FACTORS ASSOCIATED WITH HERBAL MEDICINE USE IN CHILDREN 0- 12 YEARS OLD: A CASE OF BONCHARI SUB COUNTY, KISII COUNTY, KENYA.

A Thesis Submitted to the School of Nursing

University of Eastern Africa, Baraton

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Nursing

(Community Health)

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JULY, 2019

DECLARATION

I hereby declare that this thesis is my original work done in partial fulfilment of Master of Science in Nursing (Community Health).

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ACKNOWLEDGEMENT

I am grateful to God for giving me strength through the study. I sincerely thank my supervisors Professor Jackie Obey and Dr. Joyce Owino of University of Eastern Africa, Baraton for their professional guidance and tireless effort in assisting me during the study. I also wish to appreciate my lecturer Ms Mary Njeru for assisting me.

I thank all the parents and caregivers of children 0-12 years in Bonchari who agreed to participate in the study.

Lastly, I am grateful to my Mother Rogathe Ngiti and my children Zena and Sia for understanding, persevering, and supporting me throughout the study.

ABSTRACT

Reports indicate that more than 80% of the world population relies on herbal medicine (WHO, 2013). This study examined herbal medicine use practice including factors associated with its use in children 0-12 years in Bonchari Sub County, Kisii County, Kenya. The specific objectives of the study were to identify the types of herbal medicines used in children in Bonchari Sub County, determine information sources utilized, explore factors contributing to herbal medicine use in children and determine the associated outcome of using herbal remedies in children. The research design used was case study design. Purposive sampling was used to include all the 30 parents/ guardians who presented at Kisii Level five hospital with a history of herbal medicine use on their children in 2014/2015. Semi structured, interviewer administered questionnaires were used to collect data. Data was analysed both quantitatively and qualitatively. Quantitative data was analysed using statistical package for social scientists (SPSS) version 21.0 while in qualitative analysis, thematic analysis was done. Findings revealed that there were a number of herbs used in children in Bonchari Sub County, with the most common being Spilanthes Mauritiana used to treat oral candidiasis (22.22%). The most common source of information on herbal medicine were the grandmothers (55.56%). Conviction that conventional medicine would not treat was the leading factor in the use of herbal medicine in children (40.74 %). Other reasons were that herbs are commonly used in the area (33.33 %), and herbs are easily available (25.93 %). Out of the 27 respondents who were interviewed, 20 of them (74 %) had children who developed serious complications after using herbal medicine. None of the respondents informed

their medical practitioner that their child was on herbal medicine and none of the medical practitioners bothered to ask during regular visits. This study points to a belief system on herbs as the common treatment mainstream in the region making scientific study a necessity that will help us determine the beneficial and harmful herbs and advice the community accordingly. The results of this study further suggest that training on traditional medicine practice should be incorporated in the training of medical students and traditional healers should be officially sensitized by the Ministry of health on herbal medicine use practice so as to minimize the dangers that come with unregulated herbal medicine practices.

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LIST OF ABREVIATIONS AND ACRONYMS

CAM- Complementary and Alternative Medicine

DME-Drug Metabolizing Enzyme

HCP-Healthcare provider

HBM-Health belief model

HIV-Human Immunodeficiency Virus

K.T.R.H. - Kisii Teaching and Referral Hospital

TCM-Traditional and Complementary Medicine

UEAB- University of Eastern Africa, Baraton

WHO - World Health Organization

NCAPD-National coordinating agency for population and development

CHAPTER ONE

INTRODUCTION

Background of the study

Reports indicate that more than 80% of the world population relies on herbal medicine (WHO, 2013). The prevalence of herbal medicine use in children has been reported as a wide range from 10% to more than 80% worldwide (Uzturk *et al.,* 2008). Herbal medicines having gained popularity worldwide are advertised as less toxic, providing more benefits compared to conventional medicine. However, healthcare providers cannot afford to ignore herbal medicine use since it is well known that besides their benefits, they also have toxicities (Lim *et al.*, 2011). Most herbal medicines have not undergone scientific trials and many governments have not embraced the practice. Confusing nomenclature, inappropriate labelling, improper dosage, and several growth factors are challenges experienced through herbal usage (WHO, 2008).

However, some herbal medicines have been confirmed to be effective against chronic conditions such as arthritis, stroke, asthma, epilepsy, diabetes and infertility where modern medicines have seemed to fail (Darko, 2009). This has resulted into herbal medicines receiving international recognition. Most conventional drugs in use today for the treatment of blood pressure problems, heart disease and asthma are derivatives of herbal medicine (IUPAC, 2008). Studies have indicated that children with cancer, Juvenile rheumatoid arthritis, cystic fibrosis, chronic abdominal pain, failure to thrive and liver cirrhosis are likely to use herbal medicine (Zuzak *et al*, 2009).

Globally, the use of herbal medicine products exceeds that of conventional products by three fold (WHO, 2005). In China, 907 million US dollars was paid per annum per person for traditional Chinese services whereas 560 US dollars per annum per person was used in Saudi Arabia for traditional medicine (Albeda, 2013).76% of Singaporeans and 86% of Koreans were on herbal therapy in 2010(WHO, 2011).Spain's herbal use stood at 41%, Canada 70% and Australia 82% (Skovgaard *et al*, 2012).

In Africa, herbal medicine has been in use even before the introduction of conventional medicine and is used in both children and adult populations for treatment of various ailments (Winker *et al.,* 2010). In Kenya, 70% of the population relies on herbal remedies (NCAPD, 2007) and 90% of Kenyans have used herbal medicine at some point for various health conditions (Njoroge & Kibunga, 2007). There are several herbal habits in all the Kenyan tribes but very few publications on traditional herbal medicine exist (Kigen *et al.,* 2013).

Kenya still lacks a legal framework that governs herbal medicine use (NCAPD, 2007). Unregulated herbal practices in Kenya make many children susceptible to the effect of herbal medicine. Children have small body surface areas and have varying capacities for detoxifying chemicals making herbal products lethal to them. They also absorb, distribute, metabolize and excrete substances differently compared to adults. Their developing central nervous systems and underdeveloped immune systems make them more prone to the side effects of herbs (Woolf, 2003).

In 2008, NCAPD cited several challenges that needed to be overcome so as to develop a sustainable legal framework for governing herbal medicine use. So far, no legal framework has been created yet. The country has realized that there is a gap in herbal medicine practice and in recognition of this, vision 2030 in its second medium

term plan 2013-2019 will address issues under natural products program. This will be done within a flagship project which will look into documentation, and securing of knowledge related to biological resources (MoSCA, 2013).

Therefore this study endeavored to bring out a clear picture of the actual herbal medicine use practice in children 0-12 years in Bonchari sub county, Kisii County, Kenya.

Statement of the Problem

Kisii Teaching and referral hospital is the largest government owned hospital in Kisii County and receives clients from all its 9 sub-counties (K.T.R.H. records, 2015).Cases of herbal medication use in children are common. Over a period of two years, most hospital admissions as a result of herbal intoxication were observed to come from Bonchari sub-county. An initial review of the hospital records revealed that in 2014 alone, there were a total of 28 cases of pediatric herbal intoxication. Out of the 28 cases, 21 were from Bonchari sub-county (K.T.R.H. records, 2014). In 2015, a total of 22 cases of herbal medicine intoxication were reported out of which 9 were from Bonchari. Patients do not disclose herbal usage practices to their health care providers. Little is therefore known about the specific practices of herbal medicine use in patients worldwide (Eisenberg et al, 2010). Herbal medicines are also sold without restrictions in Kenya despite the adverse effects and interactions that they may cause (WHO, 2015). Healthcare providers have little information on herbal use practices of caregivers/parents on their children in Bonchari Sub County.

Very little information is available in Kenya regarding herbal medicine use in children and in the adult population since very few authors have contributed to this hence the need for a research that will be used for future reference (Kigen et al, 2013).

Research Objectives

Broad Objective

The general objective of the study was to investigate the use of herbal medicine on children in Bonchari Sub County, Kisii County, Kenya.

Specific Objectives

i. To identity the types of herbal medicines used on children in Bonchari Sub County, Kisii County.
ii. To determine information sources utilized by parents/caregivers that give herbs to their children in Bonchari Sub County.
iii. To explore the factors contributing to use of herbal medicines on children in Bonchari Sub County, Kisii County
iv. To determine associated outcomes of herbal medicine use on children in Bonchari sub county, Kisii County.

Justification of the Study

Children presenting for treatment in our facilities may also be on herbal medicine without our knowledge and this may lengthen hospital stay or hamper the right diagnosis and management (Woolf, 2003).A WHO database report revealed 12679 suspected cases of herbal intoxication where only herbs were involved and 21951 cases of intoxication where herbs interacted with conventional medicines leading to intoxication.

A survey conducted in the UK revealed that 82% of health care providers felt they did not know about herbal medicine use practices on their patients though they acknowledged that potential side effects are real(Gratus et al,2009).This study will therefore empower HCP since they have an obligation to provide culturally sensitive

care which improves communication. An informed approach to client's heath traditional practices such as herbal medicine use will enhance the relationship between service providers and clients and reduce risks posed by a particular cultural heath practice such as the use of herbal medicines in the treatment of children.

Herbal medicine use is widespread in Kenya and quite unregulated. Most communities use herbal medication but no documentation is available to indicate the exact practices (Kigen *et al*., 2013).A research was therefore needed to bring out a clear picture of herbal use practice for future reference and research. In Kisii, no research has been published on herbal medication use in children in Bonchari and there was therefore a need to conduct such a research in order to identify the gaps and advice HCP and the community accordingly.

Significance of the Study

Healthcare providers have a responsibility to understand cultural health practices of their patients because failure to do so may lead to potential complications. They ought to educate patients about the potential risks of herbal medicine and closely monitor the use in children (Buck & Mishel, 2010).

This research will therefore enlighten healthcare providers on the actual herbal medicine practices in children in Bonchari Sub County and enable them address potential educational needs. It will further enable health care professionals provide safe and culturally sensitive care to children of Bonchari and others who may be using herbal medicine.

WHO conducted a survey in 129 countries regarding herbal medicines and some of the challenges noted included lack of proper mechanisms for control of herbal medicine, inadequate reporting, and inadequate information among healthcare

professionals regarding herbal medicine use practices in patients. It recommended that support is needed from various countries. One of the support will be through this research. In Kenya, the use of herbal medicine on children has not been well researched and therefore this research attempts to fill this gap.

The study will assist in decision making and policy formulation in both public and private health facilities in the country since they will be able to understand the use of herbal medicines in children in the Counties.

The results will be used to give recommendations that are acceptable to the community. Researchers may use information in this study to identify gaps for research.

Theoretical Framework

The study was based on the health belief model(HBM) developed by Becker in 1978.This model addresses behaviors that evoke health concerns and enables one to predict steps that may be taken by clients in respect to their health a*s shown in Figure 1 below*.

In HBM, a client will only seek care if she perceives that there is a threat posed by a health problem and there are benefits to be accrued upon reduction of the threat. HBM enables one to predict steps that may be taken by clients in regard to their health. There are six concepts in HBM; perceived susceptibility is the perception that a health problem is of importance and the diagnosis is indeed accurate. Perceived severity –Action will not occur even after recognition of susceptibility unless one perceives the severity to be high so as to lead to complications. Perceived benefits- The conviction that a certain regimen used in a certain way will cure or prevent illness. Perceived barriers refer to the obstacles to behavior change while motivation

refers to the desire to comply with a certain treatment. Modifying factors include personality variables and socio-demographic factors.

Through HBM, this research determined the herbal seeking practice of parents/caregivers on behalf of their children. It identified herbs commonly used, information sources on herbal medicines used on children, reasons for herbal use on their children, and the outcome of using those herbs.

