

ASSOCIATION BETWEEN KNOWLEDGE, ATTITUDE,
AND UTILIZATION OF NATURAL REMEDIES TO CURE
INFECTIOUS DISEASES AMONG NAROK RESIDENTS,
NAROK COUNTY, KENYA

A Thesis submitted to the
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School of Health Sciences

University of Eastern Africa, Baraton

In Partial fulfilment of the Requirements for
the degree of
Master of Public Health
(Generalist and Health promotion)

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July, 2021

APPROVAL SHEET

This thesis/dissertation entitled **Association Between Knowledge, Attitude, and Utilization of Natural Remedies to Cure Infectious Diseases Among Narok Residents, Narok County, Kenya**

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ABSTRACT

Natural remedies have been used globally as an intervention in the management, healing and prevention of disease. Some have been used as a stand-alone medicine or alongside western medicines depending on the nature of the disease. In some parts of Africa and Kenya specifically, there are communities that have also been using the natural remedies including the Maasai communities in Narok county. Narok town has grown to be a cosmopolitan community, and hence it is not clear whether natural remedies are still being utilized in these regions. Therefore, this study was aimed to explore the association between knowledge, attitude, and utilization of natural remedies to cure infectious diseases among Narok county residents.

This study employed a cross-sectional study design, and data was collected from a sample of three hundred and eighty-one people who were residents of Narok town using a self-administered closed-ended questionnaire. The data was analysed using negative binomial regression models to explore the associations in STATA version 13.1. The Incidence rate ratios (IRR) and the 95% confidence interval (CI) were reported in the tables.

The results of this study show the majority of the respondents knew most of the natural remedies including garlic (81.9%), ginger (85.1%), honey (96.6%), rosemary (58.6%), aloe (89.8%) and blackjack (63.1%), but in the utilization there was slightly reduction in proportions of those who were utilizing. The most commonly utilized natural remedies were honey, aloe, ginger, garlic and wheatgrass juice. After adjusting for all the potential confounders, those who had moderate knowledge (IRR = 1.47; 95% CI: 1.26 – 1.71) and high knowledge (IRR = 2.16; 95% CI: 1.83 – 2.55) were more likely to utilize natural remedies than those with low knowledge. On the relationship between attitude and utilization of natural remedies, those who indicated that they will keep using the remedies in the future (IRR = 1.20; 95% CI: 0.98 – 1.48, $p < 0.10$) and believed that the natural remedies can be used to cure (IRR = 1.33; 95% CI: 1.14 – 1.57) and prevent (IRR = 1.22; 95% CI: 1.04 – 1.44) infectious diseases were at a higher rate of utilization than the reference groups before adjusting for the potential confounders, but after adjustment, the differences attenuated.

In conclusion, this study found a relationship between knowledge and utilization of natural remedies to cure infectious diseases. However, despite the respondents having knowledge about several natural remedies under investigation, their utilization was slightly reduced when compared with the knowledge percentage. But at least most respondents had utilized more than five natural remedies that were under research. As people are utilizing the natural remedies, health education and health promotion on the safe ways of preparation, storage and utilization is therefore very necessary in order to avoid negative health and side effect that might be associated with some natural remedies. Proper documentation of these alternative medicine should also be encouraged.

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DEDICATION

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To Dr. Ibrahim Muraya who told me one-day Nyabuto take your wife to school.

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LIST OF ABBREVIATIONS

| | | |
|-------------|---|---------------------------------------------|
| AMR | - | Antimicrobial Resistance |
| AB | - | Anti bacterial |
| AI | - | Anti inflammatory |
| AM | - | Anti microbial |
| AO | - | Antioxidant |
| AV | - | Anti viral |
| CAM | - | Complementary and Alternative Medicine |
| CLIS | - | Clinical and Laboratory Standards Institute |
| MRSA | - | Methicillin Resistant Staphylococcus Aureus |
| MDR | - | Multidrug Resistant Bacteria |

CHAPTER ONE

INTRODUCTION

Background of the Study

Natural remedies are interventions people or populations use at their reach in dealing with their health problems mostly at their homes. Healing foods are the best preventive and curative natural remedies the world has ever known due to them having antioxidants and phytochemicals properties. Alongside healing foods, there are medicinal plants that are also known to be effective in preventing and curing various ailments. Many people do suffer from preventable and curable diseases of which natural remedies within their reach can help could they know the medicinal value of these natural remedies. Both medicinal foods and herbal medicines contain fibre, phytochemicals, antioxidants and other healing properties which not only can treat human diseases but also can prevent diseases.

It is interesting to learn that healing foods and medicinal herbs are well utilized globally to boost immunity for HIV/AIDS patients. Good examples are in Mfangano Island in Suba District, Kenya where healing plants are used amongst individuals living with HIV/AIDS (Nagata, Jew, Kimeu, Salmen, Bukusi, & Cohen, 2011). In Rural Rakai, Uganda, there is customary herbal utilization associated with Liver Fibrosis (Auerbach, Reynolds, Lamorde, Merry, Kukunda-Byobona, & Ocama, 2012). Awortwe, Bouic, Masimirembwa, & Rosenkranz, (2014) informs that HIV/AIDS patients in Africa make use of ordinary herbal medicines. According to

Mills, Cooper, Seely & Kanfer (2005), the Ministry of Health in South Africa and member states advocate the use of African Potato and Sutherland for main treatment of HIV/AIDS and for HIV- linked problems. This study by Mills et, al., reviewed the verification and security concerns connected to the use of the two above mentioned herbals. Also reviewed were the pharmacology, toxicology and pharmacokinetics of these herbal medicines. In Lesotho South Africa, curative herbs are used by HIV- Positive persons (Mugomeri, Chatanga, & Chanake, 2016). Peltzer, Preez, Ramlagan, Fomundam, Anderson, & Chanetsa, (2011) states that HIV Patients in Kwazulu-Natal, South Africa utilize Traditional, Complementary and Alternative Medicine (TCAM) in conjunction with Antiretroviral.

In both developing and developed countries, a great percentage of the populace relies on curative foods, customary practitioners of therapeutic plants in order to meet wellbeing care needs. Even though contemporary medicine may possibly exist side-by-side with such traditional natural remedies, the augmentation of civic attention in and use of traditional medicine and complementary and alternative medicine (T/CAM) has been well recognized (Flyn, 2017), (Guant, 2015), Thomford, Dzobo, Chopera, Wonkam, Skelton, Blackhurst, & Dandara, 2015; (Chitindingu, George, & Gow, 2014), (Gosh, Derle, Ahire, More, Jagtap, Phadatare, & Chopade 2013)(Famewo, Clarke, Wiid, Ngwane, van Helden, & Afolayan, 2017). (Totelin, 2015).

According to Caper (1993), the following are explicit examples of these healing foods used globally to prevent and treat diseases, natural honey, carrots, cabbage, garlic, onions, grapes, broccoli, cauliflower, extra virgin cold processed olive oil, deepest, darkest green leafy vegetables, whole fruits rather than juices, sweet potatoes, pumpkins, red grapes rather than green or white grapes.

Several studies have recognized the antioxidants, anti-inflammatory and cancer effects of spices which may be associated to deterrence and healing of numerous cancers including lung, liver, breast, stomach, colo-rectum, cervix and prostate cancers (Zheng, Zhou, Li, Y. Xu, Li, S. & Li, H, 2016), According to Antony & Singh, (2011), Garlic-derived Bioactive Compound DiallylTrisulfide was used for molecular mechanisms and targets of Cancer Chemoprevention. Moreover, cancer survivors are helped by natural remedies in their cancer treatment and management (Fouladbakhsh, Balneaves, & Jenuwine, 2013), (Eitsuka, Tatewaki, Nishida, Nakagawa, & Miyazawa, 2016). According to Famewo and colleagues (2017) and Lawal, Grierson and Afolayan (2014), Tuberculosis (TB) has been well prevented and healed by these natural remedies in Eastern Cape Province South Africa. Anti-mycobacterium tuberculosis activity of polyherbal medicines and curative foods are used to treat TB.

According to Hamidpour, R. Hamidpour, S. and Shahlari, (2015), Cinnamon is utilized worldwide for cancer deterrence and healing. It is also used for other diseases like gastro duodenal ulcers, and even Alzheimer's illness prevention and management. On curative foods, Pan, Li, Shamoan, Bhatia, and Sun, (2017) confirms that the current advances on diet has assisted in treatment of acute pancreatitis. Healing foods are either combined or used independently in illness deterrence and sickness treatment as reported by Qinna, Kamona, Alhussainy, Taha, Badwan, and Matalaka, 2012. Examples are; Prickly Pear dried leaves, Artichoke leaves, Turmeric, and Garlic Extracts, and their combinations. In Ghana, Coconut oil and palm oil are these days utilized in nutrition, wellbeing and illness prevention and sickness management. Originally these oils were avoided amid supposition that the oils were the cause of various diseases (Boateng, Ansong, Owusu, & Steiner-Asiedu, 2016).

Curative foods are utilized internationally Boddupalli, Mien, Lakkanna and James, 2012. In studies found, Zibaenezhad, Farhadi, Attar, Mosleh, Amirmoezi & Azimi, 2017, have acknowledged the use of walnut oil on lipid profiles in hyperlipidemic type 2 diabetic patients. Numerous studies have also revealed that therapeutic plants have been used by many persons ever since early days to treat and prevent diseases across the world, examples are; Ant- diabetic therapeutic plants used by the Basotho tribe of Eastern Free State (Balogun, Tshabalala, and Ashafa, 2016). Traditional, complementary and alternative medicine are utilized globally, Bodeker, C. Bodeker, G. Ong, Grundy, Burford, and Shein, (2005) and (TCAM) is a public health plan as established by Bodeker & Kronenberg, (2002).

In Kenya, curative foods and therapeutic herbs are well utilized by several communities for treatment and disease prevention for those who know their medicinal value (Chemweno, 2015). Current studies have revealed an inclination of rising consumption of healing foods and medicinal plants in developing and industrialized countries in that additional and more households are including both healing foods and natural remedies in their life style. According to Lyu, Wang Y, Fan, Wang X, Xu, and Zhu (2017), there ought to be a sense of equilibrium between curative foods and herbal medicine in that (NGS) Next Generation Sequencing have facilitated in detail studies on the effects of herbal medicine and functional food on gut micro biota and that both herbal medicine and functional food have fiber, polyphenols and polysaccharides which exert prebiotic-like activities in the prevention and treatment of cardio metabolic diseases (CMDs).

The majority of the utilised therapeutic foods and herbs have undergone scientific and laboratory investigations by numerous research groups and have found a place in modern medicine (Eteraf & Najafi, 2013). Several persons all over the

world keep on utilizing traditional medicines (TM), as primary or Complementary sources of health care. According to Chitindingu and colleagues (2014), T/CAM medicine is consumed by a big majority of South African populations. Lots of people in Africa, Asia and Latin America prefer traditional and complementary medicines for their primary health care needs.

In spite of the advancement made in the conventional medicine, the use of various forms of natural remedies have turn out to be a major part of the socio cultural lives of about seven out of ten people in Ghana (Boateng et al., (2016) and therefore healing foods and herbal medicines remain essential component of native health care system in Ghana.

According to Meragiaw, Asfaw, and Argaw (2016), up to 80% of the populations in Ethiopia utilize natural remedies for main health care. As Western medicine has experienced an ever-growing expansion of scientific information, fundamental science investigation, and technology, the curiosity in complementary natural remedies have also increased spectacularly over the past decade. According to Kitonde, Fidahusein, Lukhoba, and Jumba, (2013), medicinal herbs with anti-microbial activities are used in treating diseases in various regions of Kenya.

Statement of Problem

In Narok Town, there is a recurrence of several infectious diseases among the residents or sub-populations including typhoid fever, cholera and malaria (Anthonj et al., 2019). New antimicrobial resistance (AMR) mechanisms are on the rise and the spread is global. This actually frightens our capability to treat ordinary communicable diseases, and hence it is resulting in long-lasting sicknesses, disability, and increased chances of death in low- and middle-income countries. Consequently, thousands of individuals are dying on a day to day basis due to these preventable and curable common illnesses, of which some have been cured using the natural remedies. Narok county, a Maasai community also known for herbal medicines amidst the disease problems, is of particular importance to this study, especially at a time that the Narok Town is becoming a more cosmopolitan town. There is need for a study on knowledge, attitude, and utilization of natural remedies to control and manage the increasing disease problem. The AMR threatens the efficient deterrence and healing of an ever escalating scope of infections caused by bacteria, parasites, viruses, and fungi (Famewo et al., 2017; Li et al., 2015).

According to Howell and D'Souza (2013), this new surge in the multi-drug resistance microorganisms and the likelihood of it being prevalent and subsequently becoming a worldwide virus and a pandemic, there is need for supplementary protective and curative options to conventional drugs.

According to WHO (2017), 48,000 persons develop multi-drug resistance TB yearly, and this drug resistance is beginning to obscure the struggle against HIV and malaria as well. Also, the expenditure of health care for patients with resistance illness is higher than the care for patients with non-resistance infections due to longer

time of sickness, extra examination and use of additional costly drugs. These issues therefore call for complementary and alternative medicines. Natural remedies or herbal medicines may be an answer.

Hence, this study was aimed to explore the association between knowledge, attitude and utilization of natural remedies to cure infectious diseases among Narok residents in Narok County, Kenya. The study investigated if Narok Town residents have knowledge about available natural remedies within their reach that can be utilized to prevent and cure infectious diseases., and subsequently their attitude and utilization of the natural remedies within their reach. This is a step towards identifying and encouraging the use of natural remedies in disease prevention, management and cure of resistant infections.

Research Objectives

Broad Objective

To explore the association between knowledge, attitude and utilization of natural remedies as a method of curing infectious diseases among Narok residents in Narok County, Kenya.

Specific Objectives

1. To explore the knowledge on natural remedies used to cure infectious diseases among Narok residents in Narok County, Kenya.
2. To explore the attitude towards utilization of natural remedies that are used to cure infectious diseases among Narok residents in Narok County, Kenya.
3. To explore the association between knowledge, attitude and utilization of natural remedies that are used to cure infectious diseases among Narok residents in Narok County, Kenya.

Significance of the Study

The study will help all hospitals, universities and scholars in understanding the importance of natural remedies globally and among Narok Town households. Public health department and Ministry of health will be able to formulate policies which will improve their growth from the findings of the study.

The study will help the academicians and researchers, the governments to integrate natural remedies into their mainstreams of their health care systems as proposed by the WHO (2014). The study will garner knowledge, shed the knowledge and motivate all people to grow and utilize available healing foods and medicinal herbs.

The study will motivate change in attitude towards healing foods, medicinal herbs and medicinal trees, and their utilization. The Ministry of Environment and Natural Resources will be encouraged to conserve forests for good growth and supply of medicinal herbs and medicinal plants.

The entire populations locally and globally will benefit from the findings of the Study by knowing that healing foods are very effective on disease prevention, control and management. By publishing the finding, many people shall be motivated to use natural remedies where applicable especially for disease prevention.

The Department of Public Health at University of Eastern Africa, Baraton can use the findings to establish courses specifically dealing with natural remedies to work hand in hand with Nursing Department, Departments of Foods, Nutrition and Dietetics in disease prevention and management the natural way especially AMR, MRSA, MDR. Several universities and institutions of higher learning globally have courses and trainings on natural remedies.

Justification of the Study

Modern phytotherapeutical research shows that medicinal foods and curative herbs have antioxidants and anti-inflammatory which are natural healing properties and healing powers for both prevention and treatment of infectious diseases which every person should know and utilize well for good health. This study is really needed now at a such time as this when there is a lot of drugs resistance to many people globally.

There are researchers who have explored this area of learning such as (Molly, 2011), who said that due to development of drug resistant strains and overpowering of the normal host defences, consequently the investigation of new or alternative mechanisms to successfully treat and prevent infectious diseases particularly bacterial diseases, have to be encouraged to effectively decrease these worldwide burdens. Rivera, Loya and Ceballos (2013) agrees that natural remedies are utilized worldwide.

