarding episodes of acute diarrhoea in children under five years of age. Except for young age of caregivers and low household income of caregivers, no other factors were found to be associated with appropriate health seeking behaviour of caregivers of children under five years old.

6.1 Recommendations

Health education to caregivers that is focused on prompt identification of danger signs, oral fluid management at home and decision making on when to take the child to the hospital/health facility should be offered regularly in primary care clinic in Maun.

Further qualitative studies are needed to provide in-depth understanding of caregivers' health seeking behaviours for children under five years of age with diarrhoea and the factors that drive these behaviours in our setting.

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APPENDIX A

FOMO YA TUMALANO YA GO TSAYA KAROLO

SETLHOGO SA PATLISISO: Mekgwa ya go batla dithuso tsa botsogo ya batlhokomedi mo Maun ba bana ba ba dingwaga di ko tlse ga botlhano ba ba nang le letshololo.

Mogolwane wa Dipatlisiso : Dr Balisi Tshuma

Nomere ya mogala : 72816346

Se o tshwanetseng go se itse ka patlisiso e:

- Re go neela pampiri e ya tumalano ya go tsaya karolo gore o ka bala ka mosola, dikgwetlho le dipoelo tsa patlisiso e.
- O na le tshwanelo ya go gana go tsaya karolo kana go dumela jaanong kana go fetola mogopolo mo tsamaong ya nako.
- Tswee tswee bala pampiri e ya tumalano ya go tsaya karolo ka kelotlhoko. Botsa dipotso dipe fela pele ga o tsaya tshwetso.
- Go tsaya karolo ga gago ke ga boithaopo.

BOTLHOKWA/MOSOLA WA PATLISISO

O kopiwa go tsaya karolo mo patlisisong yamekgwa ya go batla dithuso tsa botsogo ya batlhokomedi mo Maun ba bana ba ba dingwaga di ko tlse ga botlhano ba ba nang le letshololo. Botlhokwa jwa patlisiso e, ke go tlhotlhomisa mabaka a a rotloetsang mekgwa ya go batla dithuso tsa botsogo ya batlhokomedi mo Maun ba bana ba ba dingwaga di ko tlse ga botlhano ba ba nang le letshololo. O tlhophilwe jaaka moitseanape ka go bo ole motlhokomedi wa ngwana yo o dingwaga tse di ko tlase ga botlhano e bile ba kile ba nna le letshololo. Pele ga o ka baya pampiri e monwana, tlhomamisa gore o botsa ka ga sepe fela se o sa se tshaloganyeng ka patlisiso e. O ka tsaya nako ya gago go akanya ka yone.

TSAMAISO LE SEBAKA

Fa o tsaya tshwetso ya go tsaya karolo, o tla lalediwa go tseenelela dipuisano tsa patlo maikutlo tse di tla tsayang metsotso e ka nna masome a mararo.

DITLAMORAGO LE DIKGORELETSI

Ga gona kotsi kgotsa borai bope jo bo ko tlhagelang ka go tsaya karolo mo patlisisong e.

DIPOELO LE/KANA DIKATSO

Maduo a patlisiso e, a ka thusa go tokafatsa ditogamaano tsa go lwantsha go tlhokafala ga bana ba ba dingwaga tse di ko tlase ga botlhanano mo sechabeng.

TSHOMARELO SEPHIRI

Dipampiri tsotlhe tse di nang le mekwalo e e amanang le patlisiso e di tla bewa mo sebolokelong se se lotlelwang. Patlisiso e, ga e nke e dirisewe mo kgwebong epe.

