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Healthcare-seeking practices of caregivers of under-five children with diarrheal diseases in two informal settlements in Nairobi, Kenya

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Research Project Submitted to the Faculty of Humanities,
University of the Witwatersrand, Johannesburg,
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UNIVERSITY OF WITWATERSRAND, JOHANNESBURG
FACULTY OF HUMANITIES
SCHOOL OF SOCIAL SCIENCES

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DECLARATION

I **Carol K. Mukiira** declare that this research report is my own work. It is being submitted for the degree of Master of Arts in Demography and Population Studies at the University of the Witwatersrand, Johannesburg. To the best of my knowledge, it has not been submitted before for any other degree or examination in any other university.


_____[Signature of candidate]

…**10th** … day of …**April**…. 20**12**……..

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Thanks be to God for this milestone!

My utmost gratitude goes to my supervisor Dr. Latifat Ibisomi for her guidance from the early stage of this research through to its completion, and for giving me support and direction throughout this work. I truly appreciate her contributions.

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SINCERE THANK YOU TO YOU ALL

DEDICATION

This work is dedicated to my parents Mr. Charles Mukiira and Mrs. Violet Mukiira

Table of Contents

DECLARATION I

ACKNOWLEDGMENTS II

DEDICATION III

LIST OF TABLES VI

LIST OF FIGURES VI

ABBREVIATIONS VII

ABSTRACT VIII

DEFINITION OF OPERATIONAL TERMS X

CHAPTER 1.0: INTRODUCTION 1

1.1 Background 1

1.2 Problem Statement 4

1.3 Research Objectives 6

1.3.1 General Objective 6

1.3.2 Specific Objectives 6

CHAPTER 2.0: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK 9

2.1 Literature Review 9

2.2 Conceptual Framework 12

2.3 Hypotheses 14

CHAPTER 3.0: METHODOLOGY 15

3.1 Data and Study Design 15

3.2 Description of the Study Site 16

3.3 Variables 17

3.3.1 Dependent Variable 17

3.3.2 Independent Variables 17

3.4 Analysis Plan 18
3.5 Limitations of the Study 19
CHAPTER 4.0 RESULTS 20
4.1 UNIVARIATE ANALYSIS 20
4.1.1. Demographic and socio-economic characteristics of the study participants 20
4.1.2. Healthcare-seeking practices of caregivers 21
4.1.3 Description of the demographic and socio-economic characteristics of study participants by variable healthcare-seeking practice 23
4.2 BIVARIATE ANALYSIS 26
4.2.1 Factors associated with healthcare-seeking for children with diarrhea 26
4.3 MULTIVARIATE ANALYSIS 29
CHAPTER 5.0 DISCUSSION 31
CHAPTER 6.0 CONCLUSION AND RECOMMENDATIONS 38
6.1 Conclusion 38
6.2 Recommendations 38
APPENDICES 40
Appendix I: Map of Korogocho 40
Appendix II: Map of Viwandani 41
Appendix III: Summary of Background characteristics of Korogocho and Viwandani slums 42
Appendix IV: Summary of study variables 43
REFERENCES 44

LIST OF TABLES

Table 1: Classification of healthcare-seeking practices, Korogocho and Viwandani Slums, NUHDSS, 2009..... 22

Table 2: Demographic and socio-economic characteristics of study participants by healthcare-seeking practice, Korogocho and Viwandani Slums, NUHDSS, 2009 25

Table 3: Unadjusted odds ratio from logistic regression analysis of factors influencing healthcare-seeking for children with diarrhea, Korogocho and Viwandani Slums, NUHDSS, 2009..... 28

Table 4: Adjusted odds ratio from logistic regression analysis of factors influencing healthcare-seeking for children with diarrhea, Korogocho and Viwandani Slums, NUHDSS, 2009..... 30

LIST OF FIGURES

Figure 1: Conceptual framework for socio-economic factors and healthcare seeking practices.. 13

Figure 2: Healthcare-seeking practice 23

ABBREVIATIONS

APHRC	African Population and Health Research Center
CI	Confidence Interval
DHS	Demographic and Health Survey
HDSS	Health and Demographic Surveillance System
IMCI	Integrated Management of Childhood Illnesses
KDHS	Kenya Demographic and Health Survey
KNBS	Kenya National Bureau of Statistics
MCH	Maternal and Child Health
MDG	Millennium Development Goals
NUHDSS	Nairobi Urban Health and Demographic Surveillance System
OR	Odds Ratio
ORS	Oral Rehydration Solution
SSA	Sub-Saharan Africa
UNHSP	United Nations Human Settlement Programme
UNICEF	United Nations International Children's Education Fund
WHO	World Health Organization

ABSTRACT

Background

Diarrhea is among the leading causes of childhood mortality in developing countries. In Kenya, it is the second highest cause of death among children. Despite diarrhea being a disease that is easy to prevent and treat, it causes about 1.5 million under-five deaths every year. The mortality due to diarrheal diseases is worse in slums which are characterized by poor hygiene and sanitation. Mortality due to diarrhea is preventable and appropriate and prompt healthcare-seeking is one of the ways of prevention.

Objectives

The study aimed at exploring the healthcare-seeking practices of caregivers with under-five children with diarrhea in two slum settlements – Korogocho and Viwandani in Nairobi city, Kenya. Specifically the study will: 1) Describe the socio-demographic characteristics of the study population; 2) Identify the healthcare-seeking practices of caregivers of under-five children with diarrhea; 3) Determine the prevalence of appropriate healthcare-seeking practices in the two slums; 4) Identify the socio-demographic factors associated with healthcare-seeking practices of caregivers of under-five children with diarrheal diseases.

Methods

The study used data from a project nested into the Nairobi Urban Health and Demographic Surveillance System, which collected data on morbidity for children reported to be ill over the last 2 weeks preceding the survey. The study was conducted between 2006 and 2010 in two informal settlements in Nairobi. There were a total of 11,677 interviews with caregivers who had children below five years, of which 1,656 had children who had diarrhea two weeks preceding

the study. Appropriate multivariate statistical techniques were used to examine the factors associated with healthcare-seeking practices.

Results

The study shows that healthcare-seeking practices for diarrhea remains a great challenge among the urban poor with more than half (55%) of the caregivers seeking inappropriate health care. A significant proportion of caregivers (35%) are taking no action regarding the child illness. The use of ORS and Zinc supplements which have been widely recommended for the management of diarrhea by the UNICEF and WHO is very low. The critical predictors of healthcare-seeking identified by the study are duration of illness, place of residence and the child's age.

DEFINITION OF OPERATIONAL TERMS

Diarrhea: Diarrhea is the passage of three or more loose or watery stools per day, or more frequently than is normal for the child. It is usually a symptom of gastrointestinal infection, which can be caused by a variety of bacterial, viral and parasitic organisms (WHO, 2009).

Episode of Diarrhea: An episode of diarrhea begins with a 24-hour period when a child starts to diarrhea and ends on the last day without three or more loose or watery stools.

Healthcare-seeking Practice: Any activity undertaken by individuals who perceive themselves or their children to have a health problem for the purpose of finding a remedy. This is based on the recognition of symptoms, which are interpreted by individuals who then proceed to address the problems.

Urban Poor: In this study urban poor refers to "squatters" with their makeshift dwellings crammed in almost every vacant lot in the city. It is mainly comprised of casual laborers, various informal workers, unemployed individuals and employees with low wages.

Appropriate Healthcare-seeking Practice: Care sought from skilled health care provider in government health facilities and private hospitals/clinic as well as use of Oral Rehydration Solution (ORS) and zinc supplements in the management of diarrhea.

Inappropriate Healthcare-seeking Practice: Other types of care which are not according to the definition of appropriate healthcare-seeking practice such as purchasing medicine from a pharmacy or shops without prescription, home remedies and traditional healers. In the current study it also includes those who take no action for the perceived illness.

Skilled Health Care Provider: An accredited health care provider such as a doctor or nurse- who has been trained to proficiency in the skills needed to manage illnesses.

Under-five Children: Children from 0-59 months

Caregiver: This is a woman who is responsible of taking care of a child; she can be the relative of the child or the mother.

CHAPTER 1.0: INTRODUCTION

1.1 Background

Sub-Saharan Africa (SSA) has made the least progress in terms of reduction of infant and child mortality rates compared to other regions in the world, with 1 in every 8 child deaths occurring before the age of 5 years (Bryce J et al., 2005). About 49 percent of the world's under-five deaths occur in SSA, yet only 22 percent of all the children in the world are born in this region (UNICEF & WHO 2009). Given the high infant and child mortality rates in the region, there's a patent need to assess the current childhood illness management practices, with a view of identifying intervention opportunities that might ultimately lead to the reduction of infant and child mortality in the region. The two leading killers of under-five children are pneumonia, accounting for 18 percent of the deaths followed by diarrheal disease, accounting for 15 percent of the total under-five mortality (Black et al., 2003). Poor hygiene, unsafe water together with poor sanitation are among the main factors responsible for this top killer of under-five children (World Health Organization, 2002). Despite diarrhea being a disease that is easy to prevent and treat, it causes about 1.5 million under-five deaths every year, and worse still, it is said to cause more child deaths than malaria, measles and AIDS combined (UNICEF & WHO 2009).