In this study, perceived susceptibility referred to the risk the children of Bonchari have to particular diseases that necessitate herbal use. Parents who perceive that their children are susceptible to particular health problems will feel that their child's health is threatened and therefore use herbal medicine.

In perceived severity, if the health problem is viewed to be serious so as to threaten the health of the child, it led to herbal medicine use. Perceived barriers referred to the obstacles towards achieving conventional healthcare for their children which threatens health and leads to herbal medicine use. Motivation referred to the information parents received from people about their child's condition and how herbal medicine can solve it and this makes them feel that there is an actual threat to their child's health which can be solved through the use of herbal medicine. Perceived benefits represent the belief parents/caregivers have that a given herb will cure a certain illness when administered. Modifying factors such as demographic factors, structural factors, and Socio psychological factors affect perception (perceived seriousness, perceived susceptibility, and perceived barriers) and therefore led to herbal medicine use in children.

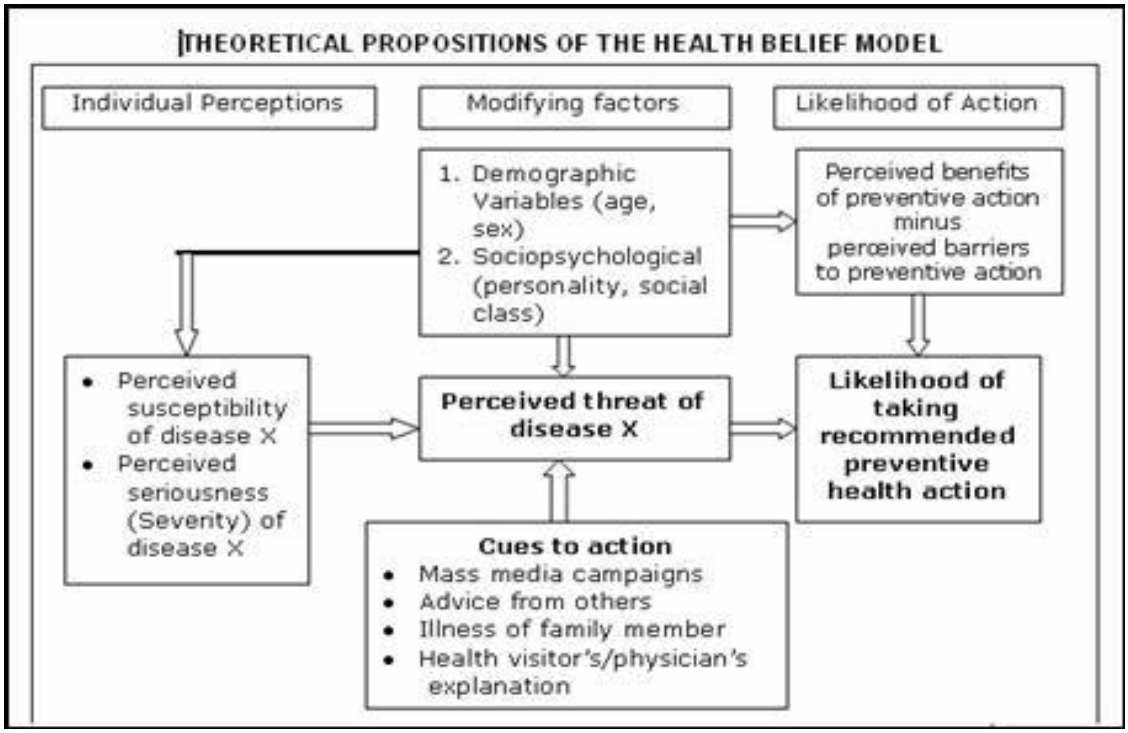


Figure 1: Theoretical propositions of the health belief model.

Scope of the Study

The study sought to investigate the use of herbal medicines in children (0-12 years) in Bonchari Sub County, Kisii County. It was conducted in Bonchari Sub County, Kisii County.

Definition of Terms

Child/ Children: A young person aged between 0-12 years.

Concomitant use: Use of herbal products and conventional medicine concurrently.

Herb: Any plant with leaves, seeds or flowers used for flavouring, food, medicine, or perfume.

Herbal medicine: Plant derived material with therapeutic benefits which contains either raw or processed ingredients from one or more plants.

Health Care Professional: a person qualified and allowed by regulatory bodies to provide health care service to a patient

Medication: a drug used to treat disease or injury.

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter reviews literature on the use of herbal medicines on children. A review of literature is conducted to determine the existing body of knowledge on the research topic and to identify any possible commonalities or differences that exist in the searched literature. This enables the researcher to provide a framework for the study by placing it in the context of current knowledge on the use of herbal medicines on children.

Overview of herbal medicine use

Studies show that over 80% of the world population relies on herbal medicine (WHO, 2011). In 2001, WHO assessed the legal status of traditional medicine in different countries and the following was noted: for instance in Argentina, Japan, Germany, Spain, Cuba and Italy, traditional medicine is popular and is allowed to be used or practiced by allopathic doctors; while in Australia, France, Nigeria, Malaysia, Switzerland, and United States of America, traditional medicine is illegal but tolerated by law; on the other hand, in Chile, Mexico, Peru, Philippines, South Africa and Zimbabwe, traditional medicine is being actively promoted with the aim of making it part of the national healthcare system; while in China, Germany, Ghana, India, Indonesia, Pakistani, Mali, Myanmar, Korea, Thailand and the united Kingdom, traditional medicine is an integral part of the national healthcare system (WHO, 2011).

The increase in use of traditional herbal medicine by various nations prompted the World Health Organization to integrate herbal medicine into national health

systems through national policy formulation and product regulation so as to ensure provision of safe herbal products. In so doing, WHO acknowledged herbal medicine as part of health care treatment option and protected patient safety by upgrading the skills of herbalists (WHO, 2008).In 2009, WHO released guidelines on training of herbalists (Naturopathy) and urged member states to integrate traditional medicine into the natural healthcare systems and offer the training according to the specific need of the country.

Herbal medicine has served as a vital part of health care in Kenya for a long time and continues to do so. A study done in 1996 revealed that the Samburu people who inhabit the northern part of Kenya use a wide range of herbal resources comprising of about120 plant species which are used to treat several diseases including, gonorrhea, and polio (Fratkin, 1996). Surveys indicate that herbal medicine is widely practiced in the country by the different communities (Njoroge & Bussmann, 2007).A survey conducted in Thika district, Kenya showed that 97.45% of the population preferred to treat or manage conditions with herbal medicine rather than conventional medicine while52.5% first seek treatment from herbalists before going to the hospital (Njoroge & Kibunga, 2007). Currently, more than 250 plants are used by various ethnic communities to treat a range of diseases (Maina, *et al*, 2013).

Traditional herbalists outnumber conventional providers in Kenya. There is an herbalist-patient ratio of 1 to 950 (Maina *et al*., 2013).The dependence on medicinal plants is due to lack of access to modern medical services. Although the majority of Kenyans (80 per cent) live within 5 kilometers of a health facility, medical services are not always available. Many facilities lack drugs, basic services and amenities and the cost of medicine is high. In addition, there are shortages of health

professionals and the ratio of doctors to the population remains low at 15 per 100,000 (NCAPD, 2008) which translates to herbalist- patient ratio of 1 to 6667.

Worldwide, children are more susceptible to adverse effects of herbal medicines because of differences in physiology and immature body systems. No evidence-based information on the use of herbal medicine in children is available. However, parents/caretakers continue to use these products on their children. The only help healthcare professionals can accord these parents and children is to monitor herbal use, assist in herbal therapeutic decisions, and monitor for interactions. This can only be achieved through an open discussion with the parents during history taking regarding herbal use on their children (Lim et al., 2011).The American academy of pediatrics provisional section on complementary and integrative medicine advices clinicians to advice families on the use of Complementary and alternative medicine since evidence still lacks regarding the use of these medicines (Noras et al., 2013).

Herbal medication is likely to be used on children who have chronic conditions such as asthma, sickle cell, or cancer and may result in undesirable effects due to the many related mixtures of several active chemicals that may be found in a single herb. For example, tea tree oil has been discovered to contain over 100 chemicals. This can be detrimental to the young developing bodies of children. A study on CAM use in pediatric diseases indicated that 31-37 % of children with cancer were on herbal therapy, while 70% with juvenile arthritis were on the same treatment (Noras et al., 2013). Some children are more susceptible to adverse effects of herbal medicine and may experience long term side effects such as neuropathy, seizures, and stroke (Davis, 2012).

Types of herbal medicines used on children

The potential of plants as a source of conventional drugs exists. Twenty five percent (25%) of conventional drugs are derived from plants and 121 such active compounds are in use (Sahoo et al., 2010). For example, reserpine, an alkaloid was the first anti-hypertensive drug that was isolated from the roots of Rauwolfia serpentine (Apocynaceae) in 1952 (Pandey et al, 2011). Safety and effectiveness of some of the medicinal plants has been evaluated leading to new antimalarial drugs developed from the discovery and isolation of artemisinin from Artemisia annua L., a plant used in China for almost 2000 years (WHO, 2008).

It is clear that there is a lot of potential in Kenyan herbal medicine judging from the published laboratory results from the screening of the plant extracts that have been analysed in various institutions. The following are medicinal plants found in Kenya: Albizia gummifera, Boscia salicifolia, Rhus natalensis, Vernonia lasiopus, Rhamnus prinoides, Pentas longiflora and Ficus sur among others, have shown antiplasmodial activity hence effective in malaria treatment (Muthaura et al., 2007). Similarly, the aqueous extract of Carissa edulis, Prunus Africana and Melia azedarach has demonstrated the potential anti-viral activities at non-cytotoxic concentrations (Tolo et al., 2008). Other studies have shown that water extracts of Warburgia ugandensis have antifungal activity against Candida albicans (Olila et al., 2001) and also antileishmanial activity (Ngure et al., 2009). Similarly, pentacyclic triterpenes isolated from Acacia mellifera have demonstrated antimicrobial activity among other Kenyan medicinal plants (Mutai et al., 2009)**.**

Research by Gardner and Kemper (2000) revealed common herbs used in the treatment of children worldwide as shown in **table 1** below. Not much literature has been added since then. However ,a study conducted in Germany by Du et al.,(2014)

on the use of herbal medicinal products among children and adolescents found that the ten commonly used herbs were Ivy leaf, thyme, eucalyptus, pelargonium root, elder flower, primular flower, verbena, gentian root, sorrel herb, and matricaria flower.

So far, no countrywide study has been done in Kenya to determine common herbs used in children but some studies have been done in few specific communities targeting mainly adults. A study conducted by Githinji (2014), to determine factors leading to utilization of herbal medicine and concomitant use in Kiambu, Kenya and concomitant use revealed that the most common herbs used were neem(melia azadirachta),Bitter lemon(Carissa edulis),Blue bangle(ajuga remota),Castor(ricinus communis),Poison bulb(crinum macananii),Black jack(biden pilosa),and aloes(aloe kedongensis).A study conducted by Ondicho et al in 2015 in Gucha district, Kisii county,to determine factors associated with use of herbal medicine among patients in herbal clinics indicated that the most commonly used herbs were;ocimum lamiifolium, plectranthus barbatus, maesa lanxeolata furssk, solanecio mannii, and achyranthes aspera L for treatment of various conditions.

The specific herbs used on children in Bonchari remain unknown since no research has been conducted to determine the same. Some types of herbs have been known to cause serious side effects, alter diagnostic findings, and interact with conventional medicine (Bilgil et al, 2014).It is therefore important for health care providers to know the specific herbs being used by mothers on their children so that they can advise on safety and effectiveness on the use on children since children may react differently.