According to Axe (2017) about 25% of the drugs prescribed globally are derived from plants. Natural plant products have been used all over human history. Hilalaand Hilalb (2017) says that physicians need appropriate information about herbal or natural remedies so as to advise their patients accordingly because (CAM) Complementary and Alternative Medicine is widely utilized globally.

In Africa, numerous medicinal plants are utilized for different ailments. Chang (2009) reports that Africa potato (*Hypoxis Obtusa*) is frequently used in Sub Sahara Africa as a complimentary herbal treatment for HIV- infected patients. Mills, Cooper, and Kanfer (2005), Davids, Blouws, Aboyade, Gibson, De Jong, Van'tKlooster and Hughes (2014), Mugomeri and colleagues (2016), Afolayanand Otunola (2014), and

Awortwe and colleagues (2014) have all written and agreed that African herbal medicines are used to treat HIV-infected patients.

In Kenya, Tuberculosis (TB) is healed by use of medicinal plants with anti - tuberculosis, anti-fungal and anti-bacterial activities (Njeru, Obonyo, Nyambati, Ngari, Mwakubambanya and Mavura 2016; Kitonde et al., 2013). Other diseases have also been treated by medicinal plants in Kenya (Kipkore, Wanjoi, Rono, & Kigeni, 2013). According to Nagata and colleagues (2011), natural remedies have been used among people living with HIV/AIDS. Malaria has also been managed by means of medicinal plants among the Luhya community in Kakamega East sub-count (Mukungu, Abuga, Okalebo, Ingwela, &Mwangi, 2016). Kareru, Kenji, Gachanja, Keriko, and Mungai (2007), Kitonde and colleagues (2013), and Njoroge, Kaibui, Njenga, and Odhiambo (2010) have explained that in Kenya herbal medicines is predominant and plays a major role in the provision of health care for the rural poor within many communities in Kenya.

Since studies that have focused on this topic are still limited, it is the researcher's intention to bridge the gap in knowledge by investigating the knowledge, attitude, and utilization of natural remedies in order to cure infectious diseases among households in Narok Town, Kenya. Even though various scholars, globally and locally, have majored their studies on natural remedies, they have not explored the knowledge, attitude, and utilization of natural remedies to cure infectious diseases, and this leaves a research gap which has motivated an investigation of the association between knowledge, attitude and utilization of natural remedies among households in Narok Town, Kenya.

Even though much has been written on natural remedies (Healing foods and Medicinal plants), studies investigating knowledge, attitude and utilization of Natural Remedies in households in Kenya are also limited.

Conceptual Framework

The objective of a conceptual framework is to list and describe concepts appropriate to the learning and record relationships among them. Below is a symbolic demonstration of the variables to be explored by this study.

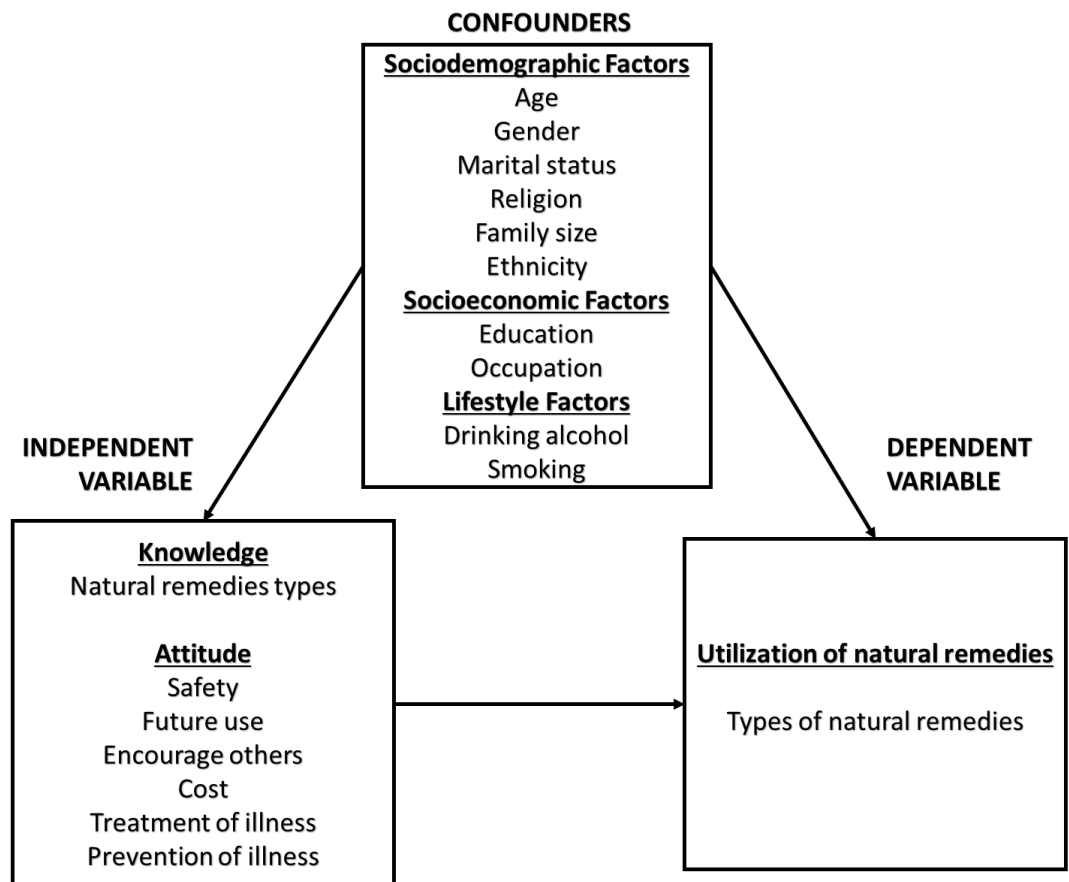


Figure 1: Conceptual framework

Limitation of the Study

Fundamentally, reachable population and the sample are limited. Some of the respondents were reluctant to respond to the questions or some might have provided dishonest answers owing to panic of ill-treatment. The researcher alleviated this by assuring them of their privacy and the purpose of collecting the data, of which it is meant for research purposes only.

Scope of the Study

The study was restricted in scope in exploring the association between knowledge, attitude and utilization of natural remedies as a method of curing infectious diseases among Narok residents in Narok County, Kenya. The study was confined to populations in Narok Town, Kenya. Research instruments that were used in this study were questionnaires that were administered by the researcher himself and with the help of research assistant.

Assumptions of the Study

The study assumed that valid, current, true and honest information was given by all the respondents. Also, the study assumed that the study will be beneficial not only to all respondents but to the field of complement and alternative medicine because it brings out a clear understanding of the utilization of natural remedies in the general population.

Operational Definition of Terms

Table 1 indicate the operational definition of terms.

Table 1 Definition of the dependent and independent variables as used in the study of knowledge, attitude and utilization of natural remedies.

| Variable | Definition |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>DEPENDENT VARIABLE</i> | |
| Utilization of natural remedies | |
| Types of natural remedies | There were several kinds of natural remedies that were included in this study and were dichotomized as no = 0 and yes = 1. Participants were therefore asked if they have ever used the following: Garlic, Ginger, Honey, Rosemary, Onion, Cabbage, Turmeric, Aloe, Wheat grass juice, Cayenne, Cloves, Moringa, Blackjack, Fleabane, and Other. |
| <i>INDEPENDENT VARIABLES</i> | |
| Knowledge of natural remedies | |
| Known natural remedies | The variable measured if the participants had the knowledge of the following natural remedies: Garlic, Ginger, Honey, Rosemary, Onion, Cabbage, Turmeric, Aloe, Wheat grass juice, Cayenne, Cloves, Moringa, |

| Variable | Definition |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| | Blackjack, Fleabane, and Other. These were presented as binary indicators i.e. no = 0 and yes = 1. |
| Attitude towards natural remedies | |
| Safety | This measured the attitude towards safety by asking the natural remedies were safe to use. The response was binary i.e. no = 0 and yes = 1. |
| Future use | It measured the attitude towards future use of natural remedies which was measure as a binary indicator i.e. no = 0 and yes = 1. |
| Encourage others | It measured if participants would be willing to recommend natural remedies to others as a binary variable i.e. no = 0 and yes = 1. |
| Cost | It measured if participants considered the natural remedies to be a cheaper option i.e. no = 0 and yes = 1. |
| Treatment of illness | This measured the attitude of using natural remedies as a way of treating diseases i.e. no = 0 and yes = 1. |
| Prevention of illness | This measured the attitude of using natural remedies as a way of preventing diseases i.e. no = 0 and yes = 1. |

| Variable | Definition |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>POTENTIAL CONFOUNDERS</i> | |
| Sociodemographic factors | |
| Age group | The age of the participant was measured and grouped into three categories, that is, ≤ 25 , 26 – 35, and ≥ 36 . |
| Gender | Gender was classified as female and male. |
| Marital status | Was a categorized as single, married and formerly married (i.e., divorce, separated and widow). |
| Religion | Was measured using the following denomination: Catholic, Seventh-Day Adventist, Protestants and other |
| Family size | This was the number of individuals in a family which was categorized as 1 – 4, 5 – 8 and ≥ 9 . |
| Ethnicity | Ethnicity was measured using the following major ethnic groups residing in Narok town: Maasai, Kikuyu, Kisii, Kalenjin and Other. |
| Socioeconomic factors | |
| Occupation | This variable was measure and categorized as unemployed, technician/professional/managerial and other (i.e., , clerical duties, sales person, farming, Household/domestic worker, skilled, unskilled manual |

| Variable | Definition |
|--------------------------|--------------------------------------------------------------------------------------------------|
| | and other). |
| Education | The level of education was categorized as high school and below and tertiary. |
| Lifestyle factors | |
| Drinking alcohol | This measured whether the participants were using alcohol or not measured as 0 = no and 1 = yes. |
| Smoking cigarette | This measured whether the participants were smoking or not measured as 0 = no and 1 = yes. |

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter covers the key extant literature on natural remedies. It starts by identifying some of the natural remedies then knowledge and attitude toward their use and finally the utilization.

Natural Remedies Known and Used in Kenya

Due to current surge in multidrug resistant microbes and the likelihood of extensive increase worldwide virus pandemic, there is call for extra preventative and therapeutic options to conventional drugs (Howell & D'Souza, 2013).

Honey as Food and Medicine

The resistance of microorganisms to contemporary anti-microbial drugs is a grave problem worldwide. Scientists are trying to conquer this crisis. Of late it was reported by Meo and his co-workers that honey plays a key function in contemporary medicine development (Khan, Anjum, Rahman, Ansari, Khan, W. Kamal, & Khan. H, 2018). Healing of persistent wounds is becoming more and more complicated due to antibiotics resistance. Multifaceted natural products with antimicrobial activity, such as honey, are currently under the limelight as substitute treatments to antibiotics (Lu,

Carter, Turnbull, Rosendalle, Hedderley, Stephens & Harry 2013; Alqarni, Hannan, Owayss& Engel, 2011). The usefulness of honey on individual health has been long documented. Honey is utilized as an alternative medicine and has conquered the severe problem of microbial resistance to artificial microbial drugs. The wellbeing benefits of honey is, antioxidant, immunomodulatory, ant-inflammatory activity, anticancer action, metabolic and cardiovascular benefits, prebiotic properties, human pathogen control, and antiviral activities (Miguel, Antunes, & Faleiro, 2017). According to Dantas, Machado, Barreto, Costa, Andrade, Amaral and Umsza-Guez (2017), propolis has antioxidants, antimicrobial, anti-parasitic activities used for skin treatment, curing wounds, and ulcers and is utilized worldwide.

Aloe Gel as Medicine

Aloe gel is used for the healing of small wounds, inflammatory skin disorders, thermal and heat burns and to relieve persistent osteoarthritis ache. It moreover possesses a number of antimicrobial activities. Currently, aloe gel is as well increasingly consumed as a dietary supplement (Balan, Niemcewicz, Kocik, Jung, Skopinska-Rozewska & Skopinski, 2014).

Lantana Camara as Medicine

The stem of *Lantana camara* is customarily used for the healing of diarrhoea in Ethiopia. It is also utilized to heal numerous contagious diseases in Kenya (Tadesse, Engidawork, Nedi & Mengistu, 2017).

Fenugreek

Fenugreek is one of the oldest therapeutic plants with outstanding medicinal and dietary report. Its seeds, leaves and even the whole plant are used to prepare powders and extracts for therapeutic use. Internally taken it is utilized for lack of appetite, anaemia and it has been used effectively in Tuberculosis recuperation. (Ahamad, Alghamdi, Mahmood & Afzal 2016). Additional studies confirm that it heals haemorrhoids, skin affliction and swollen or painful joints. This is a roughly forgotten curative herb which reduces swelling and is a good food.

Moringa as Food and Medicine

According to Nadeem and Imran (2016), Moringa Oleifera oil has numeral health benefits internationally. Writing about Moringa, Leon, Spada, Battezzat, Schirald, Aristil and Bertoli (2015) says that Moringa leaves are rich in protein, mineral, beta-carotene and antioxidant compounds. In customary medicine, these leaves are used to heal numerous ailments as well as malaria, typhoid fever, parasitic diseases, arthritis, swellings, cuts, diseases of the skin, genito-urinary ailments, hypertension and diabetes. The leaves also enhance immune system to heal HIV/AIDS associated symptoms. Moringa is well utilized in Kenya for those who know its medicinal value.

There has been a worldwide increase in the utilization of natural health products (NHPs) (Awad and Al-Shaye, 2014). Home remedies are used by patients for the control minor health problems (Parisius et al., 2014). Milk thistle is a remedy

for a diversity of disorders i.e. liver, gallbladder diseases (Kazazis, Evangelopoulos, Kollas & Vallianou, 2014).

Knowledge of Natural Remedies

When people have enough knowledge on healing foods and herbal medicine, they are influenced to use them more often. That is why natural remedies are used in north-Western Ethiopia (Meragiaw, Asfaw and Argaw, 2016). According to Waltenberger Mocan Smejkal, Heiss and Atanasov (2016), natural remedies are utilized worldwide in counteracting epidemic of Cardiovascular and Metabolism Disorders (CMDs) the natural way. Natural products have always been subjugated to advance health and served as a precious source for the unearthing of new drugs.

According to Sewaniand Mammen (2014), in Africa there is a hierarchical association of information in the use of medicinal plants in communities. Medicinal use awareness starts in the home and is passed on to family unit members. Next in the hierarchy are neighbours, rural community elders and at last customary healers being the mainly well-informed. Eitsuka and colleagues (2016) writes concerning synergic anticancer property of Tocotrienol jointly with chemotherapeutic agents or nutritional components.

Numerous scientific investigations have been completed on therapeutic foods as established by Flynn (2017) in the “Book Food Your Miracle Medicine”. Knowing how to utilize curative and healing foods is very encouraging on the prevention and fight against free radicals and other disease causing agents as Caper (1993) writes in her book “Food Your Miracle Medicine”. She says “you can give your cells antioxidant food compounds that beat down, interrupt and put out rampaging oxygen

molecules and even restore some of their damage. Foods particularly plant food- fruits and vegetables- are filled with a mixture of ferocious antioxidants. As soon as you eat these antioxidants, they are infused into your tissue and fluids where they can assist in opposing the oxidant invasions. Scientists nowadays appreciate the overwhelming potential powers of antioxidants”. Pg. 9.

In Uganda they recognize the medical benefits of Tamarind and they have preserved it (Ebifa-Othieno, Mugisha, Nyeko and Kabasa, 2017). Even in Kenya Tamarind is recognized and utilized as remedy to cure communicable diseases by some communities.

People need information on the healing foods, herbs and medicinal trees near them so that they can plant them in their kitchen garden, in their farms and to make use of them and conserve forests for their availability (Davids, Blouws, Aboyade, Gibson, De Jong Van'tKlooster and Hughes, 2014; Dastmalchi, Wang and Stark, 2016). Studies have revealed that even Physicians and their patients need this awareness (Hilala and Hilalb, 2017). African Potato is utilized in Zimbabwe to heal numerous diseases (Gwaza, Aweeka, Greenblatt, Lizak, Huang and Guglielmo, 2013; Maroyi, 2017).