In Kenya, as in other developing countries, diarrheal diseases are among the major causes of child deaths (KNBS & ICF Macro, 2010). According to the Kenya Demographic and Health Survey (KDHS) 2008/09, treatment and care-seeking for major illnesses for children remain poor in Kenya. Nairobi is one of the regions in the country with comparatively high diarrhea mortality prevalence. The prevalence is even worse in the informal settlements, which are characterized by poor sanitary conditions among other problems (Magadi et al., 2003). In addition to lack of social amenities, informal settlements are also typified by overcrowding, insecurity and high levels of unemployment, thus they have turned out to be hubs of ill health (Kyobutungi et al.,

2008). A study on the burden of disease profile carried out in the Nairobi slums showed that children under the age of five had more than four times the mortality burden of the rest of the population, mostly due to pneumonia (23 percent) and diarrheal diseases (20 percent) (Kyobutungi et al., 2008). Other studies conducted in Kenya have shown that more than 50 percent of the slum dwellers in Nairobi lack access to proper excreta disposal and also lack access to safe drinking water (Kimani-Murage & Ngindu, 2007). Children that reside in urban poor areas are also said to be much less healthy and at a higher risk of mortality than those from the non-poor urban areas (Negussie, 2003). A study which compared results of the Demographic Health Surveys (DHS) in 22 countries in Africa, found that point prevalence of diarrhea in the poorest quintiles of the urban poor was on average higher compared to the poorest quintiles in the rural areas (Doumani, 2002).

Most of the deaths that occur in Kenya among children under the age of 5 years are due to illnesses that can be prevented or effectively treated using simple interventions (Gove, 1997; World Health Organization, 2006). Prompt and appropriate healthcare-seeking is one of the ways that can prevent many of these deaths. Studies have shown that practicing appropriate healthcare-seeking has great prospects of reducing morbidity and mortality due to childhood illnesses (Negussie, 2003). The poor access to formal health care services in the slums has led to the proliferation of a largely unregulated health care system. With the high levels of morbidity and mortality in the slums, it is likely that inappropriate healthcare-seeking practice is rampant therein. Understanding health care practices in slums therefore is essential in improving the health care systems that serve the urban poor, through programs that target both users and suppliers. This has the potential of ultimately reducing childhood mortality among the urban poor. Important aspects in the appropriate healthcare-seeking practice and management of childhood illnesses include early identification of disease, early treatment, diligence with treatment, and promptly opting for more effective treatment (D' Souza, 2003).

A study on the health and livelihood needs of residents of informal settlements carried out in Nairobi, showed that despite the relatively high levels of awareness about illness and treatment in the slums, lack of financial resources largely prevent mothers from seeking health care. It continued to show that for childhood illnesses, mothers waited for days while using homemade remedies until the situation became worse. From the same study, whenever mothers got finances, their first line of service providers were chemists and drug stores that sell over the counter drugs. This has led to increased prevalence of insufficiently treated morbidity and irrational drug use (African Population and Health Research Centre, 2002).

Traditional health care delivery is common in the slums and very few of the traditional health workers have formal health skills training, though most of them are said to have undergone apprenticeship (Fotso et al., 2008). The traditional health workers offer a wide range of services including treatment of childhood diarrhea using herbs (more than 53 percent of the traditional health workers) (Fotso et al., 2008). Despite the presence of a number of modern and traditional health facilities in the slum, slum residents generally lack adequate access to vital health care and as a result, they bear the unjust share of morbidity and mortality from largely preventable causes (Fotso et al., 2009).

Appropriate and prompt healthcare-seeking is critical in the management of childhood illnesses. The WHO estimates that seeking appropriate and prompt care could reduce childhood deaths due to illnesses by 20 percent (World Health Organization, 2002). A number of studies conducted in developing countries have also shown that delay in seeking appropriate care or not seeking any care causes a large number of child deaths (Desilva et al., 2001). There is also growing necessity to be more sensitive to the realities of healthcare-seeking practice given the rapid growth in the sector of non-qualified allopathic providers, who engage in the trade of modern pharmaceuticals. Improving care-seeking practice can therefore significantly contribute to the reduction of child mortality (Desilva et al., 2001; Pokhrel & Sauerborn, 2004). However, in order to design

appropriate child survival strategies in areas where infant and child mortality rates are high, like in informal settlements, information about households' care-seeking practices for childhood illnesses is required. This study therefore aims at providing evidence based information about the healthcare-seeking practices for under-five children with diarrheal disease living in Korogocho and Viwandani slums in Nairobi, Kenya. The study focuses on the third component of the Integrated Management of Childhood Illnesses strategy (IMCI) (Gove, 1997) which includes care-seeking practices in response to child illnesses and appropriate home care.

The findings from this study are intended to inform policy makers, health educators, planners and other health professionals about healthcare-seeking. This way, they can initiate policies and interventions that respond to the community needs (including those in similar settings) which will in turn improve family and community childcare practices as one of the components of the IMCI strategies aimed at reducing infant and child morbidity and mortality.

Appropriate healthcare-seeking in this study will be defined as any attempt made by the child's caregiver to obtain professional advice or treatment from a skilled health care provider during the child's illness as well as those who use other approved methods of diarrhea treatment such as administering Oral Rehydration Solution (ORS) to the ill child. Inappropriate healthcare-seeking will include those who take no action or seek assistance from unapproved/unskilled healthcare providers regarding the child illness.

1.2 Problem Statement

Diarrhea continues to be a major cause of death among young children and it has major economic impacts (Bhan, 2003; UNICEF & WHO 2009). Although it is a preventable disease, the incidence rates of diarrheal diseases continue to rise and it is currently the second-leading killer of under-five children in the world (United National International Children's Education

Fund (UNICEF), 2008). In Kenya, it is also a leading cause of childhood morbidity and mortality (KNBS & ICF Macro, 2010). Childhood mortality due to diarrhea is even higher among the urban poor (Negussie & Chepngeno, 2005; United Nations, 2008). Studies conducted in urban slums evidently show that leading causes of childhood morbidity and mortality such as diarrhea are prevalent among the residents. The slum diarrhea prevalence among children for example, is estimated at 27 percent compared to other areas in Nairobi- estimated at 12 percent (Fotso et al., 2007).

Delay in seeking health care or not seeking care at all, and ineffective treatment choices can compromise the outcome of a child's health status. The KDHS 2008/09 indicated that use of health services is low, resulting in a number of child deaths occurring at home. Improving the behavioral practice in the care of children in the homes therefore plays an important role in improving the health status of children. In Kenya, only 49 percent of all the children who suffered from diarrhea a fortnight before the 2008/09 DHS survey were seen in a health facility. These percentages are expected to be worse in slums given the poorly distributed and often substandard health facilities together with the increased costs of medical consultations which lead to self-treatment by use of left-over medications or home remedies among other inappropriate methods. A major problem related to self treatment is that in most cases, neither the consumer nor the drug vendor knows the right dose, duration of treatment or even the nature of illness (Gomes et al. 1998). Given the fact that the decision to engage in a specific medical channel is influenced by various socio-economic variables like, sex, type of illness, access to service among others (Tipping & Segall, 1995) and knowing that understanding people's health behavior is a prerequisite to changing their conduct and eventually improving their health practices, the study aims at understanding the healthcare-seeking practices of caregivers of under-five children with diarrheal disease in two Nairobi slums and particularly to determine the socio-demographic factors associated with healthcare-seeking. Ultimately the study aims at

influencing policy formulation that will improve healthcare-seeking practices and reduce child morbidity and mortality due to diarrheal diseases in Kenya, thus bringing the country closer to the achievement of the MDG 4 on reduction of child mortality.

1.3 Research Objectives

1.3.1 General Objective

The study aims to explore the healthcare-seeking practices of caregivers of under-five children who have diarrhea, and to find out the socio-demographic factors associated with healthcare-seeking practices of the caregivers, in two informal settlements – Korogocho and Viwandani in Nairobi, Kenya.

1.3.2 Specific Objectives

1. Identify the healthcare-seeking practices of caregivers of under-five children with diarrhea;
2. Determine the prevalence of appropriate healthcare-seeking in the two slums;
3. Describe the study population by their socio-demographic characteristics and healthcare-seeking practices
4. Identify the socio-demographic factors associated with healthcare-seeking practices of caregivers of under-five children with diarrheal diseases.

1.3.3 Justification of the Study

In the 1980s and early 1990s, diarrheal diseases were deemed a global health priority and a lot of interventions were directed to it, leading to reduction of mortality due to the disease by almost 50 percent (United National International Children's Education Fund, 2008). With the reduction of mortality rates, there emerged a shift in global health priorities from diarrheal diseases to other concerns such as tuberculosis, malaria and HIV as the issue of diarrheal diseases was considered managed. However the prevalence of diarrhea has continued to rise overtime and it is currently

among the leading causes of under-five child mortality in SSA, yet information regarding how and when families seek treatment for this prevalent illness remains gravely incomplete (Goldman & Heuveline, 2000). Although various studies exist on healthcare-seeking practices, many of the studies have been carried out in rural areas thus ignoring the plight of the underprivileged residents of the urban slums. In addition, most urban slums are excluded from national surveys as they are considered illegal and are often difficult to access. Even when national data cover slums, the small size of the slum sample does not allow for any meaningful information about these populations to be collected. It is therefore important to conduct studies focusing on the issues affecting urban slum residents to ensure their problems are well addressed (Perry et al., 2007). Most of the studies on healthcare-seeking practices are not focused on specific illnesses, and the few that focus on a specific illness have mainly looked at malaria (Nyamongo, 2002; Ryan, 1995) and HIV (Arulmony, 2004). A study by Segall (1990) gave a recommendation that studies on health-seeking practices should focus on specific illnesses, given the evidence that the type of healthcare-seeking practice is symptom specific. The nature of seeking care being symptom specific has also been shown in other studies. For example Taffa and Chepngeno (2005) showed that caretakers sought medical care for diarrheal symptoms rather than for cough. Ndugwa and Zulu (2008) also showed that one of the main predictors of seeking health care were type of illness. Several of the studies on healthcare-seeking practices have also been based in health facilities yet self care is said to be the primary resource of the health care system and that many people do not refer their illnesses to health facilities.