GO ITHAOPA GO TSAYA KAROLO

Go a ithaopiwa go tsaya karolo mo patlisisong e. Fa o tsaya tshwetso ya go seke o tsee karolo, ga go kake ga ama tirisano ya gago le University of Botswana mo nakong e e tlang kgotsa le makalana a a amanang le yone. Fa o tsaya tshwetso ya go tsaya karolo, o gololesegile go ka boela morago nako nngwe le nngwe ntleng ga tuediso epe. Ga o ka gana go kopana le mmatlisisi ka nako e le e dumalaneng, go tla a tsewa e le sesupo sa gore o ikgogetse morago mme ka jalo kamano ya gago mo patlisisong e e tla busediwa morago le fa o sa fa kopo epe. Fa o palelwa kgotsa o retelelwa ke go diragatsa ditumalano tse di dumalanweng tsa go tsaya karolo mo patlisisong e, kamano ya gago mo patlisisong e e tla emisiwa o sa rerisiwa e bile o sa fiwa phimola keledi epe.

TESELETSO

O dira tshwetso ya go tsaya kgotsa go seke o tsee karolo mo patlisisong e. Monwana wa gago o supa fa o badile e bile o tlhalogantse ditlhaloso tse o di filweng fa godimo, e bile dipotso tsa gago tsotlhe di arabesegile, gape o tserere tshwetso ya go tsaya karolo.

Leina la mo tsaya karolo (kwala)

Letsatsi

Monwana wa mo tsaya karolo kana moemedi

Kamano le mo tsaya karolo

Monwana wa mosupi

Monwana wa mmereki yo o tsayang tumalano

(Fa o batla)

O TLA A NEELWA PAMPIRI E NNGWE YA TUMALANO GORE O E BEE SENTLE

Fa o na le dipotso tse di amanang le patlisiso e, kgotsa tumalano e ntleng ga tse di arabilweng ke mmatlisisi, ga mmogo le dipotso ka ga patlisiso e, ditshwanelo tsa gago o le mo tsaya karolo; kana o akanya gore ga o a tsewa sentle, ka tswée-tswée utlwa o gololesegile go ka ikgolaganya le ba ofisi ya patlisiso le ditlhabololo (Research and Development) ko University ya Botswana, mogala: Mme Mary Kasule mo 355 2911/2900, Email: mary.kasule@mopipi.ub.bw Telefax (0267) 395-7573

APPENDIX B
INFORMED CONSENT FORM

PROJECT TITLE: Health seeking behaviour of caregivers of children under five years old with diarrhoea in Maun

Principal Investigator : **Dr Balisi Tshuma**

Phone number(s): **72816346**

What you should know about this research study:

- We give you this informed consent document so that you may read about the purpose, risks, and benefits of this research study.
- You have the right to refuse to take part, or agree to take part now and change your mind later.
- Please review this consent form carefully. Ask any questions before you make a decision.
- Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study of Health seeking behaviour of caregivers of children under five years old with diarrhoea in Maun. The purpose of the study is to contribute to determine factors associated with health seeking behaviour among caregivers of children under five years old with diarrhoea in Maun. You were selected as a possible participant in this study because you are a caregiver to a child who is less than five years old who has had diarrhoea. Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

PROCEDURES AND DURATION

If you decide to participate, you will be invited to an interview which may take about 30 minutes of your time.

RISKS AND DISCOMFORTS

There are no perceived risks for being involved in this research.

BENEFITS AND/OR COMPENSATION

Findings from this study may contribute valuable information that will help implement interventions tailored to the needs of the community in the fight to reduce child mortality

CONFIDENTIALITY

The data from this investigation will be kept in a locked cupboard. None of these will be used for commercial use.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relations with the University of Botswana, its personnel, and associated institutions. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. Any refusal to observe and meet appointments agreed upon with the central investigator will be considered as implicit withdrawal and therefore will terminate the subject's participation in the investigation without his/her prior request. In the event of incapacity to fulfill the duties agreed upon the subject's participation to this investigation will be terminate without his/her consent.

AUTHORIZATION

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and have decided to participate.

Name of Research Participant (please print)

Date

Signature of Staff Obtaining Consent

Date

(Optional)

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Office of Research and Development, University of Botswana, Phone: Ms Dimpho Ralefala on 355-2900, E-mail: research@mopipi.ub.bw, Telefax: [0267] 395-7573.

APPENDIX C

Research questionnaire.