Table 1.

Common Herbs Used in Children worldwide

HERB	TYPICAL USES IN CHILDREN
Ginger	Upper respiratory tract infections, cough, bronchitis, colic, prevention of nausea and vomiting, ear infection, gastrointestinal disorders
Aloe Vera	Peptic ulcers, laxative, digestive disorders, insect bites, skin irritations, frostbite, burns.
Calendula	Skin irritations, rashes, cold sores, eczema, and conjunctivitis.
Fennel	Colic, flatulence and diarrhoea in infants, respiratory tract infections, conjunctivitis.
Chamomile	Colic, skin irritations, peptic ulcers, teething, sleep problems.
Catnip	Upper respiratory tract infections, colic, headache, indigestion, nervousness, low grade fever.
Evening primrose oil	Whooping cough, asthmatic coughs, gastrointestinal disorders, mastalgia, multiple sclerosis, autoimmune diseases.
Garlic	Ear infections, upper respiratory tract infections, cough, bronchitis, gastrointestinal disorders, diabetes mellitus.
Gingko biloba	Cerebral ischemia, lung and bronchial congestion, tinnitus, vertigo, attention deficit hyperactivity disorder
Gold seal	Boils, conjunctivitis, gum inflammation, haemorrhoids, fungal infections, digestive disorders, upper respiratory tract infections.
Lemon balm	Oral and genital herpes, insomnia.
Licorice	Asthma, cough, sore throat, upper respiratory tract infections, bronchitis, stomach ulcers, digestive disorders, constipation, colic.
Slippery elm bark	Minor skin irritations, cold sores, ulcers, boils, diarrhoea, colic, urinary tract infections, sore throat, upper respiratory tract infections.
Peppermint	Headache, diarrhoea, nausea, colic, flatulence, cough, tension headache, gastrointestinal disorders.
St. John's wort	Wounds, burns, neuralgia,
Thyme	Bronchitis, cough, sore throat, upper respiratory tract infections, colic, diarrhoea.

Adapted from Gardner and Kemper (2000).

Information sources on herbal medicine use

Quacks who prescribe herbal medicine have become rampant and advertise themselves openly (NCAPD, 2008).This is unlike in the past where herbal medicine prescription was the duty of herbalist.

Relatives, friends, and neighbors have been reported to be the major source of herbal information worldwide standing at 51.4% in the United States and 60-80% in developing countries (Oshikoya et al., 2008). In Kenya, a study conducted in Kisii revealed that healthcare professionals mainly nurses encourage the use of herbal medicine (Otieno, 2011). This contradicts past expectations where herbal medicine was known to be prescribed by herbalists some of whom are in well advanced age now (Kigen et al., 2013).

Children keep coming with intoxication from Bonchari but nobody knows the people who prescribe these herbs leading to complications. It is important that the prescribers are known so that they get trained according to the training framework developed by WHO in 2008.This will reduce herbal medicine complications in children.

Factors contributing to use of herbal medicines in children

It is estimated that ninety percent (90%) of Kenyans have used herbal medicine at some point for treatment of various conditions (Njoroge, & Kibunga, 2007). Affordability, availability, accessibility, and acceptability by a majority of the population seem to be the major contributors to herbal usage. (Tamuno, 2011; Duru et al., 2016).These factors continue to increase the demand for herbal medicine despite great advances observed in conventional medicine in recent years (Sen & Chakraborty, 2015).

Researches done have indicated that herbal medicine use practice is to some extent determined by demographic factors such as age, marital status, education level, and income. Structural and Socio-psychological factors also play a role (Duru et al., 2016)

AFFORDABILITY

Poverty remains a leading reason for herbal medicine use especially in children in African countries (Eshikoya et al., 2008).In comparison to Conventional healthcare, herbal medicine is cheaper and herbalists accept delayed payment in other forms such as cows, goats, sheep, chicken, or any other material asset that the family can afford (Darko, 2009)..A study was conducted in Ghana to determine reasons for herbal medicine use. 58.6% of the respondents stated that they were using herbal medicine because they could not afford conventional medicine (Adams et al., 2013).

Chronic diseases which require complex therapy that clients cannot afford are likely to push parents into using herbal medicine on their children (Noras et al., 2013).

ACCESSIBILITY

In some regions in Kenya, especially rural regions, there is one facility per 50-200 kilometers making conventional healthcare services inaccessible to some populations .On the other hand, accessibility to a health facility may be easy but resources in the facility may lack prompting traditional medicine use. Uneven distribution of healthcare workers in Kenya is also a major issue affecting access to healthcare (Turin, 2010).

In some East African countries like Uganda and Tanzania, the ratio of traditional medicine practitioners to population ratio is 1:200-1:400.In Kenya, medical doctor to population ratio is 1:40,000, and traditional healers to population ratio is 1:500

(WHO, 2013). Due to need for more personal attention, Parents opt to take their children to herbalists (WHO, 2013

ACCEPTABILITY

Herbal medicine is viewed by patients in developing countries as more efficacious hence the reason as to why it may be given to children (Clement et al., 2007).

Many communities believe that herbal remedies are safe because of their natural origin and therefore have little or no side effects (Jacobson et al., 2009).In such communities, herbal medicine practices are widely accepted and therefore parents may not have any restrictions in giving herbs to their children because researches have shown that parents who use herbal medicine to treat themselves also treat their children with herbal medicine (Aydin et al., 2008).

AVAILABILITY

Availability of herbal medicine is a major contributor to herbal usage (Aydin et al., 2008). In some countries, herbs are readily available because they have been legalized. Fourteen (14) African countries encourage the use of two herbs namely, Hypoxis hemerocaidilea (African potato), and Southerlandia frutescenos for HIV management. These countries are South Africa, Malawi, Angola, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe (Thomford *et al.*, 2015).These herbs are therefore easily available for patient use such that parents can easily get them for use on their children.

According to the World health report 2013, increased awareness on available treatment options by the parent/caregiver may lead parents to use herbal medication on their children. Dissatisfaction with conventional medicine, fear of drug adverse effects, particular herb popularized as effective and word of mouth are other reasons that may lead to herbal medicine use in children (Kemper et al., 2014).

Parents/guardians in Bonchari are using herbal medicines on their children and the reasons leading to this remain largely unknown. This study therefore endeavors to unearth these reasons and provide a foundation for developing more evidence to empower HCP and inform policy makers who will create policies for improving on these factors and hence reduce complications resulting from the use of herbal medicine.

Outcome of Herbal Medicine Use in Children

Herbs have been known to treat certain diseases. Some herbal medicines have been confirmed to be effective against chronic conditions such as arthritis, stroke, asthma, epilepsy, diabetes and infertility, where modern medicines have seemed to fail (Darko, 2009). This has resulted into herbal medicines receiving international recognition. Most conventional drugs in use today for the treatment of blood pressure problems, heart disease and asthma are derivatives of herbal medicine (IUPAC, 2008). However, they differ from conventional medicine in that most herbal medicinal products have not undergone scientific analysis via clinical trials regarding safety (Cravotto et al., 2010).Besides, children react differently from adults when it comes to herbal medication use because their metabolism and their immune, digestive, and central nervous systems are still maturing.The immature systems and decreased metabolism, make them more susceptible to the toxic effects of herbal preparations. Possible side effects of herbal medicine use in children include cardiovascular changes, bleeding, sedation, and changes in drug metabolism (Noras et al 2013).

Use of herbal medicine with conventional medicine is widespread in Kenya (Kigen, 2013).When herbs are administered together with conventional medicines, the outcome could further be lethal. Several health challenges affect Kenyan children and

several diseases of poverty such as malaria, influenza, waterborne diseases, and viral infections could present at a go in a child and tempt parents to use both conventional drugs and herbs.Concomitant use may lead to drug-drug, herb-drug, or herb-herb interactions in a child (Thomford et al., 2015). Several drug-herb interactions have been observed worldwide and received increased attention (Yang et al, 2010). Research has shown that there is a likelihood of receiving drugs metabolized by the same enzyme which leads to sub-therapeutic levels or high concentrations that reach toxic levels. In some cases, herbs induce drug metabolizing enzymes(DMEs)that metabolize conventional drugs leading to ineffectiveness of the conventional drug due to increased levels of DMEs (Chourey *et al*., 2011).Warfarin, which is a conventional drug has been known to interact with garlic (Allium Sativum)leading to serious side effects(Ernest,20*10).

When co-administering herbs, the principle of herb-herb interaction must also be considered. However, most prescribers of herbal medicines do not know this. Co-administering some herbs may lead to antagonistic effects. Some herbs have been known to produce greater efficacy when co-administered. For example, Ephedra, which has adrenergic effects when administered with cinnamon results in increased blood flow. When ginseng is co-administered with aconite (Shenfu Tang), the potency increases. However, some herb-herb interactions result in very toxic effects (Che et al, 2013).

CHAPTER THREE

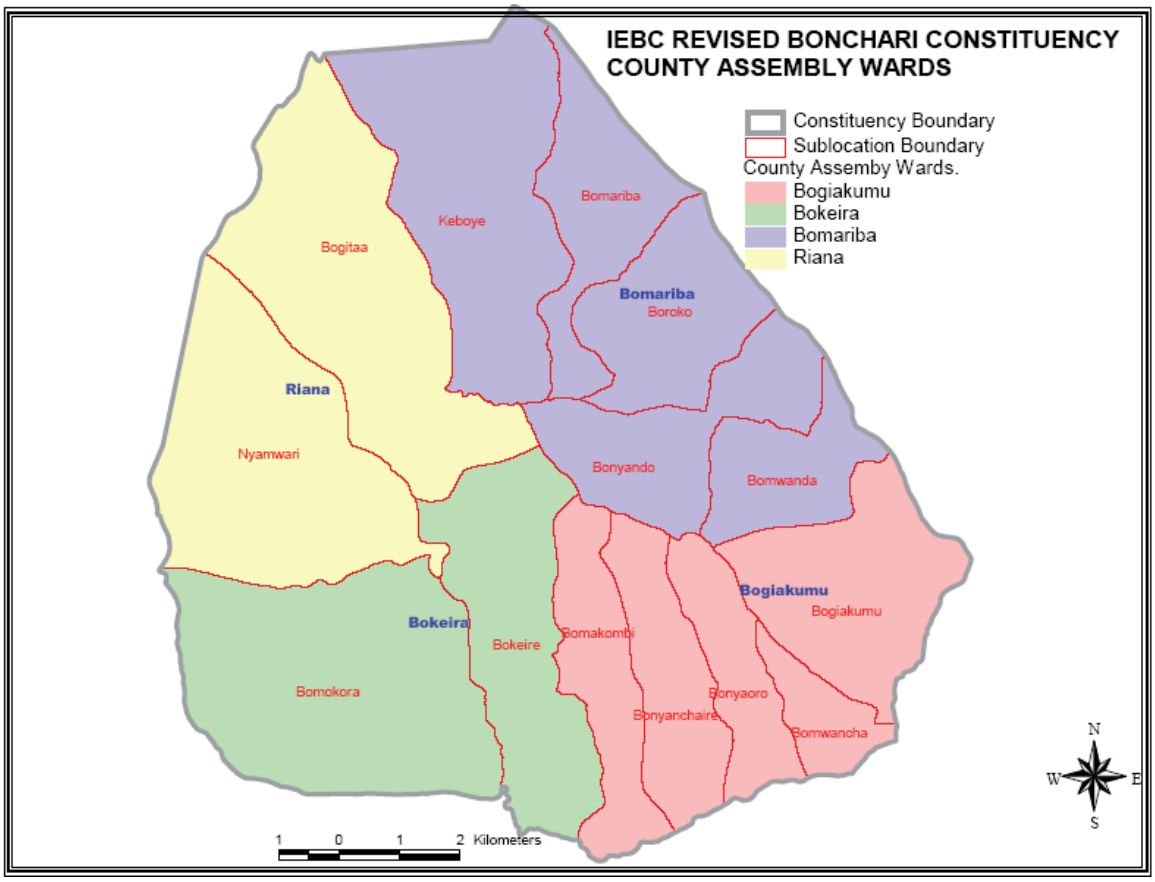
RESEARCH METHODOLOGY

Introduction

This chapter presents the area of study, the study population, the study design, sample size selection, research instrument, data collection procedures, data management and analysis, ethical consideration and dissemination of findings.