Prompt and appropriate healthcare-seeking practice is one of the ways that many of the child deaths that occur due to diarrhea can be prevented. It is hoped that the results of this study will provide relevant information on the healthcare-seeking practices of caregivers of under-five children in the slums, which will be useful in determining the type on intervention programmes that can be put in place to alleviate the myriad of health problems in the slum, with particular

reference to diarrhea. The study, in addition, aims at informing policy formulation so that governments and other health agencies may initiate and/or amend policies that respond to the need of these communities.

CHAPTER 2.0: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Literature Review

Diarrhea among under-five children is common and it is estimated that a child will have up to 3 episodes a year (Glass et al., 1991). Children below five years are highly prone to illnesses as a result of their not fully developed immune system. The early years of a child are very key in their growth and development, and therefore any negative influences affecting the child during this time, such as malnutrition and infection may have great limitations to a child's growth and development (Black et al., 2003; William et al., 2002).

The IMCI strategy, developed by WHO and UNICEF, was set-up in 1996 with the aim of promoting significant reduction in child mortality. The objectives of the strategy include reducing mortality of children below the age of 5 years; decreasing the incidence and/or severity of cases of infectious diseases, diarrhea being one of the key; ensuring quality health care for children below 5 years and strengthening health promotion and preventive measures in infancy. The strategy suggests an approach to child health especially for the group of diseases most widespread in infancy. The approaches involve the integration of curative actions with preventive measures and health promotion (Vania et al., 2011).

The improvement in children's survival and health envisioned in Integrated Management of Childhood Illnesses require comprehensive understanding of how families make choices about seeking health care. Several studies, which are mainly cross-sectional in nature, have been conducted on the subject of healthcare-seeking practices. Most of the studies however offer varying results regarding the determinants of healthcare-seeking. Some of the studies have reported that the main predictors of healthcare-seeking practices are age, household size and education while others have shown that childhood disease symptoms, perceived severity of illness as well as recognition of certain signs by the caregivers are the key determinants of

healthcare-seeking practice especially for childhood illnesses (Amarasiri de Silva et al., 2001; D' Souza, 2003).

In many developing countries, access to health facilities is poor due to geographical and/or economic barriers (Fotso & Mukiira, 2011). Caregivers may find it difficult to take children to facilities because of competing priorities at home. In such instances, home care might be the only means by which children can receive care, if at all they do. A survey conducted in a slum in Nairobi showed that treatment was sought for only 60 percent of children reported to be ill. Illness perception and lack of finances were mentioned to be the main reasons for not seeking health care outside the home (Negussie & Chepngeno, 2005).

Several other studies related to the healthcare-seeking practices have been carried out in other settings. A study carried out in Guatemala to analyze the relationship between child illnesses and healthcare-seeking practices showed that only one third of illnesses result in a visit to a health provider, pharmacist or doctor (Goldman & Heuveline, 2000). It also showed that the likelihood of a provider's visit depends considerably on the characteristics of the child and his or her illness, with families being much more likely to seek treatment from a provider when the child experienced fever and gastrointestinal symptoms such as vomiting or diarrhea compared to respiratory and other symptoms.

A study on the healthcare-seeking practices of families of children suspected to have malaria in Uganda reported that 53 percent of the families sought treatment from drug shops/vendors and that only 38 percent of the families knew the correct regimen of chloroquine. The main finding from the study was that although knowledge of malaria diagnosis was reasonable, awareness of the correct treatment was limited (Tumwesigire & Watson, 2002).

The KDHS 2003 indicated that health service utilization in Kenya is low, resulting in a number of deaths occurring at home. Improving the practices in the care of children in the homes plays a

very important role in improving the health status of children (KNBS & ICF Macro, 2003). Results from a study carried out in Kibera, the biggest slum in Kenya (UNICEF & WHO 2009), on the diarrhea prevalence indicated that only 58 percent of respondents received health information from recognized health facilities. The prevalence of diarrhea was estimated at 36 percent. The study further showed the magnitude of the plight of slum dwellers in Kenya and the need to focus on this population (Kung'u et al., 2002).

According to a study on the health and livelihood needs of resident of informal settlements in Nairobi, child morbidity and mortality is the greatest health challenge in the slums and intervention packages that address health provision, environmental sanitation, personal hygiene, healthcare-seeking practices and livelihood opportunities are likely to have great impact (African Population and Health Research Centre, 2002).

Despite their invaluable contribution to the knowledge on healthcare-seeking practices, most of the studies aforementioned have looked at the healthcare-seeking practices without focusing on a specific illness. It is important to focus on a specific illness especially when looking at healthcare-seeking for childhood illnesses. This is because studies have shown that caregivers tend to seek care for different illnesses based on how severe they perceive the illness to be among other factors (Ndugwa & Zulu, 2008). Many of the studies on healthcare-seeking are focused in rural areas and the few that have been carried out in the urban areas have looked at the urban areas in general, yet the dynamics among the urban poor tend to differ greatly with the rest of the urban population. This tends to mask the magnitude of the problems among the urban poor. Focusing on the urban areas as a whole also tends to limit our understanding of the health care practice in the urban slums. There is therefore the need to conduct this specific study to improve our understanding of the healthcare-seeking practices for diarrhea disease in under-five children.

The definition of appropriate healthcare-seeking practice for diarrhea used in this study is informed by the elements of the diarrhea treatment package included in the 2004 joint statement from UNICEF and WHO which includes administering ORS to the sick person, utilization of zinc supplements and seeking care at a health facility among others. ORS and other components of clinical management of diarrhea have made a significant contribution to reducing deaths from diarrhea. ORS which was introduced in the early 1980s, considerably reduced mortality due to diarrheal diseases in the world (Victora et al., 2000). Despite its rewards, the use of ORS remains low in many settings which is alarming in relation to proper management of diarrhea. The use of zinc supplements have also been shown to substantially reduce childhood diarrhea. A report also noted that there is limited information from surveys on the use of zinc as a treatment for childhood diarrhea (Bhandari et al., 2008).

2.2 Conceptual Framework

The conceptual framework used in this study is derived from the Mosley and Chen (1984) framework for child health and mortality. According to this framework, child mortality and morbidity are influenced by underlying factors, (both socio-economic and biological) that operate through proximate determinants. Among the proximate factors identified in the 1984 framework are personal behaviors, environmental factors, personal illness control and nutrition. Some of the underlying factors identified in the framework are cultural attributes (such as religion and traditional beliefs) and socio-economic factors (such as women's education, age, household wealth) (Mosley & Chen, 1984). Although all these factors (proximate and underlying) mentioned by Mosley and Chen apply in this study, the main focus will be on the underlying factors of education level, wealth status, age and place of residence of caregivers and how these factors influence the healthcare-seeking practice of caregivers. Other additional factors included in the framework are parity, marital status and ethnicity of caregivers as well as

age and sex of the child. These factors were selected on the basis of what other studies have shown to be important predictors of healthcare-seeking.

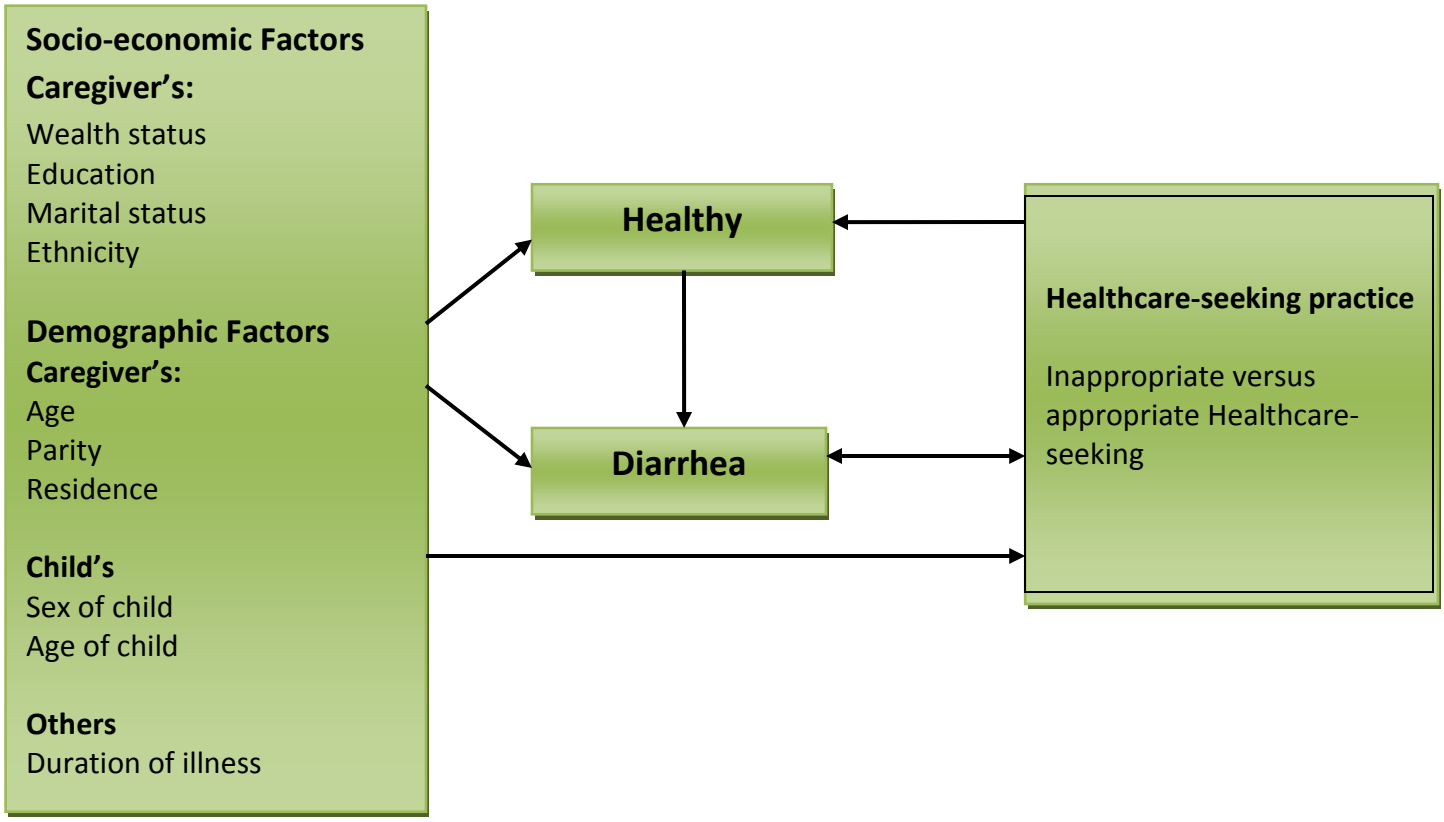


Figure 1: Conceptual framework for socio-economic factors and healthcare seeking practices