Research Title

Health seeking behaviour of caregivers of children under five years old with diarrhoea in Maun

Method of Administration

- **Researcher to introduce themselves by name to the participant**
- **Introduce the research topic and explain the purpose of the study**
- **Take an informed consent before administering the questionnaire**
- **Explain to participant that you will ask questions and read out a list of possible responses to the participants. The participant chooses a response and the researcher will tick on the questionnaire.**
- **At the end of administering the questionnaire the researcher will verbally thank the participant for giving their time**

Principal Investigator: Dr Balisi Tshuma

Supervisor : Dr Billy Tsimba

Co-Supervisor: Dr John A. Ogunjumo

Name of clinic	
Date of data collection	
Interviewer Name and signature	

Part I [100]:- Socio-economic and demographic factors

No.	Questions	Response option	Code of response	Skip
101	Who is the head of the household?	Father Mother Other/specify	1 2 9_____	
102	Age of the mother/caregiver in years	_____year Sex _____		
103	Religion of mother/caregiver?	Christian Muslim Other/specify	1 2 9_____	
104	Ethnicity of mother/caregiver?	Herero Tawana Subiya Mbukushu Other/specify	1 2 3 4 9_____	
105	Occupation type of mother/caregiver? [More than one option is possible]	Housewife Daily labourer Government employee Merchant Private investor [company] employee] Other/specify	1 2 3 4 5 9_____	
106	Mother/caregiver educational status?	Illiterate literate informal literate formal[Primary/secondary/tertiary] _____	1 2 3	
107	Marital status of the mother/caregiver?	Married Single	1 2	

		Widowed 3 Divorced 4	110																		
108	Occupation type of the child's Father?	Daily labourer 1 Government employee 2 Merchant 3 Private company employee] 4 Other/specify 9_____																			
109	Education status of child's Father?	Illiterate 1 literate informal 2 literate formal Primary/Secondary/ tertiary education 3_____																			
110	Average household monthly income [from all sources]?	_____ In Pula																			
111	Total family size of the household?	_____ In number																			
112	Number of under-five years age children in the household?	_____ In number																			
113	Ownership status of the living house?	Rented from government 1 Rented from private 2 Owned 3 Neither rented nor owned 4																			
114	How many rooms does the house have?	_____ In number																			
115	Does the household have the following functional assets Television? _____ Radio? _____ Mobile phone? _____ Bed? _____ Refrigerator? _____ Motorcycle? _____ Car _____ Other/specify [list all available]	<table border="1"> <thead> <tr> <th>No</th> <th>Yes</th> </tr> </thead> <tbody> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> </tbody> </table> 9. _____	No	Yes	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	
No	Yes																				
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116	<p>Does the mother/caregiver use the following media as a source of child health information such as for diarrhoea [more than one option is possible]</p> <p>✓ Reads news-paper or magazines at least once per two week?</p> <p>✓ Listens to radio at least once per two week?</p> <p>✓ Watches television at least once per two week?</p> <p>✓ Visits the cinema or theatre at least once per two week?</p> <p>✓ Does mother/caregiver get advice from health provider at least once per two week?</p> <p style="text-align: center;">Other/specify</p> <p style="text-align: center;">9_____</p>	No	Yes
		0	1
		0	1
		0	1
		0	1
		0	1

Part II [200] Environmental and behavioural factors

Water related			
Q No.	Questions	Response	Skipp
201	What is the main source of drinking water for members of your household?	Tap water 1 Public tap/[Jojo or tanker] 2 Protected well 3 Unprotected well 4 Protected spring 5 Unprotected spring 6 Other/specify 9_____	
202	What is the main source of water used by your household for other purposes such as cooking and hand washing?	Tap water 1 Public tap [Jojo/tanker] 2 Protected well 3 Unprotected well 4 Protected spring 5	