Study Area

The study was conducted in Bonchari Sub-County which is located in Kisii County, in the South Western region of Kenya. Kisii County is among the most populated counties in Kenya with an estimated 1,152, 282 people (Oparanya.2010). Bonchari Sub-County consists of overcrowded homesteads surrounded by cultivated fields. Subsistence farming is the backbone of the rural economy. Women do most of the farm work assisted by their children; men build houses and clear fields. Bonchari Sub-county is the leading sub county in Kisii County with the highest number of children who used herbal medication and presented with a history of herbal medicine use to Kisii teaching and referral Hospital between 2014 and 2015 (Kisii Teaching and Referral Hospital Records., 2013).



Research Design

This was a case study design. Mixed method research was carried out. A semi-structured interviewer administered questionnaire was used to collect data. Selection of participants was by purposive sampling in which 30 participants were recruited by census**.**

Population and Sampling Techniques

The population in this study was children under 12 years in Bonchari Sub County. Parents/guardians were the respondents. The reason for choosing this population is because most cases of herbal medication use in children reporting at the

Kisii teaching and referral hospital comes from Bonchari sub-county but health care providers do not know the exact herbal medicine practice in this population. The study used judgmental (purposive) sampling technique to include all the 30 caregivers /parents of the children aged 0-12 years who had a history of herbal medication use at Kisii Level Five Hospital from Bonchari Sub-county in 2014 and 2015.

Inclusion and Exclusion Criteria

Inclusion: The study included all parents / caregivers of children aged 0-12 years from Bonchari who presented with a history of herbal medication use in the year 2014 and 2015, in Kisii teaching and referral hospital and who consented to take part in the study.

Exclusion-All parents/caregivers from other sub -counties were excluded and those having children aged more than 12 years. Those who refused to consent were also excluded.

Sample Size Determination

The sample size comprised of all the caregivers/ parents of children who presented with a history of herbal medicine use in KTRH in 2014 and 2015. The expected number was 30 which was a census study. Out of the 30 parents/caregivers who participated, 27 completed the questionnaires. This gave a response rate of 90%.

Research Instruments

The study employed semi-structured questionnaire. The researcher made appointments to administer the questionnaires with the respondents. The questions on the questionnaire were guided by the research objectives of the study. The questionnaires were interviewer administered to the parents/caregivers.

Validity

Validity refers to the ability of an instrument to measure what it is supposed to measure given the context in which it is applied (Miles & Huberman, 2009).Content validity refers to the extent to which a measure represents all facets of a given construct. A pilot study was conducted at Kisii Level five hospital where the questionnaire was pretested. The purpose of the pilot was to assess the feasibility of the study and whether the questionnaires would deliver the intended research objectives. The pilot study also assessed whether the questions were clear enough to be understood by the parents/ caregivers. Face validity is the extent to which a test is subjectively viewed as covering the concept it purports to measure (Gravetter, 2012).This was determined by the supervisors before data collection began. Sample size of the pilot study was 15% of the study population which translated to 5 participants. Therefore, 5 semi structured questionnaires were administered to 5 clients who gave a history of herbal medicine use on their children aged 0-12 years.

Details of the Interview Process

An introductory letter was obtained from the University of Eastern Africa, Baraton to indicate that the researcher is a student. An approval letter from the UEAB ethics and research committee was obtained and a clearance letter from Bonchari chief to allow for data collection in his region. A clearance from NACOSTI was also obtained. Once permission was granted, a specific date was set in which data collection began.

Data Analysis

Data was analysed both quantitatively and qualitatively. For quantitative analysis, data was analysed using statistical package for social scientists (SPSS)

version 21.0.and summarized using descriptive statistics (frequencies). Quantitative data included number of herbs used and number of information sources. In qualitative analysis, thematic analysis was done mostly on factors leading to use of herbal medicine on children in Bonchari Sub County.

Ethical Considerations

Ethics is the conduct that guides a researcher's behaviour. The study was approved by UEAB ethics committee. All participants were required to sign an informed consent which explains the purpose of the study, benefits if any, and risks. Human rights that require protection were put into consideration. This includes right to privacy, right to anonymity and confidentiality, protection from discomfort and harm, and right to fair treatment.

Anonymity was maintained by not indicating names of any participant in any of the research instruments and numbering was used instead. Data received from respondents was kept under lock and key only accessible to the researcher. Computerized data was protected by use of a password. All participants were given an opportunity to withdraw from the study whenever they wished.

CHAPTER FOUR

PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION

Introduction

The study sough to analyze, interpret and discuss the research findings based on the research objectives. The study objectives were to; identity the types of herbal medicines used on children, determine information sources utilized by parents/caregivers that give herbs to their children, identify the factors contributing to use of herbal medicines on children and to find out associated outcomes of herbal medicine use on children in Bonchari sub county, Kisii County.

Response Rate

The study sought to collect data from all parents of children aged 0-12 years from Bonchari who presented with a history of herbal medicine use in the year 2014 and2015 in Kisii level six hospital and who consented to take part in the study. From the sampled 30 respondents only 27 responses were considered complete enough to be used in the study. This represented a response rate of 90% which was considered sufficient for the study.

Socio Demographic Information

The study sought to assess the socio- demographic characteristics of the parents/guardians and their children who had been selected to participate in the study. The socio demographic information included the marital status of the parents, the

education level of the parents, the occupation and income of the parents, their children's age and gender.

The socio demographic information was sought so as to establish whether it was a contributing factor to the use of herbal medicine on children 0-12 years in the Bonchari region.

Table 2.

Socio Demographic Information of the Respondents

Marital status	**Frequency**	**Percentage**
Married	21	77.78
Divorced / Separated	5	18.52
Single	1	3.70
Total	**27**	**100.00**
Education level		
Primary	17	62.96
Secondary	8	29.63
Tertiary	2	7.41
Total	**27**	**100.00**
Occupation		
Farmer	23	85.19
Business	3	11.11
Civil Servant	0	0.00
Other	1	3.70
Total	**27**	**100.00**
Income		
Less than Kshs 10000	23	85.19
Between 10,000 and 20,000	4	14.81
Over 20,000	0	0.00
Total	**27**	**100.00**
Child's Age		
Less than 1 Year	3	11.11
Between 1 - 3 Years	5	18.52
4 - 6 Years	9	33.33
Over 6 Years	10	37.04
Total	**27**	**100.00**
Gender		
Male	13	48.15
Female	14	51.85
Total	**27**	**100.00**

The parents/guardians who were interviewed were from over 10 different villages in Bonchari Sub County. 77.78% of the parents/caregivers who were interviewed were married while 18.52% were divorced or separated. Only a very small percentage of 3.70% of the rest of the women were single. This may be as a result of the culture of believe in family for most civilised persons living in civilised societies which is controlled by certain tradition and cultures that define a way of life. It is defined that when a person attains a certain age of maturity then they should marry and have children.

The respondents participating in the study were mostly semi-illiterate with a majority 62.96% not having cleared primary school, 29.63% not having cleared secondary school and the rest 7.41% not having completed tertiary studies. This informs the researcher on the level of awareness and probable attitude of the participants who had been selected to participate in the study. Most could not fully comprehend the benefit of conventional medicines from a scientific point of view probably due to their limited levels of education but had rather been socialised into the community health traditions which included the use of herbs without much other knowledge.

Findings also revealed that 85.19% of the respondents were farmers while 11.11% were business people having come from rural areas of Bonchari Sub County where farming is the way of life. Most of the respondents (85.19%) earned less than Kshs 10,000 from their occupations while only 11.11% of the rest of the respondents had incomes of over 10,000 but not more than Kshs 20,000. Only 3.70% of the respondents had an income of over Kshs 20,000. This could be because the main form of farming was subsistence farming and where it was commercial, the size of the farm may not have been large enough to earn the owner sufficient returns.

Most of the children that had been brought to the hospital by the mothers were aged above 6 years (37.04%), over 33.33% were aged between 4 to 6 years, 18.52% between 1 to 3 years while the rest (11.11%) were less than one year. This implies that herbal use seemed to be prevalent in older children as opposed to the young children. Both genders of children, boys and girls were represented in this research at 48.15% and 51.85% respectively to imply that herbal medicine was equally used in both genders.

Information on the Health of the Child

To be able to explain the steps leading to herbal medicine use, the study sought to assess the information on the health of the child.

Table 3.

Information on the Health of the Child

Child's Health	Frequency	Percentage
Fair	13	48.15
Good	9	33.33
Bad	5	18.52
Total	27	100.00
Chronic Illness		
Yes	0	100.00
No	27	0.00
Total	27	100.00
Medication Use		
Yes	2	7.41
No	25	92.59
Total	27	100.00
Medical Cover		
Yes	11	40.74
No	16	59.26
Total	27	100.00
Type of Medical Cover		
NHIF	8	72.73
Other	3	27.27
Total	11	100.00

Majority of the parents who had used herbal medicine (48.15) were of the opinion that their child's health was fair while 33.33 noted that their child's health was good with just a few (18.52%) acknowledging that their child's health was bad. All (100%) of the parents/guardians were of the opinion that their child whom they had given herbal medicine was not suffering from any chronic illnesses.

The common response on probing was near similar

Respondent 5, 8, 14, 19, 22, 24 and 27 "*My child's health is generally okay with just common bouts of normal childhood illnesses which necessitate herbal use.*"

Respondent 3, 9, 13, and 23"*My child does not easily fall sick except on few occasions such as this.*"

When probed about their child's use of any conventional medicine at the time that herbal medicine was being administered, they were of the opinion that their children were not using any conventional medication (92.59%). All the respondents apart from respondent 2 and 15 had this to say about co-administration of conventional medicines with herbal medicines:

"*Herbal medicines should not be given together with conventional medicines. You must give one at a time because mixing is not good*". When probed further on why the medicines should not be mixed, no clear scientific explanation was forthcoming but what they knew is that co-administration is not recommended. 7.41% of the mothers acknowledged that they had used conventional medicines at the time of herbal medicine administration. This was the response of respondent 2 and 15: "There *is nothing wrong in co-administering the two."*

From an analytical point of view, the respondents relied heavily on herbs as their first treatment of choice for their child's illnesses and only turned to

conventional medicine upon failure to respond to herbal medicine. The belief in the use of herbs by the parents could be attributed to the belief system that herbs were as effective as conventional medicines, and could also be because of the customs and the traditions of the people in the area. The lack of empirical evidences and knowledge about the use of herbs for medicinal purposes and their effects can also be considered as a contributing factor to the lack of belief in the hospital system and the use of conventional medicine by the locals.

On the question of having a medical cover, most of the caregivers did not have any medical cover (59.26%) while 40.76% of the caregivers had medical covers. The few who had medical covers, (72.73%) had the NHIF cover while 27.27% had other forms of medical cover. It could be suggested that the NHIF covers could have been as a result of their husbands affiliations with civil service as most of the mothers were mainly farmers. Other covers could also have been from spousal affiliations from husbands who might have been working in the private sector. This low uptake of medical covers can also be suggested to be another reason why the women had not given their children conventional medicine with a majority having avoided to go to the hospital as they lacked a medical cover that would help offset the expenses.