Figure 1 above shows the conceptual model used in this study which is adapted from the Mosley and Chen framework for child health and mortality. In specifying the factors influencing healthcare seeking practice, the framework proposes that healthcare-seeking practice is a function of a number of socio-demographic factors. The predisposing factors include age, parity, and education level of the caregiver, age and sex of child among other factors as indicated above. These factors can work as independent variables or can interact with each other to influence the healthcare-seeking practice. For instance, socio-economic factors such as the wealth status has

influence on the healthcare-seeking practice of an individual, as, it is often assumed that the wealthier person is more likely to manage illness given that they are more likely to afford healthcare costs. Caregivers from the higher socio-economic group are also more likely to have knowledge of and access to the services. Education is also said to have an influence on the healthcare-seeking practice as more educated persons are expected to be more informed on appropriate ways of seeking care compared to the less educated. Demographic factors such as the age of the child also have an effect on the healthcare-seeking practice as caregivers have also been shown to pay more attention to younger children when they are ill. Whether one seeks appropriate health care or not, also has an influence on the health of the individual (Breiman et al., 2011).

2.3 Hypotheses

The hypotheses for this research are:

i) More than 60 percent of the caregivers do not practice appropriate healthcare-seeking in the treatment of diarrheal diseases in under-five children. This is based on the premise that a study on healthcare-seeking practices showed inappropriate healthcare-seeking practices to be around 60 percentage (Negussie & Chepngeno, 2005), hence the use of this percentage in the hypothesis.

ii) There is no significant relationship between healthcare-seeking practice and wealth status.

iii) There is no significant relationship between healthcare-seeking practices and caregiver's education.

Both wealth status and education have been shown to be key factors in determining the healthcare-seeking practices especially for childhood illnesses (Ndugwa & Zulu, 2008).

CHAPTER 3.0: METHODOLOGY

3.1 Data and Study Design

The data used in this paper is from the Maternal and Child Health (MCH) component of the Urbanization, Poverty and Health Dynamics (UPHD) project that the African Population and Health Research Center (APHRC) conducted between 2006 and 2010 in two informal settlements- Korogocho and Viwandani in Nairobi. The UPHD project is nested into the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) that APHRC has been running in the two since 2002. Between 2006 and 2010, the MCH survey collected data every 4 months on child morbidity for all children who were reported to have been ill in the 2 weeks preceding the surveys. A total of 19,456 interviews were conducted; 11,677 of which involved caregivers of under-5 children. Overall, 1,656 of the 11,677 caregivers reported that their child/ward was ill with diarrhea in the two weeks preceding the survey and this forms the sample size for this study. Details about the child illness including signs and symptoms, duration of illness and treatment-seeking behavior were collected using interview questionnaires. Data was collected using a pre-tested questionnaire written in English and Kiswahili. Final interviews were conducted in Kiswahili, the most spoken language in the two study areas. Caregivers provided the information. Various socio-demographic and economic information, such as child age and sex, caregiver's age, education, work status, parity, slum residence and household income were also collected. In this study, appropriate healthcare-seeking will be defined as any attempt made by the caregiver to obtain professional advice or treatment from a skilled health care provider during the child's illness as well as those who administered ORS to the child.

3.2 Description of the Study Site

The Nairobi Urban Health and Demographic Surveillance System (NUHDSS) covers a Demographic Surveillance Area (DSA) in which there are two informal settlements, Korogocho and Viwandani in Nairobi City, Kenya. The two informal settlements are located about 3 kilometers from each other.

Both sites are characterized by lack of basic infrastructure such as roads, sanitation, as well as clean and affordable water. There are notably low levels of education, greater mobility and high insecurity in the areas compared to non-slum areas. Some differences exist between Korogocho and Viwandani slums. The population in Korogocho is more settled than the one in Viwandani as many of the residents have lived there for many years (Emina et al., 2011). Viwandani is made up of more transient people, and attracts a youthful and highly mobile population in search of job opportunities in the nearby industries. In addition, the population in Viwandani is mainly made up of males and is better educated than that of Korogocho.

Korogocho slum is located 12 kilometers from Nairobi city centre, and is one of the most crowded slum areas of Nairobi, with over 250 dwelling units per hectare. Most houses are made of mud and timber walls with waste tin cans as roofing materials. The Nairobi refuse dump site is situated to the east and south east of the slum settlement.

Viwandani slum on the other hand is located 7 kilometers from the Nairobi city centre and has close proximity to the city's industrial area. The majority of structures in Viwandani are made of iron sheets and tin walls with roofing of iron sheets. The Ngong river is situated to the South of Viwandani slum and is heavily polluted by industrial waste.

From 2003, the NUHDSS followed an annual population of about 60,000 and more than 28,000 households. The average number of persons per household is higher in Korogocho than in Viwandani (2.9 compared to 2.3 as at the year 2008). The Infant Mortality Rate (IMR) per 1,000

live births, for the total population shows a declining trend since 2003 (African Population and Health Research Centre, 2002). By 2008 the IMR was 78.0 per 1,000.

There are very few public health facilities in the two slums, with most of them being located in the periphery of the slums. These few facilities are often inaccessible, especially at night due to insecurity. More details on the two study sites are provided in appendices I, II and III.

3.3 Variables

3.3.1 Dependent Variable

The dependent variable in the study is 'healthcare-seeking practice'. Based on the definition of appropriate care-seeking adopted by the study, the responses given regarding the action taken when a child fell ill with diarrhea were grouped into two categories forming a binary outcome of either appropriate, coded 1, or inappropriate, coded 0, depending on whether the caregiver sought care at a health facility, from a qualified health professional or used ORS.

3.3.2 Independent Variables

The independent variables used in the study are: sex of child, that is either male or female, age of child in months grouped into four categories labeled 0-11, 12-24, 25-36, 37-59 months, age of caregiver grouped into 19 and below, 20-29, 30-39 and 40+. Others are ethnicity grouped into the four major ethnic groups in Kenya that is Luhya, Luo, Kikuyu and Kamba and all remaining groups combined into a fifth category labeled others; caregiver's relation to child that is whether mother of the child or not; caregiver's education categorized into three groups coded as incomplete primary, complete primary and secondary and above; wealth status grouped into tertiles labeled poor, middle and rich; Marital status grouped into three categories and coded never married, currently married, and formerly married (Currently married women will include individuals in all forms of unions whether legally married or living together, and whether in a

monogamous or polygamous union); Caregiver's parity grouped into three categories: 1-2, 3-4 and 5 and above; slum area of residence which is either Viwandani or Korogocho and duration of illness which represents the time taken before seeking care for the child, grouped into 1-2 days, 3-6 days, 7-13 days and 14 days and above. A summary of the study variables is in the appendix IV.

3.4 Analysis Plan

Analysis plan for each study objective

• For identifying the healthcare-seeking practices of caregivers, the responses given by caregivers regarding the action taken when the child fell ill with diarrhea were tabulated healthcare-seeking. From this analysis, the identified healthcare-seeking practices were then categorized into a binary variable, appropriate versus inappropriate healthcare-seeking and this was used to determine the prevalence of appropriate healthcare-seeking in achieving the third objective.

• In order to describe the study population by their socio-demographic characteristics and healthcare-seeking practices, bivariate descriptive analyses were carried out.

• For determining the socio-demographic factors associated with the healthcare-seeking practices of caregivers, two analyses were conducted. First, binary logistic regression of each of the independent variables with the outcome variable was done to assess their unadjusted effect. Second, a binary logistic regression was run to capture the net effect of the socio-demographic factors on the choice of healthcare-seeking practice. Odds ratio were used to interpret the associations between the outcome variable and independent variables. Majority of the tests were done at 5 percent significance level (at a confidence interval of 95 percent). Data was analyzed using the STATA 11 statistical software (Stata version 11. StataCorp LP, College Station, TX).

3.5 Limitations of the Study

This study has a number of limitations. First, the study did not consider the type of diarrhea when looking at the healthcare-seeking practice, that is, whether it was acute or chronic diarrhea. However, given the nature of the survey, it would not have been possible to clearly ascertain the type of diarrhea since we rely on self-reported information and the perceptions of the type would vary across the respondents, thus increasing bias.