		Unprotected spring	6	
		Other [specify]	9_____	
203	Where is the water source located and how did you get during the last two weeks? [more than one answer is possible]	In own dwelling	1	
		In own yard /plot	2	
		Elsewhere through purchasing	3	
		Else somewhere without purchasing	4	
		Other specify	9_____	
204	If water source from tap, ownership of piped water connection?	Owned	1	
		Shared	2	
		Other/specify	9_____	
205	Is drinking water available regularly from the source during the last two weeks?	No	0	
		Yes	1 →	2
				0
				8
206	For how many days you did not get water during the last two weeks?	_____ days		
	Water handling practices related			
207	Capacity of the water collection container you used during the last two weeks?	_____ Litres		
208	Frequency of the water collection per day during the last two weeks?	_____ times/day		
209	Amount of water consumption? [Calculated by the data enumerator]	_____ Litre/person/day		
210	Do you think that your water is safe?	No	0	
		Yes	1	
		I do not know	8	
211	How did you treat the drinking water you are using in the last 2 weeks? [More than one option is possible].	Add bleach /chlorine	1	
		Boil	2	
		Strain it through a cloth	3	
		Use water filter [ceramic, sand, etc]-	4	

		Other/specify	9____	
212	If you store drinking water at home during the last two weeks, for how long is drinking water stored at home?	Less than half day	1	
		One day	2	
		Two days	3	
		Other/specify	9_____	
213	What type of water storage container do you use at home during the last two weeks? [More than one option is possible]	Clay pot	1	
		Jerry can	2	
		Plastic bucket	3	
		Iron bucket	4	
		Other/specify	9____	
214	Is the drinking water storage container wide or narrow mouthed?	Wide mouthed	1	
		Narrow mouthed	2	
215	Frequency of cleaning water storage container during the last two weeks?	Once per day	1	
		Twice per day	2	
		Once per two days	3	
		Once per three days	4	
		Weekly	5	
		Other/specify	9_____	
216	How do you retrieve water from the water storage container during the last two weeks until yesterday?	Pouring	1→	Q2
		Dipping	2	19
		Both pouring and dipping	3	
217	Is the water dipping utensil used during the last two weeks with handle or not?	With handle	1	
		Without handle	2	
218	How frequently do you wash your dipping utensil during the last two weeks?	Every reuse	1	
		Once per day	2	
		Once per two day	3	
		Not at all	4	
		Other/specify	9_____	
Sewage disposal				

219	What kind of toilet facility do members of your house usually use? [If necessary ask permission to observe the facility]	Pit latrine with slab 1 Pit latrine without slab /open pit 2 Public latrine 3 Flush water system toilet 4 No facility, Bush, Field 5 Other/specify 9_____	→ 2 2 4
220	Ownership of latrine/toilet?	Privately owned 1 Shared with neighbours 2 Other/specify 9_____	→ 2 2 2
221	If latrine/toilet shared with neighbours, how many households use the latrine?	_____ household	
222	Are faeces seen around the pit-hole/or on the floor?	No 0 Yes 1	
223	Are there observable flies in/around the latrine?	No 0 Yes 1	
224	How do you dispose child's faeces when she/he does not use any toilet facility alone?	Rinsed in the toilet 1 Thrown to garbage 2 Thrown to open field 3 Thrown to open sewerage 4 Other/specify 9_____	
225	Location of toilet/latrine inside the yard or outside yard?	Inside yard 1 Outside yard 2	
226	How often is the latrine/toilet cleaned within the last two weeks?	Every use 1 Once per day 2 Every two days 3 every three days 4 Other/specify 9_____	
	Hygiene related		