Specific Objectives of the Study

The study sought to analyze the objectives of the study. The findings and the interpretations of each of the research objectives are provided in this section.

Types of Herbs Used

The study sought to identify types of herbs used by the residents of Bonchari Sub County.

There were a number of different herbs that are commonly used in the region. This include, Ekenyunyunta munwa, Omosocho, Risibi, Ekebongabaiseke, Omosobo, Omokonge, Rise, Enyonyo Engare, Omobeno, Enguranguri, Omonyaibuba, Omotembe, Esoko, Amatoke amarere. The herbs were listed and the list sent to KEFRI (Kenya forest research institute) for allocation of scientific names. The commonly treated illnesses on children using herbs include candiasis (40.74%), rashes (18.52%), stomachache (22.22%) and other diseases including allergies (18.52%). These are all common children problem that face children in most other regions and are not peculiar to the residents or the children's of this region.

Table 4.

Types of herbs used, diseases used for and part of plant used

Botanical Name	**Local Name**	**Plant family**	**Indication for use.**	**Plant part used**	**Frequency**	**Percentage**
Spilanthes Mauritiana DC	Ekenyunyuntamunwa	Asteraceae	Oral cavity infections including throat pain,oral candidiasis. Also used to treat boils.	Leaves	6	22.22
Croton macrostachyus Hochst ex Delile	Omosocho	Euphorbiaceae	Oral cavity infections, mostly oral candidiasis	Bark	5	18.52
Leonartis nepetifolaa (L) R. Br	Risibi	Lamiaceae	Stomach infections.	Leaves	3	11.11
Orthosiphon hildebrandrii Vatke	Ekebongabaiseke	Lamiaceae	Stomach infections	Leaves	1	3.70
Rhoicissus tridentata Lf wild and dram	Omosobo	Vitaceae	Stomach infections	Leaves	1	3.70
Acacia gerrundii Benth.	Omokonge	Mimosaceae	Stomach infections	Bark	1	3.70
Urtica dioica	Rise	Urticaceae	Skin infections	Leaves	1	3.70
Oxalis corniculata	Enyonyo Engare	Oxalidaceae	Skin infections, anemia.	Leaves	1	3.70
Cassia didymobotrya Fresen.	Omobeno	Fabaceae	Skin infections	Leaves	1	3.70

Rubia cordifolia L.	Enguranguri	Rubiaceae	Skin infections	Leaves	1	3.70
Eriangea Marginata S. moore	Omonyaibuba	Asteraceae	Skin infections	Leaves	1	3.70
Erythrina abyssinica lom	Omotembe	Fabaceae	Urinary tract infections	Bark	3	11.17
Warbugia ugandensis Sprague.	Esoko	Canellaceae	Tooth infections	Bark	2	7.45
TOTAL					**27**	**100**

Table 5.

Age of child at initiation of herb use

Start of Use of Herbs	**Number of respondents**	**Percentage**
In the First 6 Months	3	11.11
6 - 12 Months	10	37.04
After the 1st Year	14	51.85
Total	27	100.00
Herbs Usage		
Less than 2 Years	5	18.52
2 - 4 Years	10	37.04
Over 4 Years	12	44.44
Total	27	100.00
illnesses Commonly Treated With Herbs		
Oral cavity infections	11	40.74
Skin infections	5	18.52
Stomach infections	6	22.22
Other infections.	5	18.52
Total	27	100.00

Parents in the region have used a number of herbs to treat the various diseases that affect their children. When questioned, 11.11% used herbs in the first 6 months of the child's birth, 37.04% used the herbs after the first 6 months the rest who were the majority 51.85% used herbs on their children after the first year. This meant that the use of herbs on children was a practice that most parents began in the early years of

the child. The use of these herbs before the first 6 months was however not a very common practice though a small percentage of the parents also used the herbs on their children before the first six months of breast feeding was over.

The practice of the use of herbs however continued long after the first use with some of the parents indicating that they had used the herbs on their children for over 9 years. About 18.52% of the parents had used the herbs on their children for less than 2 years, 37.07% had used the herbs on their children for a period of between 2 to 4 years and the rest who were the majority (44.44%) had used herbs on their children for over 4 years. This is clear testament for continued use of herbs on children.

Information Sources Utilized by Parents/Caregivers

The study sought to determine the information sources utilized by parents/caregivers that give herbs to their children in Bonchari Sub County.

Table 6.

Information Sources Utilized by Parents/Caregivers

Information Sources	**Respondents**	**Percentage**
Grandmothers	15	55.56
Mothers and Mother in Laws	7	37.04
Friends	2	7.41
Total	27	100.00

According to most of the parents who were interviewed, the most common source of information was the grandmother 55.56%%. Mother in law 37.04% was also a major source of information on the use of herbs with a small percentage (7.41%) of the respondents noting that friends also advised them on the use of herbs. This implies that herbal information was a domain of the elderly as they were more informed with knowledge on traditional herbs. The information is thus normally

passed from one generation to the next and this could explain why the elderly persons were the most common source of information followed by the mother in laws and the friends to the mothers.

Factors Contributing to Use of Herbal Medicines on Children

The study sought to determine the factors contributing to use of herbal medicines on children in Bonchari Sub County, Kisii County.

Table 7.

Factors Contributing to Use of Herbal Medicines on Children

Factors Contributing to Use of Herbal Medicines	Number of respondents	Percentage
Conviction that conventional medicine would not treat the illness	11	40.74
Herbs are commonly used in the area.	9	33.33
Herbs are easily available and cheap	7	25.93
Total	27	100.00

Conviction that conventional medicine would not treat the illness such as candidiasis stood at 40.74%. In fact, most respondents strongly believed that certain illnesses could only be treated by herbs and no conventional intervention would change the situation. Respondent 8 and 14 "*Oral candidiasis in children can only be effectively cleared by herbs*". Respondent 19 "*If they tell you that they are treating your child for oral candidiasis by using conventional drugs, they are lying. These drugs only drive the candida to the stomach and make the condition worse"*

33.33% of the respondents said that they used herbs on their children because herbs are commonly used. Respondents 1, 3,4,6,11,18,22,23,26 *"Everyone here uses herbs on their children"* This mainly points to a belief system on herbal medicine as the common treatment mainstream in the region over the years as opposed to the use of the conventional medicines in the region. 25.93% of the parents/guardians stated that

they used herbs because herbs are cheap and easily available as opposed to conventional drugs. More detailed responses are as shown below:

Conviction that conventional medicine would not treat the illness

RESPONDENT	**RESPONSE**	**NUMBER**	**%**
2	*"Conventional medicine is the only solution to permanent healing. Those other drugs just mask symptoms".*	1	3.7
5,9	*"I once had a sick child, took to the hospital and she did not get well. I was helped by a herbalist and since then I have never looked back".*	2	7.4
8,14	*"Oral candidiasis in children can only be effectively cleared by herbs"*	2	7.4
17,30	*"Our ancestors used herbal medicine and they never knew conventional medicine. How can something that came recently be trusted to treat better than herbs?"*	2	7.4
19	*"If they tell you that they are treating your child for oral candidiasis by using conventional drugs, they are lying. These drugs only drive the candida to the stomach and make the condition worse"*	1	3.7
21,24	*"Herbal medicine has been treating all my children. I have never taken them to the hospital except on this one occasion".*	2	7.4
28	*"Herbal medicine is natural and is able to direct the malfunctioning body better."*	1	3.7
		TOTAL	40.7

Herbs are commonly used in the area

RESPONDENT	RESPONSE	NUMBER	%
1,11,23,26	*"Everyone here uses herbs on their children"*	4	14.81
3,22	*"If people see you going for conventional medicine, they will laugh at you for wasting resources because all of them use herbs".*	2	7.41
4,18	*"Only visitors here use anything else other than herbs when their children fall sick".*	2	7.41
6	*"When I came here, I found herbs a tradition and I carried on with it".*	1	3.70
TOTAL			**33.33**

Herbs are easily available

RESPONDENT	RESPONSE	NUMBER	%
7,13, 15, 16	*"My grandmother has enough stock of herbal medicine and whenever the child is unwell she provides".*	4	14.81
10	*"You go to the hospital, you are made to pass through a very rigorous process before getting drugs but with herbs you easily get them without stress."*	1	3.70
12,20	*"My mother in law has a garden full of herbs so I don't strain to get them."*	2	7.40
			25.9

Outcome of Using Herbal Medicine on Children

The study sought to establish the outcome of using herbal medicine on children. This is despite the fact that all cases were intoxicated. The study wanted to determine the degree of intoxication.

Table 8.

Outcome of Using Herbal Medicine on Children

Effect of Herbal Medicines	Number of respondents	Percentage
Herbal Medicine had serious complications	20	74.07
Herbal medicine had moderate complications	7	25.92
Total	27	100.00
Informed Medical Practitioners		
Yes	0	0.00
No	27	100.00
Total	27	100.00
Medical Practitioners enquired on use of herbs		
Yes	8	29.63
No	19	70.37
Total	**27**	**100.00**

Despite the strong belief in the use of herbal medicines, most of the respondents interviewed (74.07%) noted that at least once in their use of herbal medicine, the medicine had brought severe complications on their children. This was largely interpreted to mean that herbal medicine was not as effective as portrayed by the Bonchari community. Some common statements to show just how bad it got with the use of herbal medicine at some point included the following statement,

Respondent 5, 7 and 13 "*The child started convulsing when a few minutes after I gave them the herbal medicine*."

Respondent 9 and 15 "*The child got worse I considered taking them to hospital immediately after consuming the herbal medicine*"

There was however a number of respondents who noted that herbs had brought negligible complications on their children. The remaining 25.92 % were in

two groups, the first group said that despite the backfired actions, the herbs were still very beneficial to them.

Respondent 18 and 19 "*Except on this one occasion when they mildly backfired on me, they have helped all my children recover from most childhood illnesses more especially candidiasis"*

All of the mothers (100%) who used herbal medicine on their children did not inform medical practitioners on the use of herbs during the visit to the hospital. The study however conspicuously noted that a majority of the practitioners never enquired about their use of the herbal medicine (70.37 %) when they visited the hospital. This was strange from the practitioner especially because these caregivers were coming with children who had herbal intoxication and they were from a region where the use of herbs was a common practice.

Some of the side effects experienced after using herbal medicine were as shown below:

Table 9.

Side effects of using herbal medicines

HERB	SIDE EFFECT
Croton Macrostachyus (Omosocho)	Skin rashes
Leonartis nepetifolaa (Risibi)	Kidney failure
Rhoicicuss Tridentata (Omosobo)	Coma
Acacia gerundii (Omokonge)	Convulsions
Urtica dioica (Rise)	Excessive perspiration
Rubia Codrifolia (Enguranguri)	Severe diarrhea
Erythrina abyssinica (Omotembe).	Jaundice

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

Discussion

Patients rarely disclose herbal usage practices to their health care providers. Little is therefore known about the specific practices of herbal medicine use worldwide (Elsenberg et al, 2010). In Kenya also, very little information is available on herbal medicine use in both the adult and paediatric population. This research was able to come up with the following in regards to use of herbal medicine in children 0-12 years in Bonchari Sub County.

Types of Herbs Used

Scientific investigations have clearly confirmed that some herbs contain medicinal properties and if used correctly can yield desirable results. In this study, various herbs have been used for the treatment of ailments affecting mostly children. Some of the herbs used include:

Erythrina abyssinica lom

This herb has been proven to contain antimicrobial activity and in ethno-medicine, it is used to treat malaria, urinary tract infections, and tuberculosis (Bunama et al, 2011). In this study, 3respondents had used the herb on their children to treat urinary tract infections, Cough, and Joint pain. The joint pain could be related to signs of malaria and that is why the children were probably given the medicine.