Secondly, the episode of diarrhea was defined based on what the caregivers reported and there was no way to verify whether what they referred to as diarrhea was actually diarrhea. Some symptoms of other illnesses such as anaemia and AIDs can overlap. Thirdly, we rely on reported action taken by the caregiver and lastly, the study did not take into account other factors that could affect healthcare-seeking such as perception of quality and access to a health facility.

CHAPTER 4.0 RESULTS

4.1 UNIVARIATE ANALYSIS

4.1.1. Demographic and socio-economic characteristics of the study participants

Results from the univariate analysis describe the demographic and socio-economic characteristics of the study population as shown in table 2. These include the characteristics of the 1,656 caregivers whose children had diarrhea in the two weeks preceding the study. It also includes some demographic characteristics of the children. More than half of the children who were found to have diarrhea were males. Majority (52.7%) of the children were aged between 12-24 months, followed by those aged 0-11 months at 28.4%, 25-36 months at 16.6%. Only 2.2% were 37 months old and above.

With reference to the characteristics of the caregiver's who had under-five children with diarrhea, 99% of them were the actual mothers of the children, whereas the remaining 1% were relatives of the children. Forty eight percent of the caregivers were residents of Korogocho slum while the other 52% resided in Viwandani slum. About two-thirds (64.4%) of the caregivers were between ages 20-29, followed by 30-39 at 22.2%, and 10.2% of them were adolescent. Only 3.3% of the caregivers were above 40 years.

Approximately 84% of the caregivers were married at the time of the interview, 8.6% were formerly married and only 7.5% had never been married. Majority (58.6%) of the caregivers had a parity of either one or two children followed by 28.0% with three to four children and 13.4% had five children or more. Thirty nine percent of the respondents were of middle wealth status, followed by 31.2% who came from a poor background and the remaining 29.6% came from a rich background. It is important to note however that the wealth status referred here-in is only relative to that of the residents of the slum which differs to a large extent when compared to the classifications of other populations. Looking at the distribution of the respondent across the

various ethnic groups, there seems to have been a fairly equal distribution across the major ethnic groups with the percentage hovering around 20%, that is, Kikuyu (21.7%), Luhya (21.4%), Kamba (20.3%) and Luo (19.3%) and the remaining (17.3%) comprising of other smaller ethnic groups combined.

Many of the caregivers reported to have completed at least primary education (47.1%), and only 21.9% had completed secondary or higher level of education. Thirty one percent had either not gone to school or not completed primary level of education. For the duration of illness before treatment, majority of the children (34.3%) had been ill for about 3-6 days, followed by 7-13 days with 31.6% and more than two weeks with 17.5% days. Only 16.2% had been ill for two days before action was taken about the illness.

4.1.2. Healthcare-seeking practices of caregivers

Table 1 shows the classification of the dependent variable, healthcare-seeking practice based on the responses given by the respondents. Appropriate healthcare-seeking included those who sought care at a health facility as well as, those who gave oral dehydration solutions (ORS) to the ill child. Inappropriate healthcare-seeking on the other hand, as shown on the table 2 included those who bought medicine from a chemist, those who rubbed the child's gums with soda mint, those who gave the child leftover medicine that was at home, those who did nothing about the illness and those who did other practices such as praying for the child (grouped as other).

Table 1: Classification of healthcare-seeking practices, Korogocho and Viwandani Slums, NUHDSS, 2009

Healthcare-seeking practice	Frequency	Percent
Appropriate		
Sought care/treatment at Health facility	721	43.54
Prepared ORS for the baby	20	1.21
Sub Total	**741**	**44.75**
Inappropriate		
Bought Medicine at a chemist	169	10.21
Rubbed baby's gums with Soda mint	21	1.27
Gave different medicine available at home	139	8.39
Did nothing	579	34.96
Other	7	0.42
Sub Total	**55**	**55.25**
Total	**1,656**	**100**

Based on this classification of healthcare-seeking practices, the results show that majority of the caregivers practiced inappropriate healthcare-seeking (55.2%) and the remaining 44.8% practiced appropriate healthcare-seeking. This result is depicted in Figure 2.

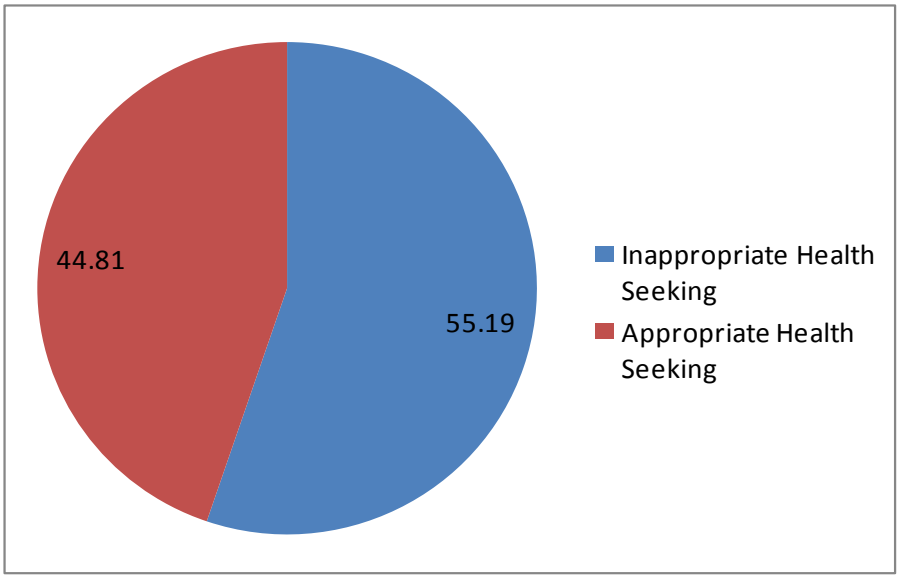


Figure 2: Healthcare-seeking practice

4.1.3 Description of the demographic and socio-economic characteristics of study participants by variable healthcare-seeking practice

Table 2 shows the cross tabulations between the binary outcome variable, choice of healthcare-seeking and the demographic and socio-economic status of the study participants. As shown in Table 2, a higher percentage of caregivers sought inappropriate health care for both male and female children (54.8% and 58.4% respectively) compared to appropriate care, although a higher percent of males (45.2%) than females (41.6%) were appropriately sought care for. Despite inappropriate care being higher than appropriate care in all child ages, higher percentages of appropriate healthcare-seeking were seen among the lower ages, with the younger children having a higher percentage of appropriate healthcare-seeking than that of the children of older ages i.e. those between 0-11months (49.9%), 12-24 months (44.8%) 25-36 months (37.1%) and 37-48 months (37.8%). Those in the lowest wealth status had a higher percentage of caregivers who sought appropriate care (47.9%) compared to the middle and rich wealth categories. Those in the middle wealth index had more inappropriate seeking (56.4%) than appropriate and this

was similar to those in the rich wealth group who had the highest percentage (60.6%) of inappropriate healthcare-seeking compared to the poor and middle wealth groups.

When comparing the healthcare-seeking practices by caregiver's age, it is observed that younger caregivers had a higher percentage of appropriate seeking as compared to the older caregivers, with the youngest caregivers (below 19 years) having the highest percentage of appropriate healthcare-seeking (51.9%) and the oldest ones having the lowest percentage (35.2%).

Residents of Korogocho had 48.6% of caregivers practicing appropriate healthcare-seeking while it is the case of only 38.8% of residents of Viwandani. Caregivers who were never married had the highest percentage (46.6%) of appropriate healthcare-seeking, followed by the married (44.3%) and the formerly married (41.4%). Women of all parities had higher percentages of inappropriate healthcare-seeking than appropriate care, although the percentages increased as the parity increased, with the percentages being 54.9% for those with a parity of 1-2, 58.1% for those with a parity of 3-4 and 59.5% for those with a parity of at least five children. Caregivers with secondary and higher education level had 58.3% of inappropriate healthcare-seeking; this percentage was 56.3% for those who had completed primary education and 55.4% for those with incomplete primary education. Caregivers from all the major ethnic groups had higher percentages of inappropriate healthcare-seeking compared to appropriate healthcare-seeking, however those from the Kamba ethnic group had the highest percentage (62.1%) seeking inappropriate care.

A large percentage of caregivers who waited for two or more weeks before taking any action regarding the child's illness practiced appropriate healthcare-seeking (65.6%) compared to inappropriate (34.4%). For those who waited for only 1-2 days before doing something about the illness, only 28.8% practiced appropriate healthcare-seeking. Caregivers who waited either 3-6

days or 7-13days before taking any action regarding the illness had 38.5% and 48.9% seeking appropriate care respectively.