Onions as Food and Medicine

Recent biomedical studies have established and revealed that onions are perfect for persons who have medical conditions as of bronchitis, arthritis, or asthma. They say the onion is antibiotic, antidiabetic, aphrodisiac and even prevents intestinal cancer. The juice of onion is a true antibiotic.

Beta Carotene Foods

Go for spinach, carrots, kale, sweet potatoes, pumpkin, and other vegetables and fruits rich in beta carotene to improve resistant fortifications against both bacterial and viral infections as well as cancer, reveals numerous studies.

Attitude towards Natural Remedies

Mind-set towards Natural Remedies in sickness prevention and healing is very important to patients and even to Pharmacy students (Trumbeckaite, Dauksiene, Bernatoniene and Janulis, 2015). According to Tausha and Asfaw (2018), Malignancies and other ailments are healed in Dale District, Sidima Zone Ethiopia.

Mohammed (2009) on a study on the Awareness and Training of Community on Customary Medicine in Jara Town, Bale Zone South East Ethiopia the study concludes that a lot of the respondents established that natural remedies was a considerate way to establish a good way of life.

Studies on mind-set and awareness on natural remedies, established that the majority of people in Kenya had varied opinions on natural remedies nevertheless they have used them as an enhancement in their diet. This study concluded that Kenyans favoured natural remedies as part of their remedies but a big part did not favour them as herbal medicine. This shows that natural remedies even though they are mostly known, very few really know the impact it has on them (Kitonde et al., 2013; Kipkore et al., 2014). According to Kareru, Kenji, Gachanja, Keriko & Mungai, (2007), Mbeere and Embu people of Kenya have encouraging approach towards

natural remedies and do utilize them on illness prevention, treatment and management.

In Ghana, they have now discovered that coconut oil is very therapeutic (Boateng et al., 2016), but at first, they had a mind-set that it caused accumulation of cholesterol in people.

Patients have diverse mind-set towards natural remedies. Some patients use both conventional medicines and natural remedies at the same time in particular those with persistent diseases and even the HIV/AIDS patients. (Abbot and Ernest 1997), According to Awad and Al-Shaye (2014), there is need for public knowledge and health education on the patterns of use of natural remedies to modify attitudes of people towards natural health products. A number of studies have been conducted on why patients utilize unconventional medicines (Astin, 1988). There is increasing attitude towards utilization of herbal medicines worldwide (Ekor, 2013). Even in Iran there is customary and current use of natural honey in human ailments. Owing to the effectiveness of unconventional medicines in eradicating diseases, there are recommendations from researchers that these medicines be incorporated into conventional health care (Hughes, 2015).

Utilization of Natural Remedies

The utilization of healing foods, natural remedies and herbal medicine is rising internationally, particularly in developing countries and even in developed countries. Natural medicines have been utilized to cure several kinds of human diseases for thousands of years.

Because of comparative expediency, protection and effectiveness, the use of natural medicine is now rising globally (Pithava and Pithava, 2016). According to Quinna, Kanoma, Alhussainy, Taha, Badwan and Matalaka, (2012), therapeutic foods are well utilized globally in disease prevention, control and management.

Natural medicine contains a lot of complementary and alternative methods in the prevention and treatment of diseases like liver problems (Xiong and Guan, 2017). According to Kunwar, Shresha and Bussman (2010), plant species have been used as major component of customary medication in far west Nepal. Traditional herbal medicine is frequently used for significant cultural and environmental reasons. In particular, this is due to continued availability, better compatibility and high acceptance.

According to Zheng and colleagues (2017), spices are used worldwide for prevention treatment and management of cancers. Zibaenezhad and colleagues (2017) informs us that walnut oil is used globally for diabetic patients. Totelin (2015) confirms that healing foods are well utilized worldwide as remedies for different diseases.

Activated Charcoal is well utilized in hospitals and some homes globally as a natural remedy for those who know its benefits and how to use it, every household globally should know the benefits of charcoal (True, J., 2017).

In South Africa, medicinal plants are utilized to heal Tuberculosis (TB) (Liwal et al., 2014).

Medicinal Foods

Food insecurity and deprived universal dietary status in the inhabitants are chief contributors to the burden of TB illness, as not only does undernourishment increase the danger of development from tuberculosis infection to active TB disease, but low body mass index (BMI) ($<18.5 \text{ kg/m}^2$) and lack of sufficient weight gain with anti-tuberculosis treatment has as well been established to be linked with an increased risk of death (Pedrazzoli, Houben, Grede, de Pee and Boccia, 2016). Consequently, food and nutritional support are extremely necessary for any TB patients. The patients must eat well balanced diet. Food antioxidants are important for animal and plant life since they are involved in multifaceted metabolic and signalling mechanism (Wilson, Nash, Buttar, Griffiths, Singh, De Meester and Takahashi, 2017).

Garlic as Food and Medicine

Fresh garlic extracts augment the antimicrobial performance of antibiotics on resistance strains. Infections caused by strains with multi-drug resistance are hard to treat by means of standard antibiotics. Garlic is a powerful cure to defend against infection of many bacteria, fungi and viruses (Li, Ma, Deng, Zhao, Wei, Gao and Sun 2015). Therapeutic benefits of Alliums vegetables as well as garlic have been recognized throughout the written history (Anthony and Singh, 2011). Garlic has been used for centuries as an herbal medicine in treating abscesses, cough, poisoning, parasites, worms, digestive and circulatory problems, snake bites haemorrhoids, abdominal pain, loss of appetite and pneumonia. Epidemiologic studies recommend that eating of garlic might protect against carcinogenesis. In meticulous, the growth of gastric and colorectal cancers appears to be prevented by alliums eating (Jabbari,

Argani, Ghorbanihaghjo and Mahdavi, 2005). Garlic has been used as a remedy since the sunrise of civilisation. Garlic has anti-microbial, anti-cancer, anti-diabetic and anti-viral potential (Hayatti, Cheng, Ahmad, Ali, Chen and Wang, 2016). Garlic is a cure for diversity of ailments. Garlic possess cancer-preventive potential and important enhancing effect in the immune system (Zheng et al., 2016).

Garlic is both food and medicine utilized globally (Totelin, 2015). Also in Kenya Garlic is grown and well utilized by those who know it's medicinal value.

Pure Natural Honey as Food and Medicine

Natural honey has been used both for food and medicine since ancient times. Honey inhibits approximately 60 types of microorganisms. It has an anti-microbial action against the community associated MRSA. Honey has found a place in current medicine after subjection to laboratory and clinical investigations by numerous investigative groups. Honey cures several kinds of diseases. Honey is an antioxidant (Eteraf and Najafi, 2013).

Honey is a solitary food stuff comprises numerous drugs. A titanic literature is accessible concerning honey's significance in almost all religions. Honey use as a curative agent is approximately as old as human civilisation itself. Earlier to the appearance of the present day drugs, honey was conventionally utilized for curing many diseases. The contemporary investigations have proven the medicinal importance of honey. It has broad spectrum anti-biotic, anti-viral and anti-fungal activities (Khan et al., 2018). Honey is also used as medicine in Saudi Arabia (Alqarni et al, 2011). Treatment of chronic wounds is becoming increasingly difficult due to

antibiotic resistance. Complex natural products with antimicrobial properties are used to treat many ailments (Lu et al., 2013).

Pomegranate as Medicine

Pomegranate has antimicrobial activity and the peel has antibacterial and antiviral activities, (Howland D'Souza, 2013). It is grown by some communities in Kenya and is well utilized as food and medicine.

Medicinal Spices

Several studies have recognized the antioxidant, anti-inflammatory and immuno-modulatory effects of spices which might be related to prevention and healing of several cancers (Zheng, 2016). These spices are, Turmeric, black cumin, ginger, garlic, saffron, black pepper, cloves, cinnamon and chilli pepper, coriander, oregano, and cardamom.

Medicinal Herbs

Medicinal plants and other natural remedies are used to cure tuberculosis (TB). These spices have anti-microbial properties making it possible to fight TB (Semenya & Maroyi, 2013). According to Sahreen and colleagues (2017), *Carissa opaca* leaves an edible plant has antioxidant properties. Rosemary is one of the medicinal herbs used globally. Rosemary is useful for different health conditions like colds, colic, headaches, halitosis (foul breath), sore throat, coughs among others.

Moringa leaves are used to treat several ailments (Leon, 2015). Fenugreek is one of the oldest medicinal plants. The tea is an excellent gargle for sore throat and will clear the mucous from the bronchial passages, fevers (Ahmad, 2016), Aloe vera gel (Balan, 2014; Lantana kamara (Tadese, 2017). Ginger is another well utilized herb globally to prevent and fight cancers. Good for sore throats, colds, coughs, chronic bronchitis, dyspepsia, gas, cholera, gout, and nausea. (Khodaie and Sadeghpour, 2015).

In his book *Duke's Handbook of Medicinal Plants of the Bible* (2007), Professor James A. Duke has written the medicinal properties of more than one thousand herbs a few of them are: Apples, Apricots, Arrowroots, Artichoke, Asparagus, Avocado, Beet, Beetroot, Black Bean, Green Bean, Black Cumin, Black Currant Fruit, Black Currant Seed Oil, Broccoli, Brussels Sprouts, Burdock, Cabbage, Canola Oil, Capsicum, Carrot, Cauliflower, Camomile, Chickpea, Chicory, Chickweed, Cinnamon, Coconut Oil, Cloves, Dandelion, Echinacea, Eucalyptus, Eggplant, Fennel, Fenugreek, Lettuce, Lemon, Olive, Orange, Cucumber, Watermelon, Bananas, Parsley, Rosemary, Black pepper, Pomegranate, and many more others. These medicinal plants are utilized daily in many households globally as medicine and healing foods in disease prevention, control, management, and disease eradication.

According to Afolayan and Sunmonu (2010), anti diabetic plants are utilized in South Africa and other parts of the world. Studies have been done in South Africa to evaluate the antibacterial and anticancer activities of medicinal plants and these plants are well utilised for all diseases (Bisi-Johnson, Obi, Hattori, Oshima, Kambizi & Vashaika, 2011).

A number of studies have been done in Kenya and confirmed that many people are turning to natural remedies for their disease conditions some people use

them alongside conventional medicines (Njeru, Obonyo, Nyambati and Ngare 2015; Chamweno, 2015).

Cinnamon: Is a natural remedy for certain infections, well utilized globally due to its antibacterial and antimicrobial properties that may help fight infections. It also has antioxidants and anti-inflammatory effects. It is good for oral health. (Hamidpour et al, 2015).

Onions. Belong to Allium family of plants, well utilized globally fight against some infections. It is also used for cancer prevention especially stomach and colorectal cancer due to its antioxidant effects (Hayat et al, 2016).

Nderema (Vine Spinach or Basella Alba) Several studies have revealed that Basella alba is full of antioxidants, anti-inflammatory, eaten raw, is a natural remedy for infections, coughs, sneezing, allergy, and other diseases. It has vitamin c which helps fight infectious diseases (Eliana, F. O., Paulo, C. S., Milton, C. C., 2007).

Blackjack: It is well utilized globally as a vegetable. At the same time is used as a natural remedy. It has; antibacterial, antioxidant, anti-inflammatory, antiparasitic and anticancer properties (Van den Heever, S.L. Venter, 2007).

Nasturtium: several studies have indicated that it is a natural antibiotic of confirmed efficacy. It acts as a natural antibiotic and as a true bacterial antibiotic and inhibits the reproduction of many pathogens microbes (Bacillus subtilis, Bacillus Coli, Staphylococcus pneumococcus and many other bacterium). Good for UTI and many other infections. Every household should plant and use these natural remedies regularly.

More Natural Remedies Utilized in Kenya

Nettle

Numerous studies have established that nettle is one of the plants with most medicinal applications used for cholera, dysentery, stops haemorrhage, kidney stones, anaemia and many more diseases. It is used for preventive and curative confirms Dr. P. Roger. Pg. 278., besides nettle, the following are natural remedies utilized in Kenya: Eucalyptus, Ginger, Chickweed, Tamarind, Echinacea, Turmeric, Rosemary, Nasturtium, Parsley, Celery, Fenugreek, Pineapples, Raw Cabbage Juice, Pumpkin seeds, Raw Kale juice, Black Jack, Aloe Vera, Papaya tree, Oranges, Lemons, Watermelons, Bananas, Beetroot juice, Cucumbers, Apples. Guavas and Guava leaves. There are lots literature with information on the dosage in the Books of Dr. P. Roger and other scholars. Thank to Scientific Research that has been carried out on Natural Remedies.

Other remedies

Peppermint: This is one of the oldest household remedies for chills, colic, fevers, cholera, dysentery, influenza, vomiting, diarrhea among others. Its oil, applied externally is good for rheumatism, neuralgia and headache. Peppermint tea cleanses and strengthens the entire body. It is recommended that if tea is not available at hand, take some of the leaves and chew them until you can swallow them easily.

Fleabane: Excellent for cholera, dysentery and summer complaints, especially for children, when all other remedies fail. It is excellent remedy for colon troubles, Good for Tuberculosis, Typhoid.

Chamomile: An old known home remedy for colds, bronchitis, kidneys, spleen, & typhoid fever can be broken up in the early stages with this herb, but not used during pregnancy.

Cayenne: This is one of the most wonderful herb medicines we have. Is a specific and very effective remedy in yellow fever, as well as other fevers, and also good for coughs.

Chickweed: Useful for coughs, colds, bronchitis, hoarseness, rheumatism, inflammation, or weakness of the stomach, lungs, bronchial tubes, in fact all forms of internal inflammation. It is said that it heals, and soothes anything it comes in contact with.

Eucalyptus. Has a broad range of uses The leaves and bark are utilized for fevers, acute and chronic bronchitis, asthma, and similar diseases. The oil made from the leaves may also be applied externally to the neck for croup, cough, and sore throat

Comfrey: This is a powerful remedy for coughs, ulceration or inflammation of the lungs, hemorrhage and excessive expectoration in asthma and tuberculosis,

Hyssop: Several studies have revealed that the entire plant of hyssop has expectorant properties and is well utilized globally for; asthma, bronchial catarrh, colds, coughs, chronic bronchitis, and all lung afflictions, and good for all kinds of fevers. Dr. Jethro Kloss in his book back to Eden say, " Hyssop in connection with proper use of water and deep breathing, is almost wonderful body cleanser." and "it is excellent for children's and infant's diseases, such as sore throat and quinsy"

Malaria

According to Fein and colleagues, characterizing infectious disease burden in Africa is important for prioritizing and targeting limited resources for curative and preventive services and monitoring the impact of interventions. Individuals in poor Kenyan communities still suffer from a high burden of infectious diseases, which likely hampers their development. Urban slum and rural disease incidence and clinic utilization are sufficiently disparate in Africa to warrant data from both settings for estimating burden and focusing interventions.

Malaria is managed by the use of medicinal plants amongst the Luhya community of Kakamega County (Mukungu et al., 2016). In Narok the Maasai people use medicinal plants for healing (Bussmann, Gilbreath, Solio, Lutura, Lutuluo, Kunguru and Mathenge, 2006).

Knowing how to use medicinal foods is very essential in the prevention and fight against free radicals and other disease causing agents (Carper 1993).

Typhoid Fever Natural Remedies

According to Mweu and English, Typhoid fever, also known as enteric fever, is caused by the Gram-negative bacterium *Salmonella enterica* serovar Typhi. The disease is mainly associated with low socio-economic status and poor hygiene, with human beings the only known natural hosts and reservoir of infection. The global concern over typhoid is reflected in perceptions that typhoid is a common and serious disease among children and adults in Kenya, where highly publicised outbreaks have strengthened this view among the public and health professionals. One consequence is

the common use of the Widal test to ‘screen’ febrile children and adults in inpatient and outpatient settings, as few centres have the capacity to perform blood or bone marrow culture, the accepted gold standard diagnostic tests.