227	Do you have hand washing facilities [container] near the latrine/toilet?	No	0 →	2 3 0														
		Yes	1															
228	Is there water in the toilet/latrine hand washing facility [container]?	No	0															
		Yes	1															
229	Is there soap near the latrine/toilet hand washing facility?	No	0															
		Yes	1															
230	<p>mother/caregiver hand washing hygiene practices during critical times in the previous two weeks [more than one option is possible]</p> <ul style="list-style-type: none"> • Hand washing before child feeding • Hand washing before food preparing for the child • Hand washing after cleaning yard/house • Hand washing after cleaning child bottom [nappy] • Hand washing after latrine use • Child hand washing before eating 	<table border="1"> <thead> <tr> <th>With soap</th> <th>without soap</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> </tr> </tbody> </table>	With soap	without soap	1	0	1	0	1	0	1	0	1	0	1	0		
With soap	without soap																	
1	0																	
1	0																	
1	0																	
1	0																	
1	0																	
1	0																	
Domestic wastewater, refuse management and housing condition related																		
231	Is domestic wastewater sewerage system available?	No	0															
		Yes	1															
232	Presence of open sewerage ditch out of the compound gate?	No	0															
		Yes	1															
233	Where do you usually discard the domestic wastewater? [More than one option is possible]	Add to open sewerage ditch	1															
		Add to latrine	2															
		Thrown inside compound	3															
		Throw away outside compound	4															
		Add to wastewater sewerage system	5															
		Other/specify	9 _____															

234	Is there open raw sewage seen inside the compound?	No Yes	0 1	
235	Uncollected garbage [solid waste/refuse] seen inside the compound?	No Yes	0 1	
236	How do you dispose of garbage? [More than one option is possible]	Add to pit Burning Through open field Store in garbage container Other/specify	1 2 3 4 9_____	
237	What type of flooring material is used in the house?	Mud Cement Wood Tiles Other/specify	1 2 3 4 9_____	
238	What type of wall surface material is inside the house?	Mud Cement Wood Other/specify	1 2 3 9_____	
239	What type of the roofing material is the living house made of?	Corrugated iron sheet with ceiling Corrugated iron sheet without ceiling Plastic Tiles Other/specify	1 2 3 4 9_____	
Part III [300]:- Child, child care and diarrhoea related				
301	Age of child? [In months]	_____months		
302	Sex of child?	Female Male	1 2	
303	Birth order of the child?	_____		

304	Did the child have exclusive breast feeding for six months? [Ask mother/caregivers for children's age above 6 months]	No Yes	0 1 →	306
305	For how long did you exclusively breast-feed the child? [In complete months]	_____ months		
306	What is the child's current breast feeding status?	Exclusive breast-feeding Partial breast-feeding Not breast-feeding	1 → 2 3	308
307	At weaning, how do you feed the child?	Use hand Use spoon Use cup Other/specify 9_____	1 2 3	
308	Did the child receive measles vaccinations? [Ask only for children whose age is equal or greater than 9 months]	No Yes	0 1	
309	Did the child receive Vita A? [Ask only for children whose age is equal or greater than 6 months]	No Yes	0 1	
310	Has the child had acute diarrhoea during the last two weeks?	No Yes	1 2	
311	Did the mother/caregiver have diarrhoea during the last two weeks?	No Yes	1 2	
Part V [400]:- Health-care seeking behaviour of mothers/caregivers [Only for diarrheal children]				
Q No.	Questions	response		

401	Did you seek advice or health-seeking for acute diarrhoea during the last two weeks from any source?	No 1 Yes 2															
402	In the last case of diarrhoea, factors [symptoms] predicting mothers/caregivers for recognizing acute diarrhoea to give health-seeking? [More than one option is possible] <ul style="list-style-type: none"> ➤ Had at least one bloody stool per day ➤ Had at least three and/or more times watery loose stool per day, and/or stool with mucus ➤ Has fever with diarrhea ➤ Is thirsty all the time ➤ Is vomiting ➤ Refuses to eat/drink/ take breast ➤ Other [specify] 	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>No</th> <th>Yes</th> </tr> </thead> <tbody> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> </tbody> </table> 9_____	No	Yes	0	1	0	1	0	1	0	1	0	1	0	1	
No	Yes																
0	1																
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403	Mother's/caregiver's perceived causes of diarrhoea?	New teething 1 Supernatural causes 2 By infection during weaning 3 I do not know [I've no idea about the cause] 8 Other/specify 9_____															
404	Is health-seeking given at home, outside home or both?	In home 1 → Outside home 2 Home and outside 3	406														
405	Factors predicting any care seeking outside the home [from health institutions, traditional healer [More than one option is possible] <ul style="list-style-type: none"> ❖ Fever _____ → 	<table border="1"> <tr> <td>No</td> <td>Yes</td> </tr> </table>	No	Yes													
No	Yes																