Table 2: Demographic and socio-economic characteristics of study participants by healthcare-seeking practice, Korogocho and Viwandani Slums, NUHDSS, 2009

Variables	Category	Frequency	Percentage	Appropriate (%)	Inappropriate (%)
Sex of child					
	Male	882	53.62	45.24	54.76
	Female	774	46.38	41.60	58.40
Age of child (Months)					
	0-11	471	28.44	49.89	50.11
	12-24	873	52.72	44.79	55.21
	25-36	275	16.61	37.09	62.91
	37-59	37	2.23	37.84	62.16
Slum of residence					
	Korogocho	801	48.37	48.56	51.44
	Viwandani	855	51.63	38.83	61.17
Age of caregiver (years)					
	Below 19	169	10.21	51.48	48.52
	20-29	1065	64.35	45.35	54.65
	30-39	367	22.18	41.69	58.31
	40 and above	54	3.26	35.19	64.81
Marital status					
	Currently married /living together	1305	83.98	44.29	55.71
	Formerly married	133	8.56	41.35	58.65
	Never married	116	7.46	46.55	53.45
Parity					
	2-4	969	58.59	45.10	54.90
	3-4	463	27.99	41.90	58.10
	5 and above	222	13.42	40.54	59.46
Wealth index					
	Poor	503	31.18	47.91	52.09
	Middle	633	39.24	43.60	56.40
	Rich	477	29.57	39.41	60.59
Ethnicity					
	Kamba	335	20.28	45.96	54.04
	Kikuyu	359	21.73	39.09	60.91
	Luhya	353	21.37	43.57	56.43

Luo	319	19.31	37.91	62.09
0thers	286	17.31	52.10	47.90
Caregiver's education level				
Incomplete primary	513	31.00	44.64	55.36
Complete primary	780	47.13	43.72	56.28
Secondary and above	362	21.87	41.71	58.29
Duration of illness (Before treatment was sought)				
1-2 days	274	16.61	28.83	71.17
3-6 days	566	34.30	38.52	61.48
7-13 days	522	31.64	48.85	51.15
14 days and above	288	17.45	65.63	34.38
Caregiver's relation to child				
Not Mother	15	0.91		
Mother	1641	99.09		

4.2 BIVARIATE ANALYSIS

4.2.1 Factors associated with healthcare-seeking for children with diarrhea

Table 3 presents the results from the unadjusted logistic regression analysis of factors associated with healthcare-seeking practices for under-five children who had diarrhea.

Findings indicate that, compared to the male children, caregivers were more likely to seek appropriate healthcare for female children, although the result is not statistically significant at the 5% level. The odds of seeking appropriate healthcare for children of age 12-24 months is 23% higher than that for children of 0-11 years, and this is true for all the older age groups. For children of ages 25-36 months, the results are significant (OR 1.87; P<0.01). For caregivers' education, those who had completed at least primary education were slightly more likely to seek appropriate care than those who had not completed primary education, those who had secondary education and above were even more likely to seek appropriate care than those with either no education or incomplete primary education as shown by the results. These differences based on caregivers' education are, however not statistically significant. Compared to married caregivers, caregivers who were formerly married were 11% more likely to seek appropriate health care.

Those who had never been married on the other hand were less likely to seek appropriate care compared to those who were married although, the results were not significant. Caregiver's age is an important predictor of healthcare-seeking practices as older women were more likely to seek appropriate health care compared to younger women. Those between ages 30-39 were about 48% more likely to seek appropriate care than caregivers of adolescent age, for women between 40-49 years; the likelihood was even higher (95% higher). For these two age groups, the results are significant ($P<0.05$). For parity, the results indicate that caregivers with parity of 3-4 and those with parity above 5 have a higher likelihood of seeking appropriate care than those of parity 1-2. The results are however not significant. In comparison to the Kikuyu ethnic group, the Luhya, Luo and Kamba ethnic groups are more likely to seek appropriate care but the differences are not statistically significant. Caregivers from the rich households were significantly more likely to seek appropriate care compared to the poor and this applied to those in the middle wealth group although the results for this group are not significant. Residents of Viwandani are significantly more likely ($p<0.0001$) to seek appropriate health care than those of Korogocho. As shown in Table 3, duration of illness significantly influences the decision of healthcare-seeking. Contrary to expectation, the longer the period of illness the lower the likelihood of seeking appropriate health care and the results are statistically significant.

Table 3: Unadjusted odds ratio from logistic regression analysis of factors influencing healthcare-seeking for children with diarrhea, Korogocho and Viwandani Slums, NUHDSS, 2009

Variable	Category	Unadjusted Odds ratio	(95% Confidence Interval	
Child Sex (Ref: Male)				
	Female	1.179	0.971	1.433
Childs Age (Ref: 0-11 months)				
	12-24 months	1.228	0.981	1.537
	25-36 months	1.689**	1.246	2.289
	37+ months	1.636	0.822	3.257
Caregivers Education (Ref: Incomplete)				
	Complete primary	1.025	0.819	1.282
	Secondary	1.095	0.835	1.436
Marital Status (Ref: Married)				
	Formerly married	1.114	0.777	1.597
	Never Married	0.895	0.612	1.309
Caregivers Age (Ref: Below 19)				
	20-29	1.278	0.924	1.769
	30-39	1.484*	1.029	2.140
	40-49	1.954*	1.036	3.688
Parity (Ref: 1-2)				
	3-4	1.170	0.936	1.463
	5 or higher	1.235	0.919	1.660
Ethnicity (Ref: Kikuyu)				
	Luhya	1.319	0.981	1.775
	Luo	1.132	0.836	1.532
	Kamba	1.506	1.113	2.039
	Other	0.811**	0.594	1.107
Wealth Status (Ref: Poor)				
	Middle	1.244	0.983	1.573
	Rich	1.542**	1.197	1.987
Slum Residence (Ref: Korogocho)				
	Viwandani	1.588***	1.306	1.930
Duration of Illness (Ref: 1-2)				
	3-6 days	0.647**	0.474	0.883
	7-13 days	0.424***	0.310	0.580
	14 days and above	0.212***	0.148	0.303

NB: ***P<0.001; **P<0.01; *P<0.05; Reference categories in brackets.

4.3 MULTIVARIATE ANALYSIS

Table 4 shows results of the adjusted odds ratio, 95% confidence interval and associated p-values for the factors that predict appropriate healthcare-seeking practices of caregivers of under-five children with diarrheal diseases. Based on the results from the logistic regression shown in Table 4, after controlling for other factors, three factors are shown to be of significant importance when it comes to appropriate healthcare-seeking practices in the two slum areas. The first is duration of illness. The longer the duration of illness, the lesser the likelihood of seeking appropriate care. Caregivers who waited for more than two weeks before seeking care were the most likely not to seek appropriate care compared to those who took action after 1-2 days illness (OR=0.220, 95% CI= 0.150,0.321; $p<0.001$). Those who waited for 3-4 days were 33% more likely to seek appropriate care than those who waited for 1-2 days (OR=0.671, 95% CI=0.482, 0.932; $p<0.01$). (2) Place of residence also emerged as an important factor that influenced healthcare-seeking, with residents of Viwandani being 41% more likely to seek appropriate health care than those of Korogocho slums (OR=1.410, 95% CI=1.065 1.866 $p<0.05$). (3) The results also show that caregivers were significantly more likely to seek appropriate healthcare for children of ages between 25-36 months compared to 0-11 months (OR=1.620, 95% CI=1.142, 2.296 $p<0.01$). Although not significant, the results also suggest that married women are more likely to seek appropriate care than never married women. In addition, older caregivers are more likely to seek appropriate care than younger ones; the rich are the most likely to seek appropriate health care than the poor and those with primary or higher level of education are more likely to seek appropriate healthcare.

Caregivers of the Luo ethnic group were the most likely to seek appropriate care followed by those of the Kamba, Kikuyu and Luhya ethnic group. The higher the parity, the higher the likelihood of seeking appropriate care. Caregivers were more likely to seek care for females than for male children. The results with regard to ethnicity, parity and child sex were not significant.

Table 4: Adjusted odds ratio from logistic regression analysis of factors influencing healthcare-seeking for children with diarrhea, Korogocho and Viwandani Slums, NUHDSS, 2009

Variables	Category	Adjusted Odds Ratio	Conf. Interval [95%]	
Marital Status (Ref: Married)				
	Formerly married	1.189	0.795	1.776
	Never Married	0.970	0.619	1.519
Ethnicity (Ref: Kikuyu)				
	Luhya	0.830	0.579	1.189
	Luo	1.274	0.913	1.779
	Kamba	1.180	0.837	1.662
	Others	1.328	0.935	1.886
Caregivers Age (Ref: Below 19)				
	20-29	1.136	0.773	1.670
	30-39	1.161	0.707	1.906
	40-49	1.231	0.557	2.724
Wealth Status (Ref: Poor)				
	Middle	0.979	0.734	1.304
	Rich	1.128	0.811	1.569
Parity (Ref: 1-2)				
	3-4	1.224	0.937	1.599
	5 or higher	1.302	0.842	2.013
Childs Age (Ref. 0-11 months)				
	12-24 months	1.268	0.994	1.617
	25-36 months	1.620**	1.142	2.296
	37-59 months	1.122	0.483	2.605
Child Sex (Ref: Male)				
	Female	1.118	0.902	1.385
Caregivers Education (Ref: Incomplete)				
	Complete primary	0.777	0.590	1.023
	Secondary	0.788	0.569	1.091
Slum Residence (Ref: Korogocho)				
	Viwandani	1.410*	1.065	1.866
Duration of Illness (Ref: 1-2)				
	3-6 days	0.671**	0.482	0.932
	7-13 days	0.413***	0.297	0.576
	14 days and above	0.220***	0.150	0.321

NB: ***P<0.001; **P<0.01; *P<0.05; Reference categories in brackets.

CHAPTER 5.0 DISCUSSION

The study objective was to explore the healthcare-seeking practices of caregivers of under-five children with diarrhea, and to find out the socio-demographic factors associated with healthcare-seeking practices of the caregivers, in two informal settlements – Korogocho and Viwandani in Nairobi, Kenya. The study confirms what numerous studies have shown with regard to high prevalence of inappropriate healthcare-seeking and not seeking care at all especially for childhood illnesses. Results from this study shows that fifty five percent of caregivers practiced inappropriate healthcare-seeking, with about 35% taking no action for the child illness, 10% buying medicine from a chemist and about 9% giving the children leftover medicine from home.