Dr. Walker in his book, “What is Missing in Your Body” says that he did lab tests on vegetable juices and found out that Pure Carrot Juice consumed 16oz times three daily is able to prevent and also cure typhoid fever, malaria, cholera, and other infectious diseases. Other studies have proved this to be true. Consuming raw carrot juice daily can prevent and cure many diseases.

There are several natural remedies for typhoid, but in Kenya, Horseweed is very effective in preventing and in healing typhoid naturally reports Dr. P. Roger in his book “Encyclopaedia of Medicinal Plants” Pg. 268. Besides typhoid, it also heals haematuria- (blood in the urine), dysentery, eliminates uric acid in the urine thus recommended for people with gout, hyperuricemia- (excess of uric acid, and kidney lithiasis- (kidney stones). Dr. Jethro Kloss also used Horseweed to cure typhoid in his book “Back to Eden”.

Cholera

According to Walldorf and colleagues, Cholera is an acute diarrheal infection caused by ingestion of toxigenic serogroups O1 and O139 of the bacterium *Vibrio cholerae*. The global burden of cholera is estimated to be 2.9 million cases and 95,000 deaths annually; most cases are reported to WHO from sub-Saharan Africa.

Chapter Summary

It is apparent through the literature review done here that healing foods and medicinal herbs/plants play a significant role globally in disease prevention, management control and eradication. Evidence shows that these healing foods and herbs have existed since time immemorial and are still in use globally up to date.

Many scientific studies have confirmed that knowledge about these natural studies and positive attitude and well utilization have relieved many people from diseases.

Regular consumption of these healing foods like cabbage, garlic, onions, greens, honey, whole grains, cereals, and fresh fruits can keep free radicals and other disease causing agents at bay and keep people healthy and heal those who are sick.

The literature revealed that those health care providers who have not known about these revelations needs to learn and be informed and assist their patients the natural way. They need to read wide and maintain a well balanced approach between healing foods, herbs and conventional medicine because all are necessary in disease prevention, control, management, and eradication and be to reduce mortality rate globally.

This study is very beneficial to us public health professionals in our health education and health promotion programs in the three health settings, thus health settings, community settings and education settings.

Medicinal herbs should be used as herbal teas regularly to prevent and heal infectious diseases and also to prevent and manage chronic diseases. People don't have to wait to be sick to utilize medicinal herbs as we do with pharmaceuticals

products when people become sick. Fruits and vegetables should be utilized well daily. Also raw vegetable juices should be consumed daily if possible for good health.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter covers the overall methodological framework. Specifically, it discusses the research design, target population, sample and sampling procedures, research instruments and data collection, validity, reliability, data analysis and ethical considerations.

Research Design

To achieve the objectives of this study, the researcher adopted a cross-sectional research design and utilized quantitative research technique. According to Kothari (2013) descriptive design involves surveys and fact finding inquiries of different kinds which are aimed at giving a description of the state of affairs as it exists at present. In this study, the researcher envisaged to give an accurate description of how the independent variables - attitude, and knowledge influence the dependent variable- utilization of natural remedies.

Population and Sampling Technique

Narok is a small town situated about 45 miles west of Nairobi, the capital city of Kenya. Narok is a home to about 40 thousand people and the seat of the same name

county. It is a commercial spot and an educational center, with a few excellent public and private schools situated there. Latitude and longitude coordinates are: -1.087543, 35.877064 (<https://www.latlong.net/place/narok-nairobi-kenya-24422.html>).

Economic activities of Narok Town residents include; pastoralism, crop farming, tourism and trade among others (<https://www.narok.go.ke>). Figures 2 and 3 indicates the map of Narok county and Narok Town, respectively.

The target population for this research were people who utilised natural remedies in Narok Town with a population of about 40,000.

The RAOSOFT sample size calculator was used to calculate the sample size from a total population of about 40,000 residents of Narok Town with a 5% margin of error, 95% confidence level and a response distribution of 50% since the prevalence of utilization of natural remedies is unknown. After the calculation, 382 sample size was determined.

In the collection of data, the researcher employed a purposive sampling technique and identified households around Narok town. A purposive sampling is “a non-probability sample that is selected based on characteristics of a population and the objective of the study” (Crossman, A., 2020). A purposive sampling is “where a researcher selects a sample based on their knowledge about the study and population” (Stephanie G., 2015). The main goal of the purposive sampling technique is to “produce a sample that can be logically assumed to be representative of the population” (Lavrakas, P. J., 2008).



Figure 2: Map of Narok County

Source: <https://opencounty.org/county-about.php?com=8&cid=33>



Figure 3: Narok Town

Source:

<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.facebook.com%2FKeNHAKenya>



Figure 4: Narok Drainage System

Courtesy

of:

<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.businessdailyafrica.com%2Fbd%2Fdata-hub%2Fwill-new-sewer-line-cure-narok-s-waste-disposal-headache>



Figure 5: Narok Town Economic Activities

Source:

[https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.voicesofnarok.co.ke%2Fblog%2Fwhat-they-are-not-saying-about-narok-municipality%](https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.voicesofnarok.co.ke%2Fblog%2Fwhat-they-are-not-saying-about-narok-municipality%2F)

Research Instruments

The main instruments for the study was the use of questionnaires that were self-administered to the respondents of Narok Town. Closed-ended questionnaires were designed based on the research objectives (see Appendix II). These particular responses definitely enabled the researcher to get greater insight into the feelings, decisions and thinking of the respondents. The respondents were guided through illustrated answers to ensure that they had a clear understanding of the questions and thus responded appropriately. The questionnaires took fifteen minutes to twenty minutes to complete. They were conveyed to the respondents by use of the drop and pick latter method.

Validity

The validity of an instrument is the degree to which a test or a tool measures what it is supposed to measure. In carrying out this study, the researcher paid very keen attention to the issues of the validity of the research instrument. The instrument was based upon a well validated questionnaire. The questionnaire was validated using content validity. Content validity is a measure of the degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept. In this respect, the researcher worked closely with the supervisors who went through the tools and made their suggestions and their ideas were considered and incorporated.

Reliability

Prior to using the questionnaires to collect data, they were pilot tested. The researcher carried out a pilot study in order to establish the reliability of the research instrument. The pilot study involved 38 questionnaires issued to 38 respondents in Nakuru District. Preliminary analysis using the pilot test data was undertaken to ensure that the data collected enabled the research objectives to be answered.

Basically reliability has to do with the accuracy and the precision of the research instrument and it gives an indication of the extent to which a particular instrument is replicable. The researcher analysed the data from pilot study to establish the reliability coefficient. Reliability was measured by use of a reliability coefficient (Cronbach's Alpha), which was 0.75 in all the key sections.

Data Gathering Procedures

After the proposal was approved, the researcher got a clearance letter from the University of Eastern Africa, Baraton research ethics committee which enabled the researcher to be given a letter from the office of the Director of Graduate studies and Research, University of Eastern Africa, Baraton, to gather data. The researcher then applied for data collection permit from Nacosti, which was granted after around three months. Then the researcher prepared the Questionnaires and set out to collect data. 382 Questionnaires were prepared and administered to the respondents and the researcher distributed them himself assisted by two research assistants. The exercise took seven days.

Once the researcher and research assistants came to a household, they introduced themselves and explained the purpose of the study and asked the participants if they were willing to participate. If they agreed, then they would sign the informed consent form, but if they refused to participate, the research team apologised and moved to the next household. The participants were assured of anonymity and were allowed to withdraw from the study at any point in time. Participation was voluntary. A total of 382 respondents in Narok Town participated. All the respondents were adults aged 18 years and above. Those who were not willing to participate were not included in the study.

The study participants were interviewed and given questionnaires to fill and brought them back to a designated central place and dropped them in a given box where the researcher collected them. The Narok county commissioner and chief were informed of the exercise to carry out the research in their area after the Government permit was obtained from the relevant authorities, that is, NACOSTI, the County Commissioner of Narok County, and the Ministry of Education, Narok County.

Statistical Treatment of Data

The collected data from the questionnaires was organized starting with coding of the question items, then the coded data was transformed into descriptive statistics (frequencies/percentages, means and standard deviations).

The data addressed research objectives 1, 2, and 3 and was analysed using descriptive statistics and inferential statistics.

The results of the survey were presented using tables. The analyses were performed using STATA version 13.1

After data were cleaned and prepared for analyses, it was analysed in two phases – that is, the descriptive statistics and the inferential statistics. In the descriptive phase, data were presented in the form of numbers and percentages on knowledge, attitude and utilization of natural remedies. Further, differences between different categories of variables used in this study was tested using Pearson's Chi-Square test. All the indicators of the utilization of natural remedies were combined into one dependent count variable, and the distribution was determined before selection of the analytical technique. Figure 6 presents the distribution of the dependent variable with the count data range being between 0 to 15. While the indicator of knowledge was also combined and grouped into three categories as low knowledge (≤ 5 remedies), moderate knowledge (6 – 10 remedies) and high knowledge (11 – 15 remedies).

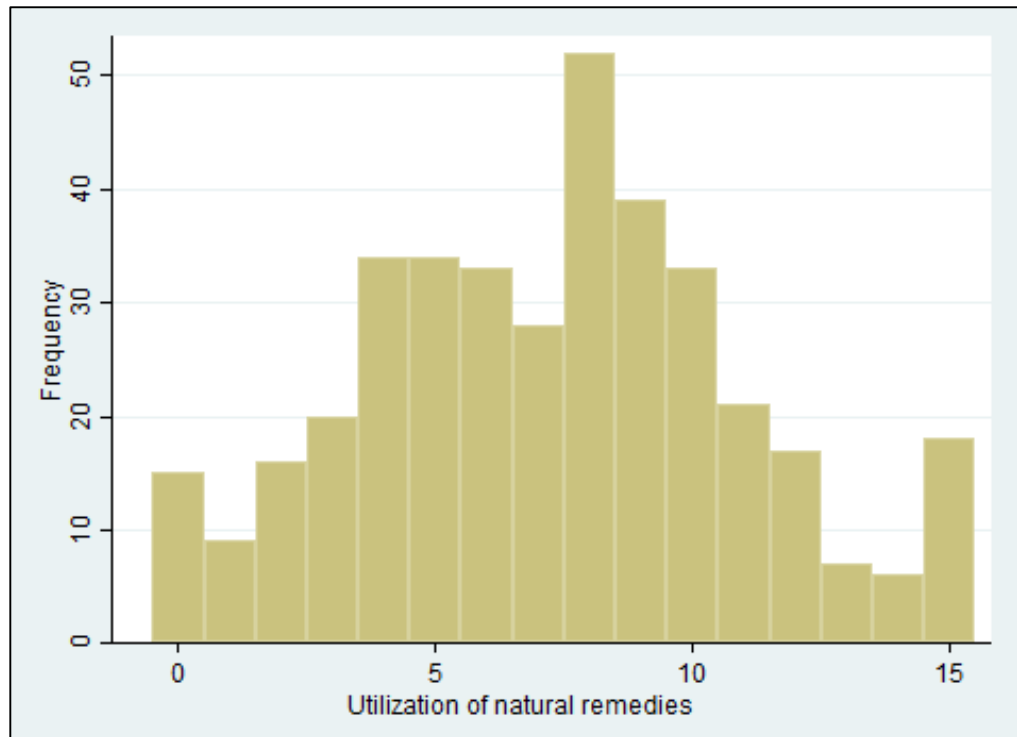


Figure 6: The distribution of the dependent variable – utilization of natural remedies.

In the second phase of the analyses, negative binomial regression models were developed and analysed because of the over-dispersion of the dependent variable. The unadjusted models were analysed before adjusting for all the variables including the potential confounders (i.e., sociodemographic factors, socioeconomic factors and lifestyle factors). The results were presented in the form of tables. All the analyses were performed using STATA version 13.1.

Ethical Considerations

The researcher got approval from the Institutional Research Ethics Committee (IREC) of the University of Eastern Africa, Baraton. After the approval, NACOSTI was contacted and they issued the research permit which enabled the researcher to get other government authorities permission to collect data for the research.

The researcher also had to seek consent of the Narok Town residents by explaining to them the purpose of the study and asked them to give informed consent if willing to voluntarily participate in the study.

Each participant was allowed to make an informed consent choice before being involved in the study and was given a consent form each of them to fill by signing and writing the date after being explained to about the research and its purpose. They also had a right to withdraw from the study anytime without any penalty.

The informants were identified and objectively selected as the subjects who provided information for this study. The informants were kindly requested to provide the information needed for successful completion of the study. Any information given was kept strictly confidential and also anonymous and utilized only for the purpose for which it was intended and the information was treated with respect.

Honest report was given by the researcher during data collection and on the findings of the study.

CHAPTER FOUR

PRESENTATION RESULTS

Knowledge on Natural Remedies

Table 2 presents the descriptive statistics of knowledge of several natural remedies and utilization. More than a half of the participants knew garlic (81.9%), ginger (85.1%), honey (96.6%), rosemary (58.6%), onion (86.4%), cabbages (78.3%), aloe (89.8%) and blackjack (63.1%) as natural remedies, yet utilization slightly reduced among them.

Nevertheless, the majority of the participants indicated that they had used the following natural remedies: garlic (75.1%), ginger (77.5%), honey (86.7%), onion (69.9%), cabbage (57.1%), turmeric (57.9%) and wheat (81.7%). The highest rate of reduction in the utilization was in the aloe and blackjack that many participants (i.e. 89.8% and 63.1%, respectively) had indicated that they know them as natural remedies but only 33.3% and 22.5% utilized them, respectively. The fleabane had the lowest rate of utilization at 9.7%. On the contrary, only 44.2% indicated that they know wheat grass juice as a natural remedy, but 81.7% had utilized it.

Table 2. Descriptive statistics of knowledge and utilization of natural remedies, n = 382

| | Knowledge on natural remedies | | Utilization of natural remedies | |
|-------------------------|-------------------------------|-------------------|---------------------------------|-------------------|
| | No, <i>n</i> (%) | Yes, <i>n</i> (%) | No, <i>n</i> (%) | Yes, <i>n</i> (%) |
| Natural remedies | | | | |
| 1. Garlic | 69 (18.1) | 313 (81.9) | 95 (24.9) | 287 (75.1) |
| 2. Ginger | 57 (14.9) | 325 (85.1) | 86 (22.5) | 296 (77.5) |
| 3. Honey | 13 (3.4) | 369 (96.6) | 51 (13.4) | 331 (86.7) |
| 4. Rosemary | 158 (41.4) | 224 (58.6) | 192 (50.3) | 190 (49.7) |
| 5. Onion | 52 (13.6) | 330 (86.4) | 115 (30.1) | 267 (69.9) |
| 6. Cabbage | 83 (21.7) | 299 (78.3) | 164 (42.9) | 218 (57.1) |
| 7. Turmeric | 227 (59.4) | 155 (40.6) | 161 (42.2) | 221 (57.9) |
| 8. Aloe | 39 (10.2) | 343 (89.8) | 255 (66.8) | 127 (33.3) |
| 9. Wheat | 213(55.8) | 169 (44.2) | 70 (18.3) | 312 (81.7) |
| 10. Cayenne | 224 (58.6) | 158 (41.4) | 276 (72.3) | 106 (27.8) |
| 11. Cloves | 243 (63.6) | 139 (36.4) | 260 (68.1) | 122 (31.9) |
| 12. Moringa | 271 (70.9) | 111 (29.1) | 300 (78.5) | 82 (21.5) |
| 13. Blackjack | 141 (36.9) | 241 (63.1) | 296 (77.5) | 86 (22.5) |
| 14. Fleabane | 332 (86.9) | 50 (13.1) | 345 (90.3) | 37 (9.7) |
| 15. Other | 330 (86.4) | 52 (13.6) | 331 (86.7) | 51 (13.4) |

Attitude Towards Utilization of Natural Remedies

Table 3 presents the attitude of participants towards use natural remedies and the diseases they have indicated are curable using the natural remedies. Over 75% of the respondents indicated that natural remedies are safe and will keep using in the future. They indicated that they can also encourage others to use because the remedies are affordable and can be used to cure and prevent infectious diseases.