Croton macrostachyus Hochst ex delile.

Croton macrostachyus Host ex delile has strong antispasmodial and antihelminthic activity. It contains alkaloids flavonoids, and diterpernoids (Salatino et al, 2007). Note that in this study it has mainly been used in the treatment of oral cavity infections mostly oral candidiasis.

Urtica dioica L

This herb is known for its antibacterial, antioxidant, analgesic, anti-inflammatory, anti-colitis, and anticancer effect. It is used to treat stomach-ache, diarrhoea, internal and external bleeding, fever among other diseases (Pandey et al, 2011). In the study, it has been used to treat skin infections more specifically rashes in a child characteristic of severe dermatitis probably due to its anti-inflammatory properties.

Oxalis corniculata

Oxalis corniculata is used in various ailments such as stomach-ache, boils, diabetes, anaemia, wound healing, cancer, convulsions, (Madhavachetty et al, 2008). One respondent used this herb in the treatment of rashes and boils in the management of her four year old child.

Spilanthes Mauritiana DC

Antimicrobial, antipyretic, local anaesthetic, bio insecticide, antioxidant, analgesic, vasorelaxant, human immune deficit virus, toothache relief and anti-inflammatory effects (Yasodha et al., 2018). Mostly used for toothache, throat and gum infections (Hassan et al, 2010). In this study, it has been used for throat pain, candidiasis, and boil treatment.

Leonartis nepetifolia (L) R. BR.

Anticold, anticough, anti-inflammatory and anti-diarrhoeal. Locally, it has been used to treat diarrhoea and cough in children in this study.

Orthosiphon hildebrandii vatke

This herb has been used to treat abdominal pain.

Cassia didymobotry Fresen

It is used as a laxative, in the treatment of abdominal pains, emetic, expels intestinal worms, treats ringworms, abscesses, fungal and bacterial infections, hypertension, haemorrhoids, sickle cell anaemia, fibroids, and backache (Schmelzer & Fakin, 2008). A child who had generalized body rashes and ringworms was given this herb.

Rubia Cardifolia L

Blood purifier, anticancer, astringent, antiache, anti-inflammatory, anti-microbial, anti-dysenteric, antiseptic, nephro-protective, However it may come with side effects such as excessive perspiration, changing urine colour, or even causing cancer (Pandey et al, 2011).It was used in the management of giant generalized boils in a 5 year old child.

Warbugia Ugandensis sprague

Warbugia ugandensis Sprague is used in stomach treatment, toothache, cough, fever, muscle pains, weak joints, generalized body pains, and common cold (Pandey et al, 2011).It was given to a child who had toothache and at the same time presented with fever.

All the herbs that were used in the treatment of various ailments have been documented to treat the mentioned condition. This clearly indicates that prescribers have a clue as to what herb should treat what disease.

Information Sources on Herbal Medicine Use

Experiences of respondents in this study clearly depicts that traditional knowledge is passed down from generation to generation mostly from grandmothers and mothers. This is why parents/ caregivers tend to have very strong belief in traditional prescribers more than medical professionals. It appears almost impossible for an "outsider" to break the cycle in a simple doctor- patient interaction.

This study finding agree with the study conducted by Oshikoya *et al.,* (2008) which confirmed that relatives and friends are the major source of herbal information standing at 51.4% in the united states and 60-80% in developing countries. However, the study contradicts one that was done in Kisii showing that health care professionals form part of the information system on herbal medicine use (Otieno, 2011). None of the respondents mentioned any health care professional as the information source.

The study further notes that elderly relatives more especially the grandmothers are the major source of information.

Factors Contributing to Use of Herbal Medicines on Children

High use of herbal medicine has consistently been attributed to accessibility, affordability, availability, and acceptability (Tamuno, 2011; Duru et al, 2016). Further researches have indicated that herbal practice is equally influenced by demographic factors such as age, marital status, education level, and income (Duru et al, 2016). 77.78% of the parents/caregivers who had used herbal medicine on their children were married. Married caregivers are likely to use herbal medicine due to influence

from their husbands who may finance purchase of these herbs (Norden & Haven, 2005). 62.96% of the respondents who had used herbal remedies on their children were of primary level whereas 7.41% had reached tertiary level. This is in line with a research which indicated that least educated individuals are likely to use herbal medicine (Hoist *et al*, 2009).

Conviction that conventional medicine would not treat the illness

40.74 % of the respondents believed that herbal medicine was better than conventional medicine in terms of alleviating disease signs and symptoms. Studies done in Nigeria (Fakeye et al 2009) and Bukina Faso (Pouliut, 2011) also had similar results where respondents strongly believed that conventional medicine would not treat certain illnesses. One condition that was commonly cited as not treatable through conventional medicine is oral candidiasis.

Herbs are easily available and cheap.

16% of the Kenyan population does not seek treatment due to financial constraints (Louma et al, 2010). 33.33 % of the respondents in this study stated that they opted for herbal medicine because it is cheap and has no stock outs. Only 40.74 % of the respondents had a medical cover and of these, only 20.25% had updated their cover to enable them access medical services. Besides, limitations were noted in the NHIF cover which was the most common in that it could only cater for inpatient services as opposed to outpatient services which are the most frequent. All this may have encouraged the parents/ caregivers to go for herbs which are easily available and do not require a lot of money.

Herbs are commonly used in the area.

Herbal medicine use is a practice that is deeply rooted and widespread among the Kisii people (Singida, 1995).This makes the practice quite easy. This influences the health seeking behaviour in that the practice is viewed as the norm. Infact, 25.93% of the respondents stated that they used herbs on their children because everyone in that area uses them and according to them, they have been very beneficial.

Outcome of Herbal Medicine Use in Children

The study findings concur with findings by (Noras et al 2013) who notes that use of herbs can backfire on the user. Children react differently from adults when it comes to herbal medication use because their metabolism and their immune, digestive, and central nervous systems are still maturing.The immature systems and decreased metabolism, make them more susceptible to the toxic effects of herbal preparations. Possible side effects of herbal medicine use in children include cardiovascular changes, bleeding, sedation, and changes in drug metabolism (Noras et al 2013). In this study, some children presented with excessive perspiration, sedation, nose bleeding, palpitations, and change in urine color, acute kidney failure, jaundice, coma, severe headache, excessive vomiting, and severe diarrhea. Some children in this study equally presented with less severe symptoms such as mild characteristic rashes.

Summary of Research Findings

Majority of the parents who brought their children to the hospital (48.15) were of the opinion that their child's health was fair while 33.33 noted that their children's health was good with just a few (18.52%) acknowledging that their children's health was bad. All (100%) however were of the opinion that their child whom they had

brought to the hospital on that particular day was not suffering from any chronic illnesses. When probed about their child's use of any medication they were of the opinion that their children were not using any conventional medication (92.59%) but 7.41% of the mothers acknowledged that they had used conventional medicines. On the question of having a medical cover, most of the caregivers did not have any medical cover (59.26) while 40.74% of the mothers noted that they had medical covers. The few who had medical covers, a majority (72.73%) noted that they had the NHIF cover while 27.27% had other forms of medical cover.

Parents in the region have used a number of herbs to treat the various diseases that children suffer from. When questioned, 11.11% used herbs within the first 6 months of the child's birth, 37.04% used the herbs after the first 6 months the rest who were the majority 51.85% used herbs on their children after the first year. About 18.52% of the parents had used the herbs on their children for less than 2 years, 37.07% had used the herbs on their children for a period of between 2 to 4 years and the rest who were the majority (44.44%) had used herbs on their children for over 4 years. The most commonly treated illnesses on children using herbs include candidiasis (40.74%), rashes (18.52%), stomachache (22.22%) and other diseases including allergies accounted for 18.52%.

According to most of the parents who were interviewed, the most common source of information was the grandmother 55.56%%. Mother in law 37.04% was also a major source of information on the use of herbs with a small percentage (7.41%) of the respondents noting that friends also advised them on the use of herbs. Factors leading to the use of herbs were mainly (54%) a conviction that convectional medicine would not treat the common illness such as candidiasis. Other reasons

include that the herbs are commonly used in the area as common medication 30% and that the herbs are easily available and cheap (16%).

Despite the strong belief in the use of herbal medicines, most of the caregivers interviewed (74.07%) admitted that herbal medicine had backfired on them on at least one occasion. All the caregivers (100%) who used herbs medicine did not inform medical practitioners on the use of herbs during their visits to the hospital. However it was conspicuously noted that a majority of the practitioners never enquired about the use of the herbal medicine (70.37%) when the caregivers finally visited the hospital. Herbs used by the caregivers were used without mixing with any other drugs as most mothers believed that mixing them could lead to serious complications in the treatment outcome.

Conclusion

Parents in the region have used a number of herbs to treat the various diseases that children suffer from. Use of herbs on children is a practice that most parents begin in the early years of the child. The use of these herbs before the first 6 months is however not a very common practice. The practice of the use of herbs however continues long after the first use with some of the parents using the herbs on their children for over 9 years. The most commonly treated illnesses on children using herbs include candidiasis and stomachache.

The most common source of information on use of herbal medicine were relatives but specifically the older generation starting from the grandmothers followed by the Mother in laws. Friends also advised them on the use of herbs but in small numbers. This implies that herbal information is a domain of the elderly as they were more informed with knowledge on traditional herbs. The information is thus normally

passed from one generation to the next evidence why the elderly persons were the most common source of information followed by the mother in laws and the young friends to the mothers formed the smallest group with this information.

Factors leading to the use of herbs were mainly a conviction that conventional medicine would not treat the common illness such as candidiasis. Other reasons include that the herbs are commonly used in the area as common medication and that the herbs are easily available and cheap. This mainly points to a belief system on herbs as the common treatment mainstreams in the region over the years as opposed to the use of the conventional medicines in the region.

All the parents/caregivers who were interviewed had experienced a negative side effect of herbal medicine use.

Recommendations

The study made the following research recommendation on the use of herbal medicine.

i. That scientific studies be undertaken by the Ministry of Health and other agencies to determine the beneficial herbs in Bonchari Sub County. The residents should then be advised on the usage of the herbs so that the many types of herbs used in the region are known and only the beneficial ones are safely consumed

ii. The residents and especially the traditional healers in the region should be trained by national health officials on prescription of the herbs so that they can give correct instructions to the residents of the region.

iii. Training on traditional medicine practice should be incorporated into the training of medical students.

iv. Medical practitioners should know that information will not be disclosed to them and they should therefore develop a nonjudgmental attitude.

v. In relation to information sources, information centers should be developed by the county government in the villages so that the residents in the sub county and in the county in general know where to access herbal information from. This will ensure that only correct herbal information is accessed by the residents of the county.

vi. An affordable health insurance scheme should be established by the county to enhance affordability of conventional medicines by the community.

vii. Establishment of a strong link between the community and the facility so as to facilitate referral of children with conditions that warrant medical attention.

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APPENDICES

APPENDIX I: CONSENT FORM FOR AREA LEADER

My name is Jackline Ngiti. I am a master of science in nursing student at the University of Eastern Africa, Baraton. I would like to conduct a research on the use of herbal medicine on children in Bonchari sub-county. Since Bonchari produces a large number of clients who use herbal medicines on their children, it would be the appropriate population for this study. I would be grateful if you allow me to conduct this research to parents/caregivers of children aged between 0-12years who will be willing.

Currently, HealthCare providers in Kisii County have little reliable information about the practices of herbal medicine use in children in Bonchari. Without this information, it is impossible for healthcare providers to provide safe and culturally sensitive care to the children. I intend to provide HCP with reliable and accessible information on herbal medicine use practices in children in Bonchari sub-county.