The concern of inappropriate healthcare-seeking practice for childhood diarrhea has been reported in various studies, for example a report by WHO (2009) noted that in developing countries only about 39% of children suffering from diarrhea were given the recommended treatment and this figure has remained more or less constant since 2000. Tee and colleagues (2011) studied the healthcare-seeking behavior among Malaysians with acute diarrheal disease and found that only about 43% of those who had diarrhea sought care for the illness. Although some studies have shown some importance in self-health care to individuals and the health care system, inappropriate cases of self-treatment have often been reported in the literature (Segall, 1990); some of these include misuse of over the counter products and concurrent use of several drugs which have in many cases resulted in masking or misdiagnosis of illnesses. A study on the management of diarrhea in under-fives at home and health facilities in Kashmir, reported that 77% of the children with diarrhea were given antibiotics which were not part of those advised by the Diarrheal Disease Control Programme. Such practices in many instances have led to serious consequences on the individual or collective health of the population. Improving the health care practice of caregivers would therefore play a key role in improving the health status of children.

Appropriate management of diarrhea is important in the prevention of dehydration and child mortality (Duggan et al., 1992). One of the recommended ways of managing diarrhea by the Centers for Disease Control and Prevention (CDC) as well as by the WHO is the use of ORS as the hub of treatment (World Health Organization, 2005). As shown by the study results, a mere 1% of caregivers reported to have administered ORS to the children with diarrhea. Despite the advocacy of the ORS solution by WHO and other NGOs, as well as the consistent campaigns and activities that have been conducted to promote awareness and the use of ORS, the use remains gravely low. This is seemingly the case in various other parts of the developing world as has been shown in other studies, which have reported low ORS use for childhood diarrhea (Fayaz et al., 2009; Gilany & Hammeds, 2005). In Brazil, the ORS use rate has been approximated to be about 7% (Barros FC et al., 1991). Another study conducted in Egypt showed that 25% of children who had diarrhea had received ORS (Gilany & Hammed, 2005).

According to the KDHS 2008-09 report the ORS solutions in Kenya are usually distributed by health facilities and pharmacies and are also available in shops and kiosks. In the KDHS, in order to ascertain how extensive knowledge about ORS in Kenya was, women were asked whether they knew of ORS packets and approximately 80% of women reported to know the ORS packets. This implies that the main problem does not lie with the lack of awareness about ORS, although it would be good if the data was disaggregated by residence to show the figures for the urban poor especially owing to the fact that management of diarrhea is likely to be inadequate among the economically disadvantaged communities as noted by Douglas et al (Ewbank & Gribble, 1993). The question therefore arises, why is the use of ORS so low yet women are aware about ORS? One possible explanation for the low use of ORS could be caregivers' misconception about ORS or lack of proper information regarding the need for ORS in the management of

diarrhea. Some studies have reported caregivers' misconception about ORS. For example, a study conducted in Zimbabwe showed that ORS was perceived to be medicine to stop diarrhea (Nyatoti V et al., 1993). It is possible that women are aware of ORS but they do not know how to prepare the homemade solution or are not getting access to the ones being distributed in the health facilities as they are not visiting these facilities nonetheless. Given its vital component in the prevention of dehydration, ORS use needs to be improved. To avoid misconception about ORS in Kenya as in the case of Zimbabwe is paramount that proper information regarding home preparation of the solution is given in order to ensure that the use increases. Increased training of caregivers and the general community in the importance of ORS use should also be fostered. Distribution of the ORS packets should also not only be distributed in the health facilities as is currently done as stated in the KDHS report but also in the homes. Distribution in health facility caters only for a small percentage of people given that majority are shown to be seeking care in other places but the health facilities.

Interestingly none of the caregivers admitted using Zinc supplements for the treatment of diarrhea, this is somewhat reflected in the 2008-09 KDHS which reported less than 1% use of zinc supplements for diarrhea treatment. The use of Zinc for diarrhea treatment was introduced in Kenya in 2006. According to the 2004 UNICEF and WHO joint statement, zinc was included as an important development in diarrhea treatment. The introduction of zinc tablets in the treatment programs in India, Pakistan and Mali showed great improvement (Bhandari et al., 2008). Following the disconcerting results regarding the use of ORS and Zinc in the treatment of diarrhea, there is dire need for intensified health education regarding the use of ORS and Zinc supplements for diarrhea management.

From the study, three factors emerged as having significant effects on the healthcare-seeking practices of caregivers. The first one is the duration of illness before seeking care. The longer the duration before treatment was sought, the lower the likelihood of caregivers seeking appropriate

care. This could be related to the severity of illness where the longer the caregiver takes to seek care the worse the child's condition becomes and thus the need for the caregiver to seek better care, preferably at a health facility. Illness severity or the perceived severity of the illness by the caregivers has been shown to be a predictor of health care seeking where caregivers tend to seek better care or at least seek care for an illness that they perceive to be 'very severe' (Ndugwa & Zulu, 2008; Ricardo et al., 1997). A study on the health and livelihood needs of residents of informal settlements carried out in Nairobi, showed that mothers waited for days while using homemade remedies until the situation became worse, after which their first line of service was a chemists and drug stores. Only until the child's health deteriorated that is when the child was taken to a health facility (African Population and Health Research Center, 2002). The earlier methods used by the caregivers could also have negative outcomes on the child and therefore the need to seek appropriate care.

Place of residence also emerged as an important factor that influenced healthcare-seeking. The study results show that caregivers residing in Viwandani slums were significantly more likely to seek appropriate care than those from Korogocho. As noted in the study site description, Viwandani is made up of people who are better educated compared to Korogocho residents. This could be one of the explanations for this difference in healthcare-seeking between the two slums dwellers as education is often reported as a predictor of healthcare-seeking (Thind & Cruz, 2003). Residents of Viwandani are also have been shown to fare better than those of Korogocho in terms of wealth status and that could also be a factor that explains the difference in healthcare-seeking practices between the two slums.

Unexpectedly the results show that caregivers were more likely to seek appropriate health care for children between ages 25-37 compared to those between 0-11 months. Several studies have found child age to be an important predictor of health care for childhood illnesses, with

caregivers being more likely to seek care for younger children (Ndugwa & Zulu, 2008; Negussie & Chepngeno, 2005). One possible difference in the finding could be because many of the studies focus on whether the caregivers seek care or not as opposed to whether the care they sought was appropriate or inappropriate (Goldman & Heuveline, 2000). The results therefore raise an important question, whether caregivers tend to seek care for younger children but the care is not appropriate. The results suggest that this might be the case. It would be important then for studies looking at whether or not care is being sought to further explore the appropriateness of the care as it may not be very useful to simply know that care is being sought, without further knowing whether the care is appropriate or not. If the care being sought is inappropriate, it could worsen the state of the child's illness and worse still lead to mortality hence it is vital to identify the type of care sought.

In terms of sex preference in healthcare-seeking, the study shows no significant difference between male and female children. A number of studies have shown male preference in seeking health care especially for childhood illnesses (Sudharrsanam & Rotti, 2007).

Although not significant, the results show that caregivers with a higher parity have a higher likelihood of seeking appropriate care than those of lower parity. It could be that those with more children have learnt the importance of appropriate healthcare-seeking and thus practice it with the subsequent children. Other studies have shown a higher likelihood of seeking care among those with fewer children, the explanation being that those with fewer children are likely to have more resources and hence can afford taking their children to a health facility (Nyamongo, 2002; Thorson et al., 2000). The other possible explanation for the difference in the finding could be the fact that the focus is on whether or not the care sought was appropriate or inappropriate as opposed to whether care was sought or not as used in many studies.

The higher the caregiver's age, the higher the likelihood of seeking appropriate care. In a study by Taffa and Negussie, maternal age was found to be a strong predictor of health care seeking

with older caregivers being less likely to seek care for their children (Negussie & Chepngeno, 2005). Although not statistically significant, the findings tend to support the idea that maternal age is an important determinant of healthcare-seeking for childhood illness.

Virtually all studies that have looked at caregiver's education and healthcare-seeking practice have shown a positive relationship between the two variables (Ndugwa & Zulu, 2008). In the current study, before adjusting for other factors this was the case, but after adjusting for other factors there was not a clear pattern portrayed. In fact, although not significant, those who have not completed primary education are shown to be more likely to practice appropriate healthcare-seeking although those with more than secondary education are more likely to seek appropriate care than those with only primary education. More educated caregivers might feel that they have better knowledge of how to treat diarrhea and thus may not deem it necessary to take their child to a health facility.

In the informal settlements, majority of the residents when compared to residents of the rest of the urban areas fare worse when it comes to indicators of economic status. However, among the slum residents themselves some tend to be worse off economically compared to their counterparts and thus participants were categorized into three groups which are only relative to the population in the slums and thus cannot be compared to other settings. Based on this classification, results show that those classified under rich were the most likely to seek appropriate care compared to the poor and middle class wealth categories. Despite the study results not being significant, they tend to agree with what other studies have found with regards to the relationship between economic status and healthcare-seeking practice (Sudharrsanam & Rotti, 2007)

Marital status did show that those who were never married were the least likely to practice appropriate healthcare-seeking and those who were formerly married were the most likely to seek appropriate care.

People from the Luo community were the most likely to practice appropriate healthcare-seeking and those of the Luhya ethnic group were the least likely to practice appropriate healthcare-seeking.

The study hypothesizes that more than 60 percent of the caregivers do not practice appropriate healthcare-seeking in the treatment of diarrheal diseases in under-5 children. The study results on the other results showed that 55 percent of caregivers practice inappropriate healthcare-seeking. Although the results did not prove the hypothesis it agrees that a higher percentage in caregivers do not seek appropriate care hence a lot needs to be done on ensuring that appropriate care is sought. The results found no significant relationship between healthcare-seeking and wealth status as well as with caregivers' education thus the second and third hypothesis were proven.