Over 60% of the participants indicated that natural remedies can be used to treat malaria (71.7%) and typhoid (64.1%) diseases, while 8.4% of the participants said that these remedies can be used to cure trachoma.

Table 3. Descriptive statistics of the attitude towards use of natural remedies and the infectious diseases perceive to be curable using natural remedies, n = 382

| Indicators | No, <i>n</i> (%) | Yes, <i>n</i> (%) |
|----------------------------------------------------------|------------------|-------------------|
| Attitude towards use of natural remedies | | |
| Safe to use | 91 (23.8) | 291 (76.2) |
| Will keep using in future | 30 (7.9) | 352 (92.2) |
| Encourages others to use | 15 (3.9) | 367 (96.1) |
| Cheaper and affordable | 31 (8.1) | 351 (91.9) |
| Can cure infectious diseases | 54 (14.1) | 328 (85.9) |
| Can prevent infectious diseases | 52 (13.6) | 330 (86.39) |
| Infectious diseases treated with natural remedies | | |
| Malaria | 108 (28.3) | 274 (71.7) |

| Indicators | No, <i>n</i> (%) | Yes, <i>n</i> (%) |
|-------------------|-------------------------|--------------------------|
| Typhoid | 137 (35.9) | 245 (64.1) |
| Cholera | 241 (63.1) | 141 (36.9) |
| Tuberculosis | 260 (68.1) | 122 (31.9) |
| Trachoma | 350 (91.6) | 32 (8.4) |

Utilization of natural remedies by different characteristics are presented in Table 4. Seventy-five percent of those who were considered to have high knowledge, utilized more than 8 natural remedies. While, 40.9% of participants who considered them safe utilized many natural remedies. Also, 40.2% of the respondents who believed that natural remedies can cure infectious disease used several natural remedies.

Moreover, over 40% of the participants who were married (46.5%) or formerly married (47.6%), were SDAs (48.2%), had less than 4 family members (44.6%), were of Kikuyu (42.0%) and Kisii (55.1%) ethnicity, had high School education and below (50.5%), were technicians/professionals/managers (41.8%) or of other occupations (45.6%) were likely to utilize many natural remedies. Similarly, slightly more than half (51.3%) of those who were above 36 years of age utilized several natural remedies in this study. The test of difference between the categories of knowledge variable, cure infectious diseases, age groups, marital status, ethnicity, education and occupation were highly significant at $p \leq 0.001$.

Table 4. Utilization of natural remedies by knowledge, attitude and different characteristics in Narok County, n = 382

| Variables | Total <i>n</i> | Utilized more than half of the natural remedies, <i>n</i> (%) | | <i>P</i> -value |
|------------------------------------|----------------|---------------------------------------------------------------|---------------------------|-----------------|
| | | No (≤ 8 items) | Yes (≥ 9 items) | |
| | | <i>n</i> (%) = 241 (63.1) | <i>n</i> (%) = 141 (36.9) | |
| Knowledge of remedies | | | | < 0.001 |
| Low (≤ 5 remedies) | 57 | 51 (89.5) | 6 (10.5) | |
| Moderate (6 – 10 remedies) | 227 | 167 (73.6) | 60 (26.4) | |
| High (11 – 15 remedies) | 98 | 23 (23.5) | 75 (75.3) | |
| Natural remedies are safe | | | | 0.004 |
| No | 91 | 69 (75.8) | 22 (24.2) | |
| Yes | 291 | 172 (59.1) | 119 (40.9) | |
| Will keep using in future | | | | 0.108 |
| No | 30 | 23 (76.7) | 7 (23.3) | |
| Yes | 352 | 218 (61.9) | 134 (38.1) | |
| Encourage others to use | | | | 0.166 |
| No | 15 | 12 (80.0) | 3 (20.0) | |
| Yes | 367 | 229 (62.4) | 138 (37.6) | |
| Cheaper and affordable | | | | 0.575 |
| No | 31 | 21 (67.7) | 10 (32.3) | |
| Yes | 351 | 220 (62.7) | 131 (37.3) | |
| Cures infectious diseases | | | | < 0.001 |
| No | 54 | 45 (83.3) | 9 (16.7) | |
| Yes | 328 | 196 (59.8) | 132 (40.2) | |
| Prevent infectious diseases | | | | 0.108 |
| No | 52 | 38 (73.1) | 14 (26.9) | |

| Variables | Utilized more than half of the natural remedies, <i>n</i> (%) | | | <i>P</i> -value |
|-----------------------|---------------------------------------------------------------|---------------------------|---------------------------|-----------------|
| | Total <i>n</i> | No (≤ 8 items) | Yes (≥ 9 items) | |
| | | <i>n</i> (%) = 241 (63.1) | <i>n</i> (%) = 141 (36.9) | |
| Yes | 330 | 203 (61.5) | 127 (38.5) | |
| Age group | | | | < 0.001 |
| ≤ 25 | 154 | 119 (77.3) | 35 (22.7) | |
| 26-35 | 111 | 65 (58.6) | 46 (41.4) | |
| ≥ 36 | 117 | 57 (48.7) | 60 (51.3) | |
| Gender | | | | 0.521 |
| Male | 187 | 121 (64.7) | 66 (35.3) | |
| Female | 195 | 120 (61.5) | 75 (38.5) | |
| Marital status | | | | < 0.001 |
| Single | 159 | 122 (76.7) | 37 (23.3) | |
| Married | 202 | 108 (53.5) | 94 (46.5) | |
| Formerly married | 21 | 11 (52.4) | 10 (47.6) | |
| Religion | | | | 0.010 |
| Roman Catholic | 92 | 56 (60.9) | 36 (39.1) | |
| SDA | 110 | 57 (51.8) | 53 (48.2) | |
| Protestant | 109 | 76 (69.7) | 33 (30.3) | |
| Others | 71 | 52 (73.2) | 19 (26.8) | |
| Family size | | | | 0.073 |
| 1 - 4 | 112 | 62 (55.4) | 50 (44.6) | |
| 5 - 8 | 184 | 118 (64.1) | 66 (35.9) | |
| ≥ 9 | 86 | 61 (70.9) | 25 (29.1) | |
| Ethnicity | | | | < 0.001 |
| Maasai | 80 | 59 (73.7) | 21 (26.3) | |

| Variables | Total <i>n</i> | Utilized more than half of the natural remedies, <i>n</i> (%) | | <i>P</i> -value |
|--------------------------|----------------|---------------------------------------------------------------|---------------------------|-----------------|
| | | No (≤ 8 items) | Yes (≥ 9 items) | |
| | | <i>n</i> (%) = 241 (63.1) | <i>n</i> (%) = 141 (36.9) | |
| Kikuyu | 50 | 29 (58.0) | 21 (42.0) | |
| Kisii | 89 | 40 (44.9) | 49 (55.1) | |
| Kalenjin | 63 | 45 (71.4) | 18 (28.6) | |
| Other | 100 | 68 (68.0) | 32 (32.0) | |
| Education | | | | < 0.001 |
| High School and below | 97 | 48 (49.5) | 49 (50.5) | |
| Tertiary | 285 | 193 (67.7) | 92 (32.3) | |
| Occupation | | | | < 0.001 |
| Unemployed | 141 | 106 (75.2) | 35 (24.8) | |
| Tech/prof/manager | 103 | 60 (58.2) | 43 (41.8) | |
| Others | 138 | 75 (54.4) | 63 (45.6) | |
| Drink alcohol | | | | 0.778 |
| No | 353 | 222 (62.9) | 131 (37.1) | |
| Yes | 29 | 19 (65.5) | 10 (34.5) | |
| Smoking cigarette | | | | 0.355 |
| No | 373 | 234 (62.7) | 139 (37.3) | |
| Yes | 9 | 7 (77.8) | 2 (22.2) | |

Association Between Knowledge, Attitude and Utilization of Natural Remedies

Table 5 presents the IRRs and the 95% CIs of the relationship between knowledge, attitude and utilization of natural remedies. The results indicate that those who had moderate and high knowledge of several natural remedies were 1.55 and 2.40 times at a higher rate of utilization of natural remedies than those who had low knowledge of the natural remedies, before adjusting for all the potential confounders. And, after adjusting for all the potential confounders, those who had moderate knowledge (IRR = 1.47; 95% CI: 1.26 – 1.71) and high knowledge (IRR = 2.16; 95% CI: 1.83 – 2.55) were still more likely to utilize natural remedies than those with low knowledge.

On attitude towards use of natural remedies, only those who perceived that the natural remedies were safe to use were at a higher rate of utilization before and after adjustment at 22% ($p < 0.01$) and 10% ($p < 0.10$), respectively. However, before adjusting for the potential confounders, those who indicated that they will keep using the remedies in the future (IRR = 1.20; 95% CI: 0.98 – 1.48, $p < 0.10$) and believed that the natural remedies can be used to cure (IRR = 1.33; 95% CI: 1.14 – 1.57) and prevent (IRR = 1.22; 95% CI: 1.04 – 1.44) infectious diseases were at a higher rate of utilization than the reference groups. But after adjustment, the differences attenuated.

Table 5. The unadjusted and adjusted negative binomial regression analysis of the utilization of natural remedies in Narok County, n = 382

| Variables | Utilization of natural remedies, IRR (95% CI) | |
|--------------------------------------|-----------------------------------------------|-----------------------|
| | Crude model | Adjusted model |
| Knowledge of remedies | | |
| Low (≤ 5 remedies) | 1 | 1 |
| Moderate (6 – 10 remedies) | 1.55 (1.33, 1.80)**** | 1.47 (1.26, 1.71)**** |
| High (11 – 15 remedies) | 2.40 (2.05, 2.82)**** | 2.16 (1.83, 2.55)**** |
| Attitude indicators (ref: No) | | |
| Safe to use | 1.22 (1.07, 1.38)*** | 1.10 (0.98, 1.23)* |
| Will keep using in future | 1.20 (0.98, 1.48)* | 1.03 (0.85, 1.24) |
| Encourage others to use | 1.17 (0.87, 1.56) | 0.95 (0.73, 1.24) |
| Cheaper and affordable | 1.06 (0.87, 1.30) | 1.05 (0.89, 1.24) |
| Cures infectious diseases | 1.33 (1.14, 1.57)**** | 1.13 (0.97, 1.33) |
| Prevents infectious diseases | 1.22 (1.04, 1.44)** | 0.98 (0.85, 1.14) |
| Age group | | |
| ≤ 25 | 1 | 1 |
| 26-35 | 1.25 (1.10, 1.42)**** | 1.01 (0.88, 1.15) |
| ≥ 36 | 1.37 (1.21, 1.55)**** | 1.04 (0.90, 1.19) |
| Gender | | |
| Female | 1 | 1 |
| Male | 0.97 (0.87, 1.08) | 0.96 (0.88, 1.05) |
| Marital status | | |
| Single | 1 | 1 |
| Married | 1.27 (1.14, 1.42)**** | 1.02 (0.90, 1.15) |

| Variables | Utilization of natural remedies, IRR (95% CI) | |
|-----------------------|-----------------------------------------------|---------------------|
| | Crude model | Adjusted model |
| Formerly married | 1.27 (1.00, 1.60)** | 1.00 (0.80, 1.23) |
| Religion | | |
| Catholic | 1 | 1 |
| SDA | 1.14 (0.99, 1.31)* | 1.01 (0.89, 1.15) |
| Protestant | 0.89 (0.77, 1.03) | 0.95 (0.84, 1.07) |
| Others | 0.89 (0.76, 1.05) | 0.97 (0.85, 1.12) |
| Family size | | |
| 1 - 4 | 1 | 1 |
| 5 - 8 | 0.89 (0.79, 1.01)* | 0.95 (0.85, 1.06) |
| ≥ 9 | 0.85 (0.73, 0.99)** | 1.04 (0.91, 1.19) |
| Ethnicity | | |
| Maasai | 1 | 1 |
| Kikuyu | 1.19 (0.99, 1.44) | 1.00 (0.85, 1.17) |
| Kisii | 1.34 (1.15, 1.57)***** | 1.08 (0.93, 1.26) |
| Kalenjin | 0.97 (0.81, 1.16) | 0.94 (0.81, 1.09) |
| Other | 1.07 (0.91, 1.25) | 1.02 (0.89, 1.17) |
| Education | | |
| High School and below | 1 | 1 |
| Tertiary | 0.78 (0.69, 0.87)***** | 0.89 (0.79, 0.99)** |
| Occupation | | |
| Unemployed | 1 | 1 |
| Tech/prof/man | 1.20 (1.05, 1.38)*** | 1.10 (0.96, 1.25) |
| Others | 1.34 (1.18, 1.51)***** | 1.07 (0.95, 1.21) |

| Variables | Utilization of natural remedies, IRR (95% CI) | |
|--------------------------|-----------------------------------------------|-------------------|
| | Crude model | Adjusted model |
| Drink alcohol | | |
| No | 1 | 1 |
| Yes | 0.97 (0.79, 1.19) | 1.01 (0.85, 1.20) |
| Smoking cigarette | | |
| No | 1 | 1 |
| Yes | 0.91 (0.64, 1.32) | 0.95 (0.70, 1.28) |

* $p \leq 0.10$; ** $p \leq 0.05$; *** $p \leq 0.01$; **** $p \leq 0.001$

Other Factors Influencing Utilization of Natural Remedies

Only education level was statistically significant before and after adjustment with those who had tertiary level of education being 11% less likely to utilize many natural remedies than those who had high school education and below. The age group, marital status, religion, family size, ethnicity and occupation were only statistically significant before adjusting for all the confounders. But after adjustment, the differences diminished.

CHAPTER FIVE

DISCUSSION

Discussion

This study explored the association between knowledge, attitude, and utilization of natural remedies to cure infectious diseases among Narok county residents. The study finding revealed that those who had moderate and high knowledge were still more likely to utilize natural remedies than those with low knowledge. Also, the knowledge of some of the natural remedies (garlic, ginger, honey, onion, cabbage, turmeric and wheat) was evident among participants. But, out of the 15 natural remedies in this study 8 were not well known to the majority of the participants. However, the attitude towards use of natural remedies to cure infectious diseases was positive amongst the majority of the participants. This was measured in terms of safety, willingness to keep using in future, encouraging others to use, cost implication, and can be used to cure and prevent infectious diseases.

Knowledge and Utilization of Natural Remedies

The findings from the research indicated that more than half of the participants knew garlic 81.9%, ginger 85.1%, honey 96.6%, rosemary 58.6%, onions 89.8%, and blackjack 63.1% yet utilization slightly reduced amongst them.

Nevertheless, the majority of the participants indicated that they have utilised the following natural remedies to prevent and cure certain diseases, including infectious diseases garlic 77.1%, ginger 77.5%, honey 86.7%, onion 69.9%, cabbage 57.1%, turmeric 57.9% and wheatgrass 81.7%. This supports the idea that when people have enough knowledge on healing foods and herbal medicine, they are influenced to use them more often as used also in north-Western Ethiopia (Meragiaw, Asfaw and Argaw, 2016).

The highest rate of reduction in utilization was in the aloe and blackjack in that many participants at 89.8% knew aloe but only 33.3% indicated that they utilized it. on blackjack any as at 63.1% knew it as a natural remedy only 22.5% indicated that they utilized it as a natural remedy.

The fleabane had the lowest rate of utilization at 97% on the contrary only 42.2% indicated that they knew wheatgrass juice as a natural remedy yet 81.7% indicated that they had utilized it as a natural remedy.

Seventy-five percent of those who were considered to have high knowledge utilized more than eight natural remedies while 40.9% of the participants who considered them safe utilized many natural remedies.

Also, 40.2% of the respondents who believed that natural remedies can cure infectious diseases used several natural remedies.

The natural remedies under investigation in the study have been utilised elsewhere as follows, honey as a antimicrobial activity and is utilised globally Mtguclly et al 2017 aloe is used in treatment Balan et al 2014 garlic is utilised globally for various ointment (Zheng et al., 2016).

Attitude Towards Utilization Of Natural Remedies

On attitude towards utilization of natural remedies to cure infectious diseases over 75% of the respondents indicated that natural remedies are safe to use and will keep using them in future. They indicated also that they can also encourage others to use them because natural remedies are affordable and can be used to prevent and cure infectious diseases.

Over 60% of the participants indicated that natural remedies can be used to treat malaria is 71.7%, typhoid 64.1% while 84% of the participants said that these remedies can be used to cure trachoma.

On the relationship between knowledge, attitude and utilization on natural remedies to cure infectious diseases table four presents those who had moderate and high knowledge of several natural remedies were likely to utilize natural remedies the ones with low knowledge.

The results were not expected because of the way the percentages on knowledge and utilization on these natural remedies were fluctuating in that high percentage of the participants indicated that they knew certain natural remedies but on utilization the percentage was lower.

In relation to the research problem the finding agrees with Howland Dsouza 2013 who said due to the new surge multi drug resistant micro organisation there is need for supplementation preparative and conventional drugs. There is a need for supplementation of protective and curative options due to new surge in multi drug resistant. The results shows that life can be saved and the cost of health care reduced by the well use of natural remedies in Narok county and globally in general, the RP was well addressed.

Onions are also used as medicine Antony Singl 2011. Honey inhibits 60 species of microorganism says Etara and Nayafi 2013 honey is actually need in every household because according to Klonet et al 2018, honey as a broad spectrum antibiotic, antiviral and antifungal no wonder majority of the respondents indicated that they knew honey as a natural remedy and had actually utilized it for preventing and curing infectious diseases.

Malaria is cured by the use of medicinal plants in western Kenya among the Luhya community says Mkungu Elaf 2016 typhoid is cured by the use of horseweed or fleabane confirms Dr Jethro Ktosis in his book, back to Eden. Ginger is very good for disease prevention and management even healing in Kenya TB is treated by the utilization of medicinal plants Njeru et al 2016.it is good to know that blackjack is a good medicine and as community consume it as vegetables this was from oral interviews

Nasturtium is a good natural remedy even though not known by many Narok residents. But those who know it confirmed it is good for UTI and other infections. As Pamplona Rodgers in his book encyclopaedia of medicinal plants.it is one of the AMR, MPSA and MDR, because it is a natural antibiotic with proven effectiveness it is interesting to know and team with those who know its effectiveness.it is raw regularly used as a vegetable. This is from oral interviews with the respondents.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, the study found an association between the level of knowledge and utilization of natural remedies.

Though, the participants indicated to have good knowledge regarding some natural remedies, even though the level of utilization of these natural remedies seems to be low compared to the level of knowledge. Maybe, the attitude about the safety of using these natural remedies, which was the lowest in all the attitude indicators, might be a hindrance to the level of utilization.

With enough knowledge about the effectiveness of natural remedies towards infectious diseases, the attitude of many people in Narok town and other can be increased and combating the infectious diseases can be well achieved and lessen the mortality rate caused by this infectious disease.

Recommendations

The participants and the communities they represented have good knowledge of some natural remedies under investigation. This shows that they need more health education and health promotion on all natural remedies. Not only Narok residence

only but all humanity in general needs more education on the effectiveness of natural remedies.

Further research is needed on the topic to bring more light on the effectiveness of natural remedies to be more addressed in the future studies is the benefits of all natural remedies their availability safety, mode of preparation, storage and usage or utilization.

Also evidenced based study or research is need from those who were hesitate from the infectious diseases, so that with their evidence ,the attitude of many people will be changed towards knowing more and utilizing more natural remedies.in depth studies on the topic should be encouraged and documentation of the same should be done and encouraged in order to presume more knowledge increase attitude and improve utilization of natural remedies across the globe and for betterment of peoples health in conjunction with the medical institutions and expertise.

To address this problem of AMR, MRSA, MDR, natural remedies have shown an Improvement on this problem and therefore this, subject should be taught at all our institutions i.e. medical schools, high school and even primary for diseases prevention, management and curing. This finding should be used to educate all people globally on the effectiveness of natural remedies.

The health care system should include the natural remedies in their efforts to prevent, control and eradicate infectious disease globally. The world governments should integrate natural remedies into their mainstream of healthcare systems as proposed by the WHO (2014).

All stakeholders in Narok town and Narok county, need to be involved in future studies of the same so that infectious diseases can be mitigated and defeated.

Presented in this chapter are the findings and discussions of the study as per the objectives. The knowledge on natural remedies to cure infectious diseases has been discussed. The attitude towards utilization of natural remedies to cure infectious diseases has been presented. Also discussed is the relationship between knowledge, attitude, and utilization of natural remedies.

This chapter also includes comparison of the study with similar studies that have been carried out in other parts of the globe and also in Kenya on knowledge, attitude, and utilization of natural remedies to cure infectious diseases.

Knowledge on Natural Remedies to Cure Infectious Diseases

The findings from the study showed that more than a half of the participants knew garlic, ginger, honey, rosemary, onion, cabbage, aloe and blackjack as natural remedies, yet utilization slightly reduced among them. Nevertheless, the majority of the participants indicated that they had used the following natural remedies thus, garlic, ginger, honey, onion, cabbage, turmeric, and wheatgrass juice.

On attitude towards utilization of natural remedies, over 75% of the respondents indicated that natural remedies are safe and that they will keep using them in the future. They indicated that natural remedies are safe and will keep using in the future. They indicated that they can also encourage others to use because the natural remedies are affordable and can be used to prevent and cure infectious diseases.

On the relationship between Knowledge, Attitude, and Utilization of natural remedies, those who had moderate and high knowledge of several natural remedies, their rate of utilization was higher than those who had lower knowledge of the natural remedies.

The finding indicated that those who had knowledge about natural remedies, utilized them more than those who had low or no knowledge on a particular natural remedy. For sure, knowledge is power.

Recommendations

There is need for more studies on this subject to bring on board other widely utilized natural remedies other than the ones mentioned in this study.

The world governments should integrate natural remedies into their mainstreams of their healthcare systems as proposed by the WHO, 2014.

REFERENCES

- Abbot N. C., Ernst E. (1997). Patients' opinions about complimentary medicine. *Forsch. Komplementarmed.* 4 164–168 10.1159/000210318 [Cross Ref]
- Afolayan, A. J., & Otunola, G. A. (2014). Ultrastructure and Elemental Analysis of Hypoxis Hemerocallidea: A Multipurpose Medicinal Plant. *African Journal of Traditional, Complementary, and Alternative Medicines*, 11(4), 39–43.
- Ahmad, A., Alghamdi, S. S., Mahmood, K., & Afzal, M. (2016). Fenugreek a multipurpose crop: Potentialities and improvements. *Saudi Journal of Biological Sciences*, 23(2), 300–310. <http://doi.org/10.1016/j.sjbs.2015.09.015>
- Alqarni, A. S., Hannan, M. A., Owayss, A. A., & Engel, M. S. (2011). The indigenous honey bees of Saudi Arabia (Hymenoptera, Apidae, *Apis mellifera jemenitica* Ruttner): Their natural history and role in beekeeping. *ZooKeys*, (134), 83–98. *Advance online publication*. <http://doi.org/10.3897/zookeys.134.1677>
- Andrea Rinaldi , Priya Shetty (2015). Traditional medicine for modern times: Facts and figures.
- Anthonj, C., Diekkrüger, B., Borgemeister, C., & Thomas, K. (2019, 2019/01/01/). Health risk perceptions and local knowledge of water-related infectious disease exposure among Kenyan wetland communities. *International Journal of Hygiene and Environmental Health*, 222(1), 34-48. <https://doi.org/https://doi.org/10.1016/j.ijheh.2018.08.003>

- Antony, M. L., & Singh, S. V. (2011). Molecular Mechanisms and Targets of Cancer Chemoprevention by Garlic-derived Bioactive Compound DiallylTrisulfide. *Indian Journal of Experimental Biology*, 49(11), 805–816.
- Astin J. (1998). Why patients use alternative medicines: results of national study. *J. Am. Med. Assoc.* 279 1548–1553 10.1001/jama.279.19.1548 [PubMed] [Cross Ref]
- Auerbach, B. J., Reynolds, S. J., Lamorde, M., Merry, C., Kukunda-Byobona, C., Ocama, P., ... Rakai Health Sciences Program. (2012). Traditional Herbal Medicine Use Associated with Liver Fibrosis in Rural Rakai, Uganda. *PLoS ONE*, 7(11), e41737. <http://doi.org/10.1371/journal.pone.0041737>
- Awad, A. & Al-Shaye, D. (2014). Public awareness, patterns of use and attitudes toward natural health products in Kuwait: a cross-sectional survey. doi: 10.1186/1472-6882-14-105. [PubMed]
- Awortwe, C., Bouic, P. J., Masimirembwa, C. M., & Rosenkranz, B. (2014). Inhibition of Major Drug Metabolizing CYPs by Common Herbal Medicines used by HIV/AIDS Patients in Africa– Implications for Herb-Drug Interactions. *Drug Metabolism Letters*, 7(2), 83–95.
- Axe, D. (2017). Food is Medicine. The diet of medicinal food science. Retrieved from; Food is Medicine: <https://www.draxe.com>
- Axe, D. (2017). Health and Fitness News. Retrieved from; Natural Remedies: <https://www.draxe.com>
- Bałań, B. J., Niemcewicz, M., Kocik, J., Jung, L., Skopińska-Różewska, E., & Skopiński, P. (2014). Oral administration of Aloe vera gel, anti-microbial and anti-inflammatory herbal remedy, stimulates cell-mediated immunity and

- antibody production in a mouse model. *Central-European Journal of Immunology*, 39(2), 125–130. <http://doi.org/10.5114/ceji.2014.43711>
- Balogun, F. O., Tshabalala, N. T., & Ashafa, A. O. T. (2016). Antidiabetic Medicinal Plants Used by the Basotho Tribe of Eastern Free State: A Review. *Journal of Diabetes Research*, 2016, 4602820. <http://doi.org/10.1155/2016/4602820>
- Bisi-Johnson, M. A., Obi, C. L., Hattori, T., Oshima, Y., Li, S., Kambizi, L., ... Vasaikar, S. D. (2011). Evaluation of the antibacterial and anticancer activities of some South African medicinal plants. *BMC Complementary and Alternative Medicine*, 11, 14. <http://doi.org/10.1186/1472-6882-11-14>
- Boateng, L., Ansong, R., Owusu, W. B., & Steiner-Asiedu, M. (2016). Coconut oil and palm oil's role in nutrition, health and national development: A review. *Ghana Medical Journal*, 50(3), 189–196.
- Boddupalli, S., Mein, J. R., Lakkanna, S., & James, D. R. (2012). Induction of Phase 2 Antioxidant Enzymes by Broccoli Sulforaphane: Perspectives in Maintaining the Antioxidant Activity of Vitamins A, C, and E. *Frontiers in Genetics*, 3, 7. <http://doi.org/10.3389/fgene.2012.00007>
- Bodeker C., Bodeker G., Ong C. K., Grundy C. K., Burford G., Shein K. (2005). *WHO Global Atlas of Traditional, Complementary and Alternative Medicine*. Geneva, Switzerland: World Health Organization
- Bodeker, G., & Kronenberg, F. (2002). A Public Health Agenda for Traditional, Complementary, and Alternative Medicine. *American Journal of Public Health*, 92(10), 1582–1591.
- Bussmann, R. W. (2013). The Globalization of Traditional Medicine in Northern Peru: From Shamanism to Molecules. *Evidence-Based Complementary and*

Alternative Medicine: eCAM, 2013, 291903.

<http://doi.org/10.1155/2013/291903>

Bussmann, R. W., Gilbreath, G. G., Solio, J., Lutura, M., Lutuluo, R., Kunguru, K., ... Mathenge, S. G. (2006). Plant use of the Maasai of Sekenani Valley, Maasai Mara, Kenya. *Journal of Ethnobiology and Ethnomedicine*, 2, 22. <http://doi.org/10.1186/1746-4269-2-22>

Chang, T. K. H. (2009). Activation of Pregnane X Receptor (PXR) and Constitutive Androstane Receptor (CAR) by Herbal Medicines. *The AAPS Journal*, 11(3), 590. <http://doi.org/10.1208/s12248-009-9135-y>

Chemweno, B. (2015, March 18). *Standard Media*. Retrieved from Standard Media: <https://www.standardmedia.co.ke/lifestyle/article/2000155137/crushed-herbs-that-bring-back-lives-in-border-town>

Chitindingu, E., George, G. & Gow, J. (2014). A review of the integration of traditional, complementary and alternative medicine into the curriculum of South African medical schools. *BMC Med Educ* (2014) 14: 40. DOI <https://doi.org/10.1186/1472-6920-14-40>

Crossman, Ashley. "Understanding Purposive Sampling." ThoughtCo, Aug. 27, 2020, [thoughtco.com/purposive-sampling-3026727](https://www.thoughtco.com/purposive-sampling-3026727).

Dantas Silva, R. P., Machado, B. A. S., Barreto, G. de A., Costa, S. S., Andrade, L. N., Amaral, R. G., ... Umsza-Guez, M. A. (2017). Antioxidant, antimicrobial, antiparasitic, and cytotoxic properties of various Brazilian propolis extracts. *PLoS ONE*, 12(3), e0172585. <http://doi.org/10.1371/journal.pone.0172585>

Dastmalchi, K., Wang, I., & Stark, R. E. (2016). Potato Wound-Healing Tissues: A Rich Source of Natural Antioxidant Molecules with Potential for Food

Preservation. *Food Chemistry*, 210, 473–480.

<http://doi.org/10.1016/j.foodchem.2016.04.123>

Davids, D., Blouws, T., Aboyade, O., Gibson, D., De Jong, J. T., Van'tKlooster, C., & Hughes, G. (2014). Traditional health practitioners' perceptions, herbal treatment and management of HIV and related opportunistic infections. *Journal of Ethnobiology and Ethnomedicine*, 10, 77.

<http://doi.org/10.1186/1746-4269-10-77>

Duke, J. A. (2007). *Duke's Handbook of Medicinal Plants of the Bible*. CRC Press.

<https://books.google.co.ke/books?id=UcLYLpwc8C>

Ebifa-Othieno, E., Mugisha, A., Nyeko, P., & Kabasa, J. D. (2017). Knowledge, attitudes and practices in tamarind (*Tamarindus indica* L) use and conservation in Eastern Uganda. *Journal of Ethnobiology and Ethnomedicine*, 13, 5.

<http://doi.org/10.1186/s13002-016-0133-8>

Eitsuka, T., Tatewaki, N., Nishida, H., Nakagawa, K., & Miyazawa, T. (2016).

Synergistic Anticancer Effect of Tocotrienol Combined with Chemotherapeutic Agents or Dietary Components: A Review. *International Journal of Molecular Sciences*, 17(10), 1605.

<http://doi.org/10.3390/ijms17101605>

Ekor, M. (2013). The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety. *Frontiers in Pharmacology*, 4, 177. <http://doi.org/10.3389/fphar.2013.00177>

Eliana FO, Paulo CS, Milton CC (2007). Stability of anthocyanin in spinach vine (*Basella rubra*) fruits, *Cien. Inv. Agr.* 34(2):115-120.

- Eteraf-Oskouei, T., & Najafi, M. (2013). Traditional and Modern Uses of Natural Honey in Human Diseases: A Review. *Iranian Journal of Basic Medical Sciences*, 16(6), 731–742.
- Famewo, E. B., Clarke, A. M., Wiid, I., Ngwane, A., van Helden, P., & Afolayan, A. J. (2017). Anti-mycobacterium tuberculosis activity of polyherbal medicines used for the treatment of tuberculosis in Eastern Cape, South Africa. *African Health Sciences*, 17(3), 780–789. <http://doi.org/10.4314/ahs.v17i3.21>
- Feikin, D. R., Olack, B., Bigogo, G. M., Audi, A., Cosmas L, et al. (2011) The burden of common infectious disease syndromes at the clinic and household level from population-based surveillance in rural and urban Kenya. *Plos One* 18 6(1): e16085.
- Flynn, M. M. (2017). Food id Medicine. Retrieved from; Food is Medicine: <http://www.medfooddiet.com>
- Fouladbakhsh, J. M., Balneaves, L., & Jenuwine, E. (2013). Understanding CAM Natural Health Products: Implications of Use among Cancer Patients and Survivors. *Journal of the Advanced Practitioner in Oncology*, 4(5), 289–306.
- Gaunt, Richard, "Herbs, Home Medicine, and Self-Reliance: A Study on the Current Status of Traditional Home Medicine in Idukki District, Kerala" (2015). Independent Study Project (ISP) Collection. 2078. http://digitalcollections.sit.edu/isp_collection/2078
- Ghosh, S., Derle, A., Ahire, M., More, P., Jagtap, S., Phadatare, S. D., ... Chopade, B. A. (2013). Phytochemical Analysis and Free Radical Scavenging Activity of Medicinal Plants *Gnidiaglauca* and *Dioscorea bulbifera*. *PLoS ONE*, 8(12), e82529. <http://doi.org/10.1371/journal.pone.0082529>

- Gureje, O., Nortje, G., Makanjuola, V., Oladeji, B., Seedat, S., & Jenkins, R. (2015). The role of global traditional and complementary systems of medicine in treating mental health problems. *The Lancet. Psychiatry*, 2(2), 168–177. [http://doi.org/10.1016/S2215-0366\(15\)00013-9](http://doi.org/10.1016/S2215-0366(15)00013-9)
- Gwaza, L., Aweeka, F., Greenblatt, R., Lizak, P., Huang, L., & Guglielmo, B. J. (2013). Co-administration of a commonly used Zimbabwean herbal treatment (African potato) does not alter the pharmacokinetics of lopinavir/ritonavir. *International Journal of Infectious Diseases : IJID : Official Publication of the International Society for Infectious Diseases*, 17(10), e857–e861. <http://doi.org/10.1016/j.ijid.2013.02.017>
- Hamidpour, R., Hamidpour, M., Hamidpour, S., & Shahlari, M. (2015). Cinnamon from the selection of traditional applications to its novel effects on the inhibition of angiogenesis in cancer cells and prevention of Alzheimer's disease, and a series of functions such as antioxidant, anticholesterol, antidiabetic, antibacterial, antifungal, nematocidal, acaracidal, and repellent activities. *Journal of Traditional and Complementary Medicine*, 5(2), 66–70. <http://doi.org/10.1016/j.jtcme.2014.11.008>
- Hayat, S., Cheng, Z., Ahmad, H., Ali, M., Chen, X., & Wang, M. (2016). Garlic, from Remedy to Stimulant: Evaluation of Antifungal Potential Reveals Diversity in Phytoalexin Allicin Content among Garlic Cultivars; Allicin Containing Aqueous Garlic Extracts Trigger Antioxidants in Cucumber. *Frontiers in Plant Science*, 7, 1235. <http://doi.org/10.3389/fpls.2016.01235>
- Hilala, M. & Hilalb, S. (2017). Knowledge, attitude, and utilization of herbal medicines by physicians in the Kingdom of Bahrain: A cross-sectional study. *Journal of the Association of Arab Universities for Basic and Applied*

Sciences. Volume 24, October 2017, Pages 325-333

<https://doi.org/10.1016/j.jaubas.2016.11.001>

Howell, A. B., & D'Souza, D. H. (2013). The Pomegranate: Effects on Bacteria and Viruses That Influence Human Health. *Evidence-Based Complementary and Alternative Medicine :eCAM*, 2013, 606212.

<http://doi.org/10.1155/2013/606212>

<https://www.latlong.net/place/narok-nairobi-kenya-24422.html>

<http://www.who.int/traditional-complementary-integrative-medicine/about/en/>

<https://draxe.com/herbal-medicine/>

<https://www.narok.go.ke>

<https://scidev.net/global/medicine/feature/traditional-medicine-modern-times-facts-figures.html>

Hughes, G. (2015). Why alternative medicine should be integrated into conventional health care. Retrieved from; <http://theconversation.com/why-alternative-medicine-should-be-integrated-into-conventional-health-care-45727>

J. Afolayan, A., & O. Sunmonu, T. (2010). In vivo Studies on Antidiabetic Plants Used in South African Herbal Medicine. *Journal of Clinical Biochemistry and Nutrition*, 47(2), 98–106. <http://doi.org/10.3164/jcfn.09-126R>

Jabbari, A., Argani, H., Ghorbanihaghjo, A., &Mahdavi, R. (2005). Comparison between swallowing and chewing of garlic on levels of serum lipids, cyclosporine, creatinine and lipid peroxidation in Renal Transplant Recipients. *Lipids in Health and Disease*, 4, 11. <http://doi.org/10.1186/1476-511X-4-11>

Kareru, P. G., Kenji, G. M., Gachanja, A. N., Keriko, J. M., &Mungai, G. (2007). Traditional Medicines Among the Embu and Mbeere Peoples of Kenya.

- African Journal of Traditional, Complementary, and Alternative Medicines*, 4(1), 75–86.
- Kazazis, C. E., Evangelopoulos, A. A., Kollas, A., & Vallianou, N. G. (2014). The Therapeutic Potential of Milk Thistle in Diabetes. *The Review of Diabetic Studies: RDS*, 11(2), 167–174. <http://doi.org/10.1900/RDS.2014.11.167>
- Khan, S. U., Anjum, S. I., Rahman, K., Ansari, M. J., Khan, W. U., Kamal, S., ... Khan, H. U. (2018). Honey: Single food stuff comprises many drugs. *Saudi Journal of Biological Sciences*, 25(2), 320–325. <http://doi.org/10.1016/j.sjbs.2017.08.004>
- Khodaie, L., & Sadeghpour, O. (2015). Ginger from Ancient Times to the New Outlook. *Jundishapur Journal of Natural Pharmaceutical Products*, 10(1), e18402.
- Kipkore, W., Wanjohi, B., Rono, H., & Kigen, G. (2014). A study of the medicinal plants used by the Marakwet Community in Kenya. *Journal of Ethnobiology and Ethnomedicine*, 10, 24. <http://doi.org/10.1186/1746-4269-10-24>
- Kitonde, C. K., Fidahusein, D. S., Lukhoba, C. W., & Jumba, M. M. (2013). Antimicrobial Activity and Phytochemical Study of Vernonia Glabra (Steetz) Oliv. & Hiern. in Kenya. *African Journal of Traditional, Complementary, and Alternative Medicines*, 10(1), 149–157.
- Kunwar, R. M., Shrestha, K. P., & Bussmann, R. W. (2010). Traditional herbal medicine in Far-west Nepal: a pharmacological appraisal. *Journal of Ethnobiology and Ethnomedicine*, 6, 35. <http://doi.org/10.1186/1746-4269-6-35>
- Kunwar, R. M., Shrestha, K. P., & Bussmann, R. W. (2010). Traditional herbal medicine in Far-west Nepal: a pharmacological appraisal. *Journal of*

Ethnobiology and Ethnomedicine, 6, 35. <http://doi.org/10.1186/1746-4269-6-35>

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods* (Vols. 1-0).

Thousand Oaks, CA: Sage Publications, Inc. doi: 10.4135/9781412963947

Lawal, I. O., Grierson, D. S., & Afolayan, A. J. (2014). Phytotherapeutic Information on Plants Used for the Treatment of Tuberculosis in Eastern Cape Province, South Africa. *Evidence-Based Complementary and Alternative Medicine: eCAM*, 2014, 735423. <http://doi.org/10.1155/2014/735423>

Leone, A., Spada, A., Battezzati, A., Schiraldi, A., Aristil, J., & Bertoli, S. (2015).

Cultivation, Genetic, Ethnopharmacology, Phytochemistry and Pharmacology of *Moringa oleifera* Leaves: An Overview. *International Journal of Molecular Sciences*, 16(6), 12791–12835. <http://doi.org/10.3390/ijms160612791>

Li, G., Ma, X., Deng, L., Zhao, X., Wei, Y., Gao, Z., ... Sun, C. (2015). Fresh Garlic Extract Enhances the Antimicrobial Activities of Antibiotics on Resistant Strains in Vitro. *Jundishapur Journal of Microbiology*, 8(5), e14814. <http://doi.org/10.5812/jjm.14814>

Lu, J., Carter, D. A., Turnbull, L., Rosendale, D., Hedderley, D., Stephens, J., ...

Harry, E. J. (2013). The Effect of New Zealand Kanuka, Manuka and Clover Honeys on Bacterial Growth Dynamics and Cellular Morphology Varies According to the Species. *PLoS ONE*, 8(2), e55898. <http://doi.org/10.1371/journal.pone.0055898>

Lyu, M., Wang, Y., Fan, G., Wang, X., Xu, S., & Zhu, Y. (2017). Balancing Herbal Medicine and Functional Food for Prevention and Treatment of Cardiometabolic Diseases through Modulating Gut Microbiota. *Frontiers in Microbiology*, 8, 2146. <http://doi.org/10.3389/fmicb.2017.02146>

- Mahomoodally, M. F. (2013). Traditional Medicines in Africa: An Appraisal of Ten Potent African Medicinal Plants. *Evidence-Based Complementary and Alternative Medicine: eCAM*, 2013, 617459.
<http://doi.org/10.1155/2013/617459>
- Maroyi, A. (2013). Traditional use of medicinal plants in south-central Zimbabwe: review and perspectives. *Journal of Ethnobiology and Ethnomedicine*, 9, 31.
<http://doi.org/10.1186/1746-4269-9-31>
- Maroyi, A. (2017). Diversity of use and local knowledge of wild and cultivated plants in the Eastern Cape province, South Africa. *Journal of Ethnobiology and Ethnomedicine*, 13, 43. <http://doi.org/10.1186/s13002-017-0173-8>
- Meneses, M. E., Martínez-Carrera, D., Torres, N., Sánchez-Tapia, M., Aguilar-López, M., Morales, P., ... Tovar, A. R. (2016). Hypocholesterolemic Properties and Prebiotic Effects of Mexican *Ganoderma lucidum* in C57BL/6 Mice. *PLoS ONE*, 11(7), e0159631. <http://doi.org/10.1371/journal.pone.0159631>
- Meragiaw, M., Asfaw, Z., & Argaw, M. (2016). The Status of Ethnobotanical Knowledge of Medicinal Plants and the Impacts of Resettlement in Delanta, Northwestern Wollo, Northern Ethiopia. *Evidence-Based Complementary and Alternative Medicine: eCAM*, 2016, 5060247.
<http://doi.org/10.1155/2016/5060247>
- Miguel, M., Antunes, M., & Faleiro, M. (2017). Honey as a Complementary Medicine. *Integrative Medicine Insights*, 12, 1178633717702869.
<http://doi.org/10.1177/1178633717702869>
- Mills, E., Cooper, C., Seely, D., & Kanfer, I. (2005). African herbal medicines in the treatment of HIV: Hypoxis and Sutherlandia. An overview of evidence and

pharmacology. *Nutrition Journal*, 4, 19. <http://doi.org/10.1186/1475-2891-4-19>

Molly Meri Robinson and Xiaorui Zhang The world medicines situation 2011 (WHO, 2011)

Mugomeri, E., Chatanga, P., &Chakane, N. (2016). MEDICINAL HERBS USED BY HIV-POSITIVE PEOPLE IN LESOTHO. *African Journal of Traditional, Complementary, and Alternative Medicines*, 13(4), 123–131. <http://doi.org/10.21010/ajtcam.v13i4.17>

Mukungu, N., Abuga, K., Okalebo, F., Ingwela, R., &Mwangi, J. (2016). Medicinal plants used for management of malaria among the Luhya community of Kakamega East sub-County, Kenya. *Journal of Ethnopharmacology*, 194, 98–107. <http://doi.org/10.1016/j.jep.2016.08.050>

Mweu E, English M (2008) *Typhoid fever in children in Africa*. *Trop Med Int Health* 13: 532–540.

Nadeem, M., & Imran, M. (2016). Promising features of Moringaoleifera oil: recent updates and perspectives. *Lipids in Health and Disease*, 15, 212. <http://doi.org/10.1186/s12944-016-0379-0>

Nagata, J. M., Jew, A. R., Kimeu, J. M., Salmen, C. R., Bukusi, E. A., & Cohen, C. R. (2011). Medical pluralism on Mfangano Island: Use of medicinal plants among persons living with HIV/AIDS in Suba District, Kenya. *Journal of Ethnopharmacology*, 135(2), 501–509. <http://doi.org/10.1016/j.jep.2011.03.051>

Nightingale, S. L. (1984). Laetrile: the regulatory challenge of an unproven remedy. *Public Health Reports*, 99(4), 333–338.

- Njeru, S. N., Obonyo, M. A., Nyambati, S. O., & Ngari, S. M. (2015). Antimicrobial and cytotoxicity properties of the crude extracts and fractions of *Premnaresinosa* (Hochst.) Schauer (Compositae): Kenyan traditional medicinal plant. *BMC Complementary and Alternative Medicine*, 15, 295. <http://doi.org/10.1186/s12906-015-0811-4>
- Njeru, S. N., Obonyo, M., Nyambati, S., Ngari, S., Mwakubambanya, R., & Mavura, H. (2016). Antimicrobial and cytotoxicity properties of the organic solvent fractions of *Clerodendrum myricoides* (Hochst.) R. Br. ex Vatke: Kenyan traditional medicinal plant. *Journal of Intercultural Ethnopharmacology*, 5(3), 226–232. <http://doi.org/10.5455/jice.20160416122003>
- Njoroge, G. N., Kaibui, I. M., Njenga, P. K., & Odhiambo, P. O. (2010). Utilisation of priority traditional medicinal plants and local people's knowledge on their conservation status in arid lands of Kenya (Mwingi District). *Journal of Ethnobiology and Ethnomedicine*, 6, 22. <http://doi.org/10.1186/1746-4269-6-22>
- Oshikoya, K. A., Oreagba, I. A., Ogunleye, O. O., Oluwa, R., Senbanjo, I. O., & Olayemi, S. O. (2013). Herbal medicines supplied by community pharmacies in Lagos, Nigeria: pharmacists' knowledge. *Pharmacy Practice*, 11(4), 219–227.
- Pan, L.-L., Li, J., Shamon, M., Bhatia, M., & Sun, J. (2017). Recent Advances on Nutrition in Treatment of Acute Pancreatitis. *Frontiers in Immunology*, 8, 762. <http://doi.org/10.3389/fimmu.2017.00762>
- Parisius, L. M., Stock-Schröer, B., Berger, S., Hermann, K., & Joos, S. (2014). Use of home remedies: a cross-sectional survey of patients in Germany. *BMC Fam Pract.* 2014 Jun 11; 15:116. doi: 10.1186/1471-2296-15-116.