A questionnaire will be interviewer administered to parents/guardians. No risks will be involved in choosing to participate in this study and no names will be disclosed. All information obtained will be handled confidentially and the parent/guardian will have a right to withdraw from the study at any time after accepting to participate

If you consent, please indicate by signing below
Signature……
Date……..
Researcher
Signature……Date……

APPENDIX II: CONSENT FORM FOR PARENTS

My name is Jackline Ngiti. I'm a master of science in nursing student at the university of Eastern Africa, Baraton. I would like to conduct a research on herbal medication use in childrenin Bonchari sub-county as part of my graduate studies.

Currently, healthcare providers have little information about the herbal medicine use practices in children in Bonchari sub-county. Without this information, it is impossible to provide safe, high quality and culturally sensitive care to your children. The information you will give will help health care professionals provide better healthcare to your children. I will carry out the research using a questionnaire that will be interviewer administered and will take approximately 20 minutes. No risks are involved in participating in this study, no monetary benefits, and confidentiality will be maintained since no names will be disclosed. Your participation in this study is voluntary. If you wish, you may choose to withdraw from the study at any time after accepting to participate. The information will be reported in such a way that nobody will identify you as a respondent.

If you consent, please indicate by signing below

Signature……Date……

Researcher signature……Date……

APPENDIX III: SWAHILI

Jina langu ni Jackline Ngiti.Mimi ni mwanafunzi mtafiti ninayesomea maswala ya afya ya jamii katika idara ya uuguzi,chuo kikuu cha Baraton.Ningependa kufanya utafiti kuhusu utumiaji wa madawa ya kienyeji miongoni mwa watoto watokao sehemu hii ya Bonchari.Kwa sasa,wauguzi wengi katika County ya Kisii hawana taarifa za kutosha kuhusu utumiaji wa madawa ya kienyeji miongoni mwa watoto kutoka Bonchari.Bila taarifa hii,itakuwa vigumu kwa wauguzi kutoa huduma iliyo salama,ya kiwango cha juu,na inayozingatiamila na desturi za jamii hii.Taarifa utakayotoa itasaidia wauguzikukupa wewe pamoja na wanao huduma bora zaidi.Nitatumia mwongozo kupata taarifa kutoka kwako na itachukua kama dakika ishirini.Hakuna hatari yoyote itakayotokana na kushiriki kwenye utafiti huu, hakuna hela zitakazotolewa na majina hayatatajwa.Kushiriki kwako katika utafiti huu ni kwa hiari yako na una uhuru wa kujitoa kwenye utafiti huu wakati wowote ule hata baada ya kujiunga.Matukio yote yatawasilishwa kwa njia ambayo mtu yeyote hatafahamu majibu yako.

Ikiwa unakubali kushiriki,tafadhali weka sahihi hapa

Sahihi…….. Tarehe…….

Sahihi ya mtafiti……. Tarehe……..

APPENDIX IV: QUESTIONNAIRE (ENGLISH)

Dear Respondent

My name is Jackline Ngiti. I'm a graduate student at the University of Eastern Africa Baraton who is conducting a research on the use of herbal medicine in children in Bonchari Sub County. The feedback from you will help healthcare professionals to improve healthcare services to you and your children.

SOCIO-DEMOGRAPHIC DATA

1. What is your gender? Male ☐ Female ☐
2. What is your age? Below 18 years ☐ above 18 years ☐
3. What is your occupation? Farmer ☐ Businessman ☐

   Civil servant ☐

   Other (please specify) _____
4. What is your marital status? Single ☐ Married ☐ Divorced ☐ separated living with partner.
5. What is your education level? Primary ☐ secondary ☐ Tertiary ☐
6. What is your monthly income? < ksh 10,000 ☐ between 10,000- 20000 ☐ Over 20,000 ☐
7. What is the gender of your child? Male ☐ Female ☐
8. What is the age of your child? < 1year ☐ 1-3years ☐ 4-6years ☐ >6years ☐
9. At what age did you first introduce herbal medicine to your child

   0-6months ☐ 6-12 months ☐ after the first year ☐

   Between 1-2 years ☐ 2-4 years ☐ over 4 years. ☐

INFORMATION ON THE HEALTH OF THE CHILD.

1. How would you rate your child`s health status?

   Good☐ Fair ☐ Bad ☐ Don`t know. ☐

2. Does your child suffer from any chronic illness? ☐ Yes ☐ No

3. If yes, which one?
   (Specify)_____

4. Is your child under any prescription drug? Yes☐ No☐

5. Is your child under any medical cover? Yes ☐ No☐

6. If yes, which medical cover is your child on?

   NHIF ☐ OTHER (specify)
   _____

TYPES OF HERBAL MEDICINES USED

7. What is the name of the herbal medicine that you used and what were you treating?

   (Answer the question by filling the table below)

S/No	**Local Name**	**Part used**	**Indication**

8. Did you mix conventional medicine with herbal medicine? ☐ No ☐

INFORMATION SOURCES ON HERBAL MEDICINE USE.

9. Have you ever received information about medicinal plants from:

   Mother ☐ Grandmother ☐ Mother -in-law ☐ Friends ☐

   Healthcare professionals ☐ Books ☐ TV/Radio ☐ Web ☐

   Workshop ☐ Other (please specify) _____

10. Who did you consult when your child was unwell?

    Medical doctor ☐ Herbal practitioner ☐ did not consult anyone ☐

    Other (specify) _____

FACTORS ASSOCIATED WITH HERBAL MEDICINE USE

11. Why did you use herbal medicine?

_____

_____

_____

_____

_____

_____

OUTCOME OF USING HERBAL MEDICINE

12. What degree of impact did herbal medicine have on your child?

    Child developed moderate complications ☐

    Child developed severe complications ☐

13. After using herbal medicine, did you inform medical practitioners on arrival at the facility? Yes ☐ No ☐

14. Did the medical practitioner inquire on the use of herbal medicine

    Yes ☐ No. ☐

APPENDIX V: QUESTIONNAIRE (KISWAHILI)

Jina langu ni Jackline Ngiti.Mimi ni mwanafunzi mtafiti ninayesomea maswala ya afya ya jamii katika chuo kikuu cha Baraton.Kama nilivyosema hapo awali,ninafanya utafiti kuhusu utumiaji wa madawa ya kienyeji kwa watoto kati ya miaka 0-12.Naomba majibu yenye uwazi katika swala hili ili yaweze kusaidia katika kuboresha huduma za kiafya katika jamii.

QUESTIONNAIRE (KISWAHILI)

1. Wewe ni Jinsia gani? Kiume ☐ Kike.☐
2. Una umri gani?
   Chini ya 18 ☐ Juu ya 18 ☐
3. Unafanya kazi gani? Ukulima ☐ Biashara ☐ Kazi ya umma ☐
   Nyingine(itaje). ☐
4. Hali ya kuolewa ☐ Haujaolewa ☐ Umeolewa ☐ Umepewa talaka Umetengana na Mwenzi ☐
5. Kiwango chako cha elimu ni kipi? Shule ya msingi ☐ Sekondari ☐
   Taasisi ya juu ☐
6. Kiwango chako cha mshahara ni kipi? <10000 ☐ kati ya 10000-20000 ☐ >20000 ☐
7. Mwanao ni Jinsia gani? Kike ☐ Kiume ☐
8. Mwanao ana umri gani? < 1yr ☐ 1-3 yrs ☐ 2-4 yrs ☐ over 6 yrs ☐
9. Ulianza kumpa mwanao dawa za kienyeji akiwa na umri gani?
   6-12 months ☐ after the first year ☐ between 1-2yrs ☐ 2-4 yrs ☐ over 4 yrs. ☐

TAARIFA KUHUSU AFYA YA MTOTO

1. Hali ya afya ya mwanao unaiweka katika kiwango gani?
   Nzuri ☐ Wastani ☐ Mbaya ☐ Sijui ☐
2. Mwanao ana ugonjwa sugu wowote? Ndio ☐ Hapana ☐
3. Ikiwa ndio, ugonjwa upi? (Taja)_____

4. Mwanao yuko kwenye matumizi yoyote ya dawa halisia? Ndio ☐
   Hapana. ☐
5. Mwanao ana bima yoyote ya afya? Ndio ☐ Hapana ☐
6. Ikiwa ndio, mwanao ana bima ipi? NHIF ☐ Nyingine
   (taja)_____

AINA ZA MADAWA YA KIENYEJI

7. Unaweza ukataja majina ya madawa yoyote uliyotumi na magonjwa uliyokuwa unatibu?
   (jibu swali kwa kujaza nafasi hii).

Namba	Jina halisi	Sehemu ya dawa iliyotumika	Ugonjwa uliotibiwa

8. Ulichanganya dawa halisia na dawa za kienyeji? Ndio ☐ Hapana ☐

WATOA TAARIFA KUHUSU DAWA ZA KIENYEJI

9. Umeshawahi kupata taarifa kuhusu dawa za kienyeji kutoka
   Mama mzazi ☐ Nyanya ☐ Mama mkwe ☐ marafiki ☐
   wahudumu wa afya ☐ vitabu ☐ Tv/radio ☐ mtandao ☐
   mafunzo maalum ☐ Nyingine (elezea). ☐
10. Ulitafuta usaidizi wa kimatibabu wapi ulipogundua kuwa mwanao ni mgonjwa?
    Mhudumu wa Afya ☐ Mganga wa kienyeji ☐
    Sikutafuta matibabu kwa yeyote ☐

SABABU ZA KUTUMIA DAWA ZA KIENYEJI

11. Ni nini kilichosababisha utumiaji wa dawa za kienyeji.

_____

_____

_____

_____

_____

_____

MATOKEO YA MATUMIZI YA MADAWA YA KIENYEJI

12. Madawa ya kienyeji yalimdhuru vipi mwanao?

    Yalimdhuru wastani ☐ Yalimdhuru sana ☐

13. Baada ya matumizi ya madawa hayo, ulimjulisha mhudumu wa afya kuwa umetumia dawa ya kienyeji ulipofika hosipitali? Ndio ☐ Hapana. ☐

14. Je mhudumu wa afya aliuliza ikiwa umetumia dawa za kienyeji?

    Ndio ☐ Hapana. ☐

APPENDIX VI: QUESTIONNAIRE (KISII).

Omwanchi omoiraneria,

Ase amarieta inkorokwa Jackline Ngiti, omwanafunsi bwe'yunibasiti ya Baraton oyo ogokora obotuki igoro ya ogotumeka kwa emete yo'orosana ase abana ba ekenyoro egeke kia Bonchari. Amairanerio ao' nanyare gokoonya abanyagetari erio banyare gokora oboonchoreria obonena ase inwe amo na'bana baino.