	<ul style="list-style-type: none"> ❖ Vomiting → ❖ Appetite lower than usual → ❖ Increase duration of diarrhea episode → ❖ Near distance of the health institutions → ❖ Child sex → ❖ Other/specify 	<table border="1" style="display: inline-table; vertical-align: top;"> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> </table>	0	1	0	1	0	1	0	1	0	1	0	1	9 _____			
0	1																	
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0	1																	
406	Average estimated time taken from home to government health facility [One way trip]	_____ minutes																
407	<p>If you did not take the child for health-seeking after recognized diarrhoea presence, why not [more than one option is possible]</p> <ul style="list-style-type: none"> ❖ Lack of money → ❖ far distance to health facility → ❖ Illness was not serious → ❖ Mother/caregiver was busy → ❖ Treatment expensive → ❖ Thinking as new teething disease → ❖ Other/specify 	<table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr><th>No</th><th>Yes</th></tr> </thead> <tbody> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td></tr> </tbody> </table>	No	Yes	0	1	0	1	0	1	0	1	0	1	0	1	9 _____	
No	Yes																	
0	1																	
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408	Where did you seek advice or treatment out-side the home? [Ask if mother/caregiver sought advice out-side the home]	Public [government] health institution 1 Community health worker 2 Private health institution 3 Pharmacy/Drug vendor shop 4 Traditional healer 5 Other [specify] 9 _____																

409	If health-seeking is given in government health facility, which one?	Health post Clinic Hospital Other/specify	1 2 3 9_____	
410	If health-seeking is given in private health facility, which one?	Clinic Pharmacy/drug vendor] Hospital Other/specify	1 2 3 9_____	
411	If health-seeking given at home, what treatment was given? [More than one option is possible]	Oral rehydration solution [ORS] Anti-biotic drugs ORS + Zinc Home Recommended Fluids Other/specify	1 2 3 4 9_____	
412	What type of treatment was given in the place consulted?	Oral rehydration solution [ORS] Anti-biotic drugs ORS + Zinc Home Recommended Fluid [HRF] Other/specify	1 2 3 4 9_____	
414	If health seeking is given from government health facility, why did you choose the place?	Treatment cost was less expensive Treatment quality of service Distance of health facility was near Illness was serious Treatment given within short period of time Other [specify]	1 2 3 4 5 9_____	
414	If health seeking is given from private health facility, why did you choose the place?	Treatment cost was less expensive Treatment quality of service Distance of health facility was near Illness was serious	1 2 3 4	

		Treatment given within short period of time 5 Other [specify] 9_____	
415	If health-seeking given from traditional medicine/ healer, why did you choose the place?	Treatment cost was less expensive 1 Treatment quality of service 2 Illness was not serious 3 Illness was serious 4 Near distance from home 5 Treatment given within short period of time 6 Other [specify] 9_____	
416	Average estimated time spent at the health-seeking place, after you recognized the diarrhoea?	_____ days or hours	
417	When your child had diarrhoea, how much was he given to eat?	More 1 Same as usual 2 Somewhat less 3 Much less 4 No food given 5 I do not know 8	
418	Now I would like to know how much fluid was given to drink of the supplementary liquid during diarrhoea.	More 1 Same as usual 2 Somewhat less 3 Much less 4 No liquid given 5 I do not know 8	
419	Frequency of exclusive breast feeding compared to usual/healthy time? [Ask only on exclusively breast feeding children]	More 1 Same as usual 2 Somewhat less 3 Much less 4 No breast feeding due to diarrhoea 5	

		I do not know	8	
420	Do you think your health-seeking is appropriate or inappropriate?	Appropriate	1	
		In appropriate	2	
		I do not know	8	