- Pedrazzoli, D., Houben, R. M., Grede, N., de Pee, S., & Boccia, D. (2016). Food assistance to tuberculosis patients: lessons from Afghanistan. *Public Health Action*, 6(2), 147–153. <http://doi.org/10.5588/pha.15.0076>
- Peltzer, K., Preez, N. F., Ramlagan, S., Fomundam, H., Anderson, J., & Chanetsa, L. (2011). Antiretrovirals and the Use of Traditional, Complementary and Alternative Medicine by HIV Patients in Kwazulu-Natal, South Africa: A Longitudinal Study. *African Journal of Traditional, Complementary, and Alternative Medicines*, 8(4), 337–345.
- Pithava A. & Pithava A. (2016). Current Prospects of Herbal Medicines in the World. *Journal of Pharmacognosy and Phytochemistry*. Retrieved from; <http://www.rroij.com/open-access/current-prospects-of-herbal-medicines-in-the-world-.php?aid=84202>
- Qinna, N. A., Kamona, B. S., Alhussainy, T. M., Taha, H., Badwan, A. A., & Matalaka, K. Z. (2012). Effects of Prickly Pear Dried Leaves, Artichoke Leaves, Turmeric and Garlic Extracts, and Their Combinations on Preventing Dyslipidemia in Rats. *ISRN Pharmacology*, 2012, 167979. <http://doi.org/10.5402/2012/167979>
- Rivera J. O., Loya AM, Ceballos R (2013) Use of Herbal Medicines and Implications for Conventional Drug Therapy Medical Sciences. *Altern Integr Med* 2:130. doi: 10.4172/2327-5162.1000130
- Sahreen, S., Khan, M. R., & Khan, R. A. (2017). Evaluation of antioxidant profile of various solvent extracts of *Carissa opaca* leaves: an edible plant. *Chemistry Central Journal*, 11, 83. <http://doi.org/10.1186/s13065-017-0300-6>
- Semenya, S. S., & Maroyi, A. (2013). Medicinal Plants Used for the Treatment of Tuberculosis by Bapedi Traditional Healers in Three Districts of the Limpopo

- Province, South Africa. *African Journal of Traditional, Complementary, and Alternative Medicines*, 10(2), 316–323.
- Semenya, S., Maroyi, A., Potgieter, M., & Erasmus, L. (2013). Herbal Medicines Used by Bapedi Traditional Healers to Treat Reproductive Ailments in the Limpopo Province, South Africa. *African Journal of Traditional, Complementary, and Alternative Medicines*, 10(2), 331–339.
- Sewani-Rusike, C. R., & Mammen, M. (2014). Medicinal Plants Used as Home Remedies: A Family Survey by First Year Medical Students. *African Journal of Traditional, Complementary, and Alternative Medicines*, 11(5), 67–72.
- Singer, J. & Adams, J. (2014). Integrating complementary and alternative medicine into mainstream healthcare services: the perspectives of health service managers. *BMC Complementary and Alternative Medicine. The official journal of the International Society for Complementary Medicine Research (ISCMR)* 201414:167 <https://doi.org/10.1186/1472-6882-14-167>
- Smith, M., Pharm, B. Burton, A. & Falkenberg, T. (2014). World Health Organization Traditional Medicine Strategy 2014-2023: New strategy for traditional and complementary medicine includes the development and use of herbal medicinal preparations. Retrieved from; <http://cms.herbalgram.org/heg/volume11/05May/WHOtraditionalmedicineStrategy.html?t=1399499923&ts=1520417441&signature=9a4ce2fd412044c95e8f2fbda4e93dce>
- Stark, T. D., Mtui, D. J., & Balemba, O. B. (2013). Ethnopharmacological Survey of Plants Used in the Traditional Treatment of Gastrointestinal Pain, Inflammation and Diarrhea in Africa: Future Perspectives for Integration into

- Modern Medicine. *Animals: An Open Access Journal from MDPI*, 3(1), 158–227. <http://doi.org/10.3390/ani3010158>
- Stark, T. D., Mtui, D. J., & Balemba, O. B. (2013). Ethnopharmacological Survey of Plants Used in the Traditional Treatment of Gastrointestinal Pain, Inflammation and Diarrhea in Africa: Future Perspectives for Integration into Modern Medicine. *Animals: An Open Access Journal from MDPI*, 3(1), 158–227. <http://doi.org/10.3390/ani3010158>
- Stephanie Glen. "Purposive Sampling (Deliberate Sampling)" From StatisticsHowTo.com: Elementary Statistics for the rest of us! <https://www.statisticshowto.com/purposive-sampling/>
- Tadesse, E., Engidawork, E., Nedi, T., & Mengistu, G. (2017). Evaluation of the anti-diarrheal activity of the aqueous stem extract of *Lantana camara* Linn (Verbenaceae) in mice. *BMC Complementary and Alternative Medicine*, 17, 190. <http://doi.org/10.1186/s12906-017-1696-1>
- TalkmoreNgarivhume and others Medicinal plants used by traditional healers for the treatment of malaria in the Chipinge district in Zimbabwe (*Journal of Ethnopharmacology*, 2015)
- Thomford, N. E., Dzobo, K., Chopera, D., Wonkam, A., Skelton, M., Blackhurst, D., ... Dandara, C. (2015). Pharmacogenomics Implications of Using Herbal Medicinal Plants on African Populations in Health Transition. *Pharmaceuticals*, 8(3), 637–663. <http://doi.org/10.3390/ph8030637>
- Totelin, L. (2015). When foods become remedies in ancient Greece: The curious case of garlic and other substances. *Journal of Ethnopharmacology*, 167, 30–37. <http://doi.org/10.1016/j.jep.2014.08.018>

- True, J. (2017). Natural Remedy Activated Charcoal. *Holistic Health*. May 01, 2017
<https://healthfreedomidaho.org/natural-remedy-activated-charcoal>
- Trumbeckaite, S., Dauksiene, J., Bernatoniene, J. & Janulis, V. (2015). Knowledge, Attitudes, and Usage of Apitherapy for Disease Prevention and Treatment among Undergraduate Pharmacy Students in Lithuania. *Evid Based Complement Alternat Med*. 2015; 2015:172502. doi: 10.1155/2015/172502. Epub 2015 Nov 30.
- Tuasha, N., Petros, B., & Asfaw, Z. (2018). Medicinal plants used by traditional healers to treat malignancies and other human ailments in Dalle District, Sidama Zone, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 14, 15.
<http://doi.org/10.1186/s13002-018-0213-z>
- Van den Heever, E. and Venter, S.L. (2007). NUTRITIONAL AND MEDICINAL PROPERTIES OF *CLEOME GYNANDRA*. *Acta Horti*. 752, 127-130
 DOI: 10.17660/ActaHortic.2007.752.17
<https://doi.org/10.17660/ActaHortic.2007.752.17>
- W.H.O (2017). World Health Organisation. Retrieved from:
www.who.int/mediacentre/factsheets
- Walldorf JA, Date KA, Sreenivasan N, Harris JB, Hyde TB. *Lessons learned from emergency response vaccination efforts for cholera, typhoid, yellow fever, and Ebola*. *Emerg Infect Dis*. 2017;23(Suppl 1):S210.
- Waltenberger, B., Mocan, A., Šmejkal, K., Heiss, E. H., & Atanasov, A. G. (2016). Natural Products to Counteract the Epidemic of Cardiovascular and Metabolic Disorders. *Molecules (Basel, Switzerland)*, 21(6), 10.3390/molecules21060807 E807. <http://doi.org/10.3390/molecules21060807>

- WHO (2014). Traditional, complementary and integrative medicine. Retrieved from;
http://www.who.int/traditional-complementary-integrative-medicine/publications/trm_strategy14_23/en/
- WHO 2017
- WHO traditional medicine strategy 2014-2023. (WHO, 2013)
- Wilson, D. W., Nash, P., Buttar, H. S., Griffiths, K., Singh, R., De Meester, F., ...
Takahashi, T. (2017). The Role of Food Antioxidants, Benefits of Functional Foods, and Influence of Feeding Habits on the Health of the Older Person: An Overview. *Antioxidants*, 6(4), 81. <http://doi.org/10.3390/antiox6040081>
- Xiong, F., & Guan, Y.-S. (2017). Cautiously using natural medicine to treat liver problems. *World Journal of Gastroenterology*, 23(19), 3388–3395.
<http://doi.org/10.3748/wjg.v23.i19.3388>
- Zhang AL, ChangliXue C, Fong HHS. Integration of Herbal Medicine into Evidence-Based Clinical Practice: Current Status and Issues. In: Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine: Biomolecular and Clinical Aspects*. 2nd edition. Boca Raton (FL): CRC Press/Taylor & Francis; 2011. Chapter 22.
Available from: <https://www.ncbi.nlm.nih.gov/books/NBK92760/>
- Zhang, X. (2000). Integration of traditional and complementary medicine into national health care systems. *Journal of Manipulative & Physiological Therapeutics*, Volume 23, Issue 2, 139 – 140. [https://doi.org/10.1016/S0161-4754\(00\)90085-X](https://doi.org/10.1016/S0161-4754(00)90085-X)
- Zheng, J., Zhou, Y., Li, Y., Xu, D.-P., Li, S., & Li, H.-B. (2016). Spices for Prevention and Treatment of Cancers. *Nutrients*, 8(8), 495.
<http://doi.org/10.3390/nu8080495>

Zibaenezhad, M. J., Farhadi, P., Attar, A., Mosleh, A., Amirmoezi, F., & Azimi, A.

(2017). Effects of walnut oil on lipid profiles in hyperlipidemic type 2 diabetic patients: a randomized, double-blind, placebo-controlled trial. *Nutrition & Diabetes*, 7(4), e259–. <http://doi.org/10.1038/nutd.2017.8>

APPENDICES

Appendix I: Questionnaire

INFORMATION AND CONSENT FORM

Dear respondent

I, **Henry Nyabuto Gori**, a Master of Public Health student at the University of Eastern Africa, Baraton, Department of Public Health is conducting a research with the purpose of; **Investigating Knowledge, attitude, and Utilization of Natural Remedies to Cure Infectious Diseases Among Residents of Narok Town, Kenya.**

You have been selected as a respondent in this study where you will play an important role. I request you to spare 20-30 minutes of your time and fill the questionnaire that is provided alongside this consent. Participation in this study is voluntary and withdrawal is also at will. This is therefore to request you to respond suitably to the questions given below. Express your views freely without fear or favour. Please note that the information you will give will be confidential and will be used for this study only. In case of any clarification, please feel free to ask.

PARTICIPANT

I have read and understood what this study is about and I therefore voluntarily consent to participate:

Participant's Signature----- Date -----

Investigator, I have explained this study to the above subject and have sought his/her understanding for informed consent.

Investigator's Signature----- Date-----

Henry Nyabuto Gori

Department of Public Health, University of Eastern Africa, Baraton.

Questionnaire for the Respondents

Kindly fill the questionnaire. Please don't put your name anywhere on the questionnaire. This information will be treated with confidentiality. Indicate response by ticking (✓) appropriately in the box

Section A: Demographic data

1. Year of birth_____
2. Gender MaleFemale
3. Marital status
 Single Married-Monogamy Married-Polygamy
 Widow (er) Separated/divorced
4. What is your religious affiliation?
 Roman Catholic Anglican SDA Pentecostal
 Muslim Other_____
5. The number of people in your family_____
6. What is your ethnicity?
Maasai Kikuyu Kisii Luo Kalenjin
 Others (Specify)_____
7. What is your education level?
 No education Primary Secondary Tertiary (College/university)
8. What is your occupation?
 Unemployed Technician/professional/managerial Clerical duties
 Sales person Farming Household/domestic worker Skilled labour
Unskilled labour Other (specify)_____
9. Do you consume alcohol? No Yes
10. Do you smoke cigarettes? No Yes

Section B. Knowledge on natural remedies

11. Which natural remedies do you know?

- | | | |
|-------------------------|-----------------------------|------------------------------|
| a. Garlic | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| b. Ginger | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| c. Honey | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| d. Rosemary | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| e. Onion | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| f. Cabbage | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| g. Onion | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| h. Tumeric& Curcumin | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| i. Aloe Vera | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| j. Wheat grass | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| k. Cayenne pepper | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| l. Cloves | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| m. Moringa leaves | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| n. Blackjack | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| o. Fleabane | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| p. Other (Specify_____) | <input type="checkbox"/> No | <input type="checkbox"/> Yes |

12. Which of the following natural remedies have you ever used for preventing/healing infectious diseases (Malaria, Typhoid, TB, Cholera, Trachoma,

- | | | |
|-------------|-----------------------------|------------------------------|
| a. Garlic | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| b. Ginger | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| c. Honey | <input type="checkbox"/> No | <input type="checkbox"/> Yes |
| d. Rosemary | <input type="checkbox"/> No | <input type="checkbox"/> Yes |

- e. Onion No Yes
- f. Cabbage Juice No Yes
- g. Carrot juice No Yes
- h. Tumeric& Curcumin No Yes
- i. Aloe Vera No Yes
- j. Wheat grass No Yes
- k. Cayenne pepper No Yes
- l. Cloves No Yes
- m. Moringa leaves No Yes
- n. Blackjack No Yes
- o. Fleabane/ Horseweed No Yes
- p. Other (Specify_____) No Yes

13. If any of the Q 11 is yes, what are the main sources of your natural remedies?

- a. Market/shop No Yes
- b. Herbalist No Yes
- c. Growing in the farm No Yes
- d. Herbal clinics No Yes
- e. Family/relative/friend No Yes

14. Which disease have you commonly used the natural remedies?

- a. Malaria No Yes
- b. Typhoid No Yes
- c. Cholera No Yes
- d. Tuberculosis No Yes
- e. Trachoma No Yes
- f. Trachoma No Yes

15. What was the outcome after using natural remedies?

- a. No change No Yes
- b. Healed No Yes
- c. Improved No Yes
- d. Worsened No Yes

16. When was the last time you used natural remedies?

- 1 day ago 1 week ago 2 weeks ago
- 1 month ago several months ago

17. Natural remedies have side effects if not used well? No Yes

18. Natural remedies are more effective and safer than hospital drugs?

- No Yes

19. Health education about the risks and benefits of natural remedies is important?

- No Yes

20. Do you use both the natural remedies and hospital drugs at the same time?

- No Yes

Section C: Attitude towards use of natural remedies

21. Do you have plans to use natural remedies in the future? No Yes

22. If Q17 is NO, why don't you want to use?

- a. Fear of side effects No Yes
- b. Lack of adequate knowledge No Yes
- c. Religion No Yes
- d. Culture No Yes
- e. Other (specify)_____ No Yes

23. Would you encourage others to use natural remedies? No Yes

24. Natural remedies are cheaper and affordable? No Yes
25. Natural remedies can cure infectious diseases? No Yes
26. Natural remedies can prevent infectious diseases? No Yes

Appendix II: Clearance letter from UEAB



OFFICE OF THE DIRECTOR OF GRADUATE STUDIES AND RESEARCH

UNIVERSITY OF EASTERN AFRICA, BARATON

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

B332019

March 12, 2019

Henry Nyabuto Gori
Department of Public Health
University of Eastern Africa Baraton

Dear Henry,

Re: ETHICS CLEARANCE FOR THESIS PROPOSAL (REC: UEAB/03/03/2019)

Your master thesis proposal entitled *Knowledge, Attitude, and Utilization of Natural Remedies to Cure Infectious Diseases among Narok Residents, Narok County* 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 March 12, 2019 until March 11, 2020. 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 research permit from the National Commission for Science, Technology, and Innovation (NACOSTI) and clearance from the study site before you start gathering your data.

We wish you success in your research.

Sincerely yours,

Prof Jackie K. Obey, PhD
Chairperson, Research Ethics Committee



Appendix III: Permit for Data Collection (NACOSTI)



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/19/39517/28910**

Date: **3rd April 2019**

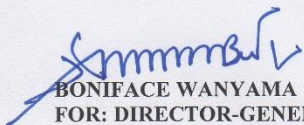
Henry Nyabuto Gori
University of Eastern Africa Baraton,
P.O. Box 2500-30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Knowledge, attitude, and utilization of natural remedies to cure infectious diseases among Narok residents, Narok County.*" I am pleased to inform you that you have been authorized to undertake research in **Narok County** for the period ending **1st April, 2020.**

You are advised to report to **the County Commissioner and the County Director of Education, Narok County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Narok County.

The County Director of Education
Narok County.

National Commission for Science, Technology and Innovation is ISO9001:2008 Certified

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014.



REPUBLIC OF KENYA



National Commission for Science, Technology and Innovation

RESEARCH LICENSE

Serial No.A 23837

CONDITIONS

1. The License is valid for the proposed research, location and specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020 400 7000, 0713 788787, 0735 404245
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:

MR. HENRY NYABUTO GORI
of UNIVERSITY OF EASTERN AFRICA,
BARATON, 2500-30100 ELDORET, has
been permitted to conduct research in
Narok County

Permit No : NACOSTI/P/19/39517/28910
Date Of Issue : 3rd April,2019
Fee Received :Ksh 1000

on the topic:
KNOWLEDGE,ATTITUDE,AND
UTILIZATION OF NATURAL REMEDIES TO
CURE INFECTIOUS DISEASES AMONG
NAROK RESIDENTS,NAROK COUNTY

for the period ending:
1st April,2020



[Signature]
Applicant's
Signature

[Signature]
Director General
National Commission for Science,
Technology & Innovation