CHAPTER 6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study showed that healthcare-seeking practices for diarrhea remains a great challenge among the urban poor with more than half (55%) of the caregivers seeking inappropriate health care with a large number of caregivers (35%) taking no action regarding the child diarrheal illness. The use of ORS together with Zinc supplements which has been widely recommended for the management of diarrhea by the UNICEF and WHO is also very low. The critical predictors of healthcare-seeking identified by the study are duration of illness, place of residence and child's age.

6.2 Recommendations

The findings from this study are intended to inform policy makers, health educators, planners and other health professionals about the healthcare-seeking practices of residents of the two slum areas. This way, they can initiate policies and programs that respond to the community needs, which will in turn improve family and community childcare practices as one of the components of the IMCI strategies aimed at reducing morbidity, infant and child mortality. The study therefore makes the following recommendations aimed at improving healthcare-seeking.

The high percentage of caregivers that did not seek appropriate healthcare highlights the need for improving the caregivers' healthcare-seeking practices. Given that a large group of caregivers are taking no action in managing diarrhea among children, it is recommended that efforts to educate the caregivers as well as the general public about the importance of seeking care and proper management of diarrheal and other childhood illnesses should be intensified.

Given the low use of ORS and Zinc supplements in the management of diarrhea, programs aimed at improving the use of ORS should be initiated. The programs should focus on teaching mothers not only how to use ORS but also how to identify signs of dehydration. Given its vital component in the prevention of dehydration, ORS use needs to be improved. In order to ensure that the ORS use increases, proper information regarding home preparation of the solution can be given to mothers and caregivers. Increased training of caregivers and the general community in the importance of ORS use should continue to be fostered. Distribution of the ORS packets should also not only be distributed in the health facilities as is currently done, as stated in the KDHS report, but also in homes. Distribution in the health facility only caters only for a small percentage of people given that majority are shown to be seeking care in other places but the health facilities. Where viable, families should be encouraged to have ORS and zinc supplements readily available for use, when needed. The main focus should be on women as their awareness, practices as well as attitudes are key in promoting proper use of ORS. This is however not to say that other members of the general public should be excluded.

More studies to unravel the treatment of diarrhea in the homes are needed in order to improve healthcare-seeking practices. For instance, studies can be conducted on why ORS is not used in the management of diarrheal diseases. Programs should look into improving the health care at home as this has the potential of improving the health status of children.

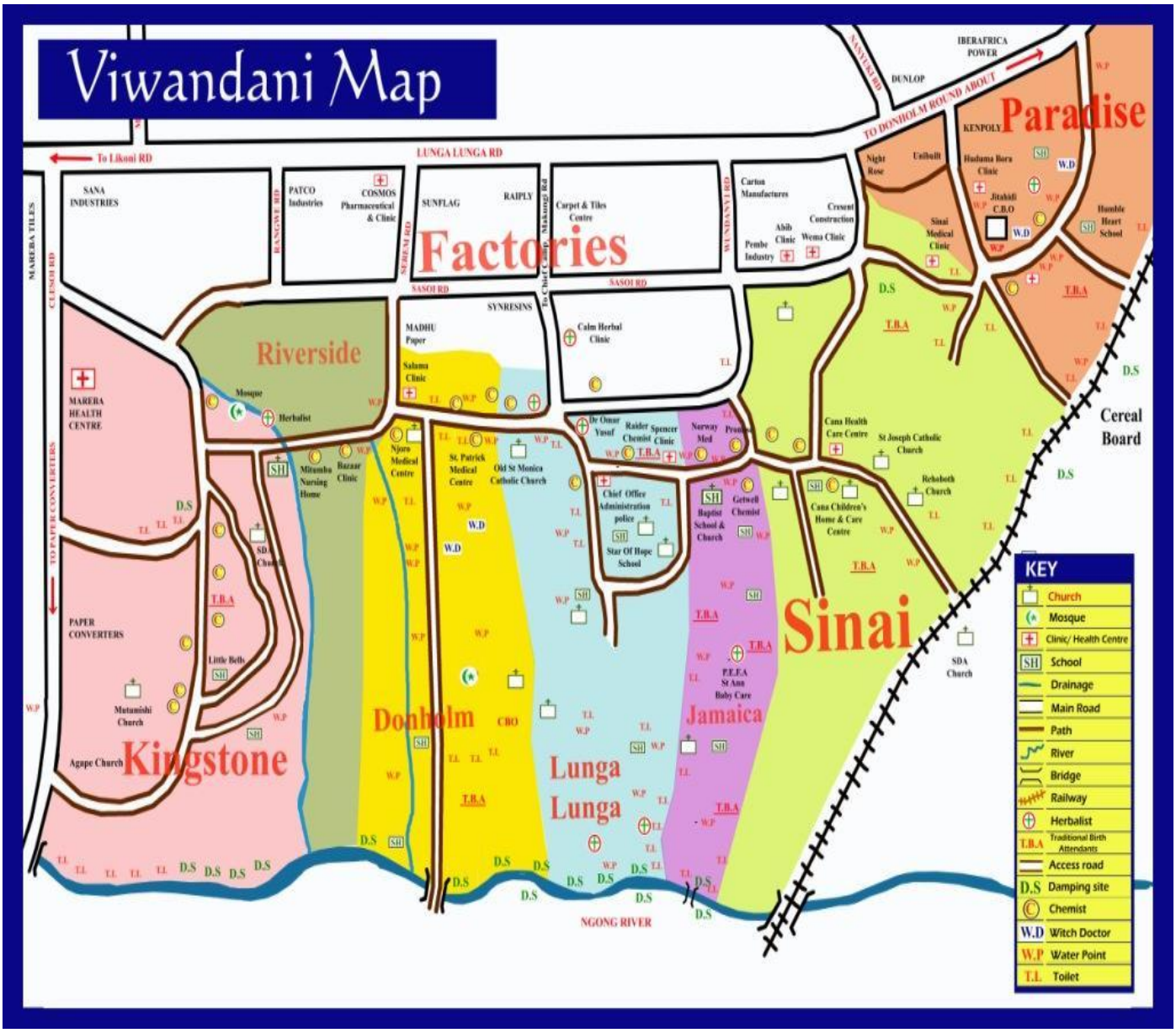
Studies looking at whether or not care is being sought should further explore the appropriateness of the care as it may not be very useful to simply know that care is being sought, especially if the care being sought is inappropriate and thus could worsen the state of the child's illness.

APPENDICES

Appendix I: Map of Korogocho



Appendix II: Map of Viwandani



Appendix III: Summary of Background characteristics of Korogocho and Viwandani slums

KOROGOCHO	VIWANDANI
Area ▪ Area = 0.45 KM^2 ▪ Population = 28493 ▪ Density per KM^2 63318 ▪ Located about 12 kilometers from Nairobi city center ▪ Developed on land originally owned by an individual called Baba Dogo and what was left by the City Council as a reserve land on the banks of the Nairobi and Gitathuru rivers ▪ Established in December 1978. **Unique peculiarities** ▪ Most houses are made of mud and timber with roofing of waste tin cans ▪ Houses are built in rows with an average of six dwelling units (rooms) per structure ▪ It is one of the most congested slum areas of Nairobi with over 250 dwelling units per hectare ▪ To the east and south east of the slum settlement is the Nairobi Refuse Dump site **Socio-economic conditions** ▪ Among men aged 18 years and above, only 11% were in salaried employment 10% in established trading, 34% on casual employment, 29% on petty trading, and 15% without any income generating activity ▪ Among women, 50% are without any income generation; 32% in petty trading, and 8% in casual employment, 4% in salaried employment and 6% in established trading. ▪ Most of the residents are either uneducated or dropped out of school at primary level; only 19% of the men and 12% of the women attained secondary school education	**Area** ▪ Area = 0.52 KM^2 ▪ Population = 27343 ▪ Density per KM^2 52583 ▪ Located about 7 kilometers from Nairobi city center ▪ Developed on land that was left by the City Council as a reserve land on the banks of Nairobi river ▪ Established in 1973. **Unique Peculiarities** ▪ Most houses are made of iron sheets and tin with roofing of iron sheets ▪ Houses are built in rows with an average of six dwelling units (rooms) per structure. ▪ To the south Viwandani is the Ngong' river that is heavily polluted by industrial waste ▪ To the south of the slum settlement is the Nairobi River and to the North are the industries **Socio-economic conditions** ▪ Among men aged 18 years and above, 20% were in salaried employment 7% in established trading, 42% on casual employment, 14% on petty trading and 12% without any income generating activity ▪ Among women, 50% are without any income generation; 19% in petty trading, and 18% in casual employment, 3% in salaried employment and 7% in established trading. ▪ Many of the residents attained secondary school education; 48% of males and 36% of females attained secondary school education

Source: APHRC, www.aphrc.org

Appendix IV: Summary of study variables

Dependent Variables	Category
Healthcare-seeking practice	Appropriate Inappropriate
Independent Variables	**Category**
Sex of child	Male Female
Age of child (Months)	0-11 12-24 25-36 37-59
Slum of residence	Korogocho Viwandani
Age of caregiver (years)	19 and Below 20-29 30-39 40+
Marital status	Currently married /living together Formerly married Never married
Parity	1-2 3-4 5 or higher
Wealth index	Poor Middle Rich
Ethnicity	Kamba Kikuyu Luhya Luo 0thers
Caregiver's education level	Incomplete primary Complete primary Secondary and above
Duration of illness	1-2 days 3-6 days 7-13 days 14 days and above
Caregiver's relation to child	Not Mother Mother

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