QUESTIONNAIRE (EKEGUSII)

10. Aye ? omosacha ☐ omosubati. ☐
11. Emiaka erenga obwate?

    Inse ya18 ☐ goetania 18 ☐
12. Meremo ki ogokora? Oboremi ☐ Ebiasara ☐ Emeremo ye serekali ☐

    ende (nyetebe)._____
13. Enyiomo ☐ toranywomwa ☐ nonywomire ☐ Umepewa talaka ☐

    Umetengana na Mwenzi
14. Kiwango chako cha elimu ni kipi? Shule ya msingi ☐ Sekondari ☐

    Taasisi ya juu
15. Kiwango chako cha mshahara ni kipi? <10000 ☐ kati ya 10000-20000 ☐

    >20000 ☐
16. Omwana oo ..omomura omoiseke? Kike ☐ Kiume ☐
17. Omwana oo emiaka erenga abwate? < 1yr ☐ 1-3 yrs ☐ 2-4 yrs ☐

    Ggoetania 6 yrs ☐
18. Ndireri gwachagete komoa amariogo ye ekegusii , emiaka renga abwatei?

    emetienyi 6-12 ☐ gose gati yemiaka 1-2yrs ☐ gati yemiaka 2-4 yrs ☐

    goetania emiaka 4 yrs. ☐

IGORO YA AFYA YOMWANA OO

15. Afya yomwana oo ngai okoyebekerera ? engiya ☐ embe ☐ timaeti ☐

16. Omwana oo nabwate obwrwaire bonde bwonsi ? eeh ☐ yaya ☐

17. Onya ee bono, borwaire borobi?_____

18. Omwana oo ngotumia are mariogo and abene? Eeh ☐ yaya ☐

19. Omwana oo nabwate ntenenera ende ? eeh ☐ yaya ☐

20. Onya eeh, ntenenera ki abwate? NHIF ☐ ende (yetebe)

_____

AMARIOGO YEKEGUSII

21. Nonyare goteba amarieta yamariogo yekegusii gwatumiete na amarwaire kware kogwenia?

(teba amachibu ase ogoichoria amabaga aya).

Enamba	Erieta keene	Ensemo ye eriogo yaregotumeka	Oborwaire bware kogwenia

22. Kwaburukaneti eriogo ria nyagitari ne eriekegusii? eeh ☐ yaya ☐

KOIGWA IGORO YA AMARIOGO YE EKEGUSII.

23. Ngai kwaigwete korwa igoro ya amariogo ye ekegusii

_____

_____

_____

_____

_____

_____

_____

INGEREKI KIAGERETE OGACHAKA GOTUMIA AMARIOGO YEKEGUSII

24. Nki kiagerete achake gotumia amariogo yekegusii .
    1. Ngoigwa nde buya ekero ngoyatumeka eeh ☐ yaya ☐
    2. Nanarire gotumeka amriogo yekegusii eeh ☐ yaya ☐
    3. Amariogo yekegusii agokora buya kobua aya nyagitari eeh ☐ ☐ yaya
    4. Amariogo yekegusii koyanyora ne chibesa chinke kobua aya nyagitari eeh ☐ yaya ☐
    5. Amariogo yekegusii ndaisi koyanyora eeh ☐ yaya ☐
    6. Nabo nkoyanyora amariogo yekegusii. eeh ☐ yaya ☐

AMACHIBU YOKOYATUMIA AMARIOGO YEKEGUSII

25. Amariogo yekegusii yamosareti omwana oo?
    Yamosareti akeigo ☐ yamosareti mono ☐
26. Ekero gwatumegete amariogo ayio, ngwatebeti amonyagitari ekero kwaigete nyagitari? Eeh ☐ yaya.☐
27. Inee omonyagitari nakoboreti gose ngwatumiete amariogo yekegusii?
    Eeh ☐ yaya.☐

APPENDIX VII: BUDGET

ITEM	**UNIT COST IN Kshs.**	**NO. NEEDED/UNITS 60 DAYS**	**TOTAL**
Printing costs	10 per page	1,000 pages	1,0000
Photocopying costs	2 per page	500 pages	1,000
Binding costs	400 per copy	9 copies	3,600
Internet access costs	2,000 per month	3 months	6,000
Research permit	1,000	1	1,000
Technical Consultation			1000
Laptop		1	30,000
Stationary(pen, pencil,files, notebooks)			1,000
Subtotal			**53600**
Miscellaneous	10% subtotal		5360
TOTAL			**58960**

The budget WAS Kshs. 58960 which will be catered by the researcher herself.

APPENDIX VIII: WORK PLAN

Activity	Month 2018/ 2019												
	Jul	Aug	Sep	Oct.	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July
Proposal development													
Proposal mock defence													
Correction of proposal													
Submission to university council													
Data collection													
Data analysis													
Mock defence of thesis													
Correction of thesis													
Final defence of thesis													

APPENDIX IX: ETHICS CLEARANCE FOR RESEARCH PROPOSAL/CLEARANCE FROM AREA CHIEF

OFFICE OF THE DIRECTOR OF GRADUATE STUDIES AND RESEARCH

UNIVERSITY OF EASTERN AFRICA, BARATON

P. O. Box 2500-30100, Eldoret, Kenya, East Africa

February 6, 2017

Jackline G.Ngiti
University of Eastern Africa Baraton
School of Nursing

Dear Jackline,

Re: ETHICS CLEARANCE FOR RESEARCH PROPOSAL (REC: UEAB/6/2/2017)

Your research proposal entitled ***"Investigation on the use of Herbal Medicine on Children in Bonchari Subcounty,Kisii County,Kenya"*** was discussed by the Research Ethics Committee (REC) of the University and your request for ethics clearance was granted approval.

This approval is for one year effective February 6, 2017 until February 6, 2018. For any extension beyond this time period, you will need to apply to this committee one month prior to expiry date. Note that you will need a clearance from the study site before you start gathering your data.

We wish you success in your research.

Sincerely yours,

Jackie K. Obey

6 FEB 2017

Dr. Jackie K. Obey
Chairperson, Research Ethics Committee

A SEVENTH-DAY ADVENTIST INSTITUTION OF H IGHER LEARNING
CHARTERED 1991

APPENDIX X: REQUEST FOR PERMISSION TO GATHER RESEARCH DATA

OFFICE OF THE DIRECTOR OF GRADUATE STUDIES AND RESEARCH

UNIVERSITY OF EASTERN AFRICA, BARATON
P. O. Box 2500, Eldoret, Kenya

13 February 2017

0725346253

CHIEF
BOGIAKUMU LOCATION
DATE 16.2.2017 SIGN.

confirmed and given a go ahead with the said research without any obsta.

The Chief
Bonchari Sub-county
Kisii, Kenya

Re: **REQUEST FOR PERMISSION TO GATHER RESEARCH DATA**

Jackline G. Ngiti is a graduate student pursuing the degree **Master of Science in Nursing (Community Health)** at the University of Eastern Africa, Baraton. She is currently writing her thesis entitled ***Investigation on the use of herbal medicine on children in Bonchari Sub-county, Kisii County, Kenya.***

I request you to please allow her to gather research data by interviewing parents/caregivers identified to have used herbal medicine on children in your sub-county. She will gather her research data during the months of February and April 2017.

Any assistance you will grant her will be greatly appreciated. May God richly bless you in all your undertakings.

Sincerely yours,

Prof. Elizabeth M. Role, PhD
Director

UNIVERSITY OF EASTERN AFRICA
DIRECTOR
13 FEB 2017
Graduate Studies
BARATON

Cc: Dean, School of Nursing
Office File

APPENDIX XI: CLEARANCE PERMIT FROM NACOST

THIS IS TO CERTIFY THAT
Ms. JACKLINE .G. NGITI
OF UNIVERSITY OF EASTERN AFRICA BARATON
2500-30300, has been
permited to conduct research in Kisii county

Permit No : NACOSTI/P/17/22601/20695
Date Of Issue : 20th February 2017
Fee Recieved :Ksh 1000

on the topic: *FACTOR ASSOCIATED WITH HERBAL MEDICINE USE IN CHILDREN 0-12 YEARS OLD.A CASE OF BONCHARI SUB COUNTY,KISII COUNTY,KENYA*

for the period ending:
20th February 2018

.....
Applicant's Signature

.....
Director General
National Commission for Science, Technology & Innovation

APPENDIX XI: CURRICULUM VITAE

PERSONAL PROFILE

SURNAME **:** NGITI

OTHER NAMES **:** JACKLINE GATI

GENDER **:** FEMALE

DATE OF BIRTH **:** 15TH MARCH 1982

MARITAL STATUS **:** MARRIED

RELIGION **:** CHRISTIAN

CONTACT ADDRESS **:** P.O BOX 92,KISII

EMAIL **:** jackline615@yahoo.com

CELL NO **:** 0723 366 681

OBJECTIVE

To be a member of a team where dedication to strong sense of responsibility and positive attitude is towards organizational assets and rise to the highest level in corporate world by working in a dynamic, motivating,busy and challenging environment.

SUMMARY OF SKILLS

- Self motivated with supreme and loyal dedication
- Good team working
- Excellent interpersonal skills
- Able to work with no supervision
- Able to keep detail and accurate records
- Excellent human relations skills

- Good communication and writing skills
- Able to work under pressure

WORK EXPERIENCE

August 2007-August 2008: NAKURU PROVINCIAL HOSPITAL

Designation Nurse Intern

Responsibilities

Application of knowledge,skills and attitude of nursing process,principals of management and infection control in provision of nursing care in medical/surgical wards,casualty, and theatre.

June 2009-December 2009 –KISII LEVEL 5 HOSPITAL

Designation Nursing Officer1(Opd/Casualty incharge)

Responsibilities

- Appraising nursing staffs
- Making sure supplies are available
- Attending inter departmental meetings
- Making sure staff report and remain on duty
- Acting as a link between management team and nurses in the department
- Solving problems at the departmental level

January 2010-To 2016 –KISII LEVEL 5 HOSPITAL

Designation Chief Nursing Officer(Consultant clinics incharge).

Responsibilities

- Supervision of nursing staffs within the clinics
- Appraising nursing staff
- Ordering supplies to be used within the department
- Attending inter departmental meetings
- Preparing duties and making sure staff adhere to it
- Assessing students on their clinicals

January 2017 to Date – KISII COUNTY MINISTRY OF HEALTH HEADQUARTERS.

Designation County community health services coordinator

Responsibilities

- Providing leadership and stewardship at the County level to ensure that the plans for community Health services are implemented effectively and efficiently.
- identifying the gap in terms of Communit unit coverage, Community health extension workers knowledge and skills and presenting the findings to the County health management team for discussions and pragmatic solutions.
- co-ordinating all the activities including partners involved in Community health strategy implementation in their respective Counties.
- spearheading resource mapping and mobilization for implementation of Community health services at the County level.
- Organizing the County Community health services stakeholders fora.
- ensuring that the Community health workers are trained using the approved curricula
- Overseeing Community health services support supervision within the County.
- ensuring quality data collection from all the sub-county focal persons for community health and the Community health extension workers and presenting this to the County health management team.
- conducting performance appraisal for all the Community health extension workers deployed in the County.
- organizing quarterly Community health services review meetings.

- attending and making presentations in meetings for Community health services organized at the National level.
- ensuring that the Community unit's annual plans are appropriately integrated into the link facility annual work-plans as well as the County Annual Work plan
- ensuring regular inventory of commodities and equipment for Community health services in the respective Subcounties Counties.

PROFESSIONAL BACKGROUND

TIME PERIOD	QUALIFICATION
2014 to Date	Master Degree in Community Health Nursing
2002 - 2006	University of Eastern African Baraton BACHELOR OF SCIENCE IN NURSING Obtained second class upper division(CUM LAUDE)
1997- 2000	Limuru Girls' School Kenya Certificate of Secondary Education Scored Aggregate B
1989- 1996	St.Anne's Girls Primary School,Isibania Kenya Certificate of Secondary Education Scored 602/800 Marks

PERSONAL ABILITIES

- Orderly in person and at work
- Able to work under pressure with minimal supervision
- prepared to work according to the terms and conditions of an organization

HOBBIES

- Socializing
- Reading magazines.
- Travelling to new places

REFEREES

1. Mrs Sarah Omache
   MINISTER FOR HEALTH –KISII COUNTY

   Cell No: 0702560801

2. Dr Geoffrey Otomu
   COUNTY DIRECTOR OF HEALTH-KISII COUNTY

   Cell No:0722274383
3. Ms Annah Sarange
   COUNTY CHIEF NURSING OFFICER- KISII COUNTY

   Cell:0722715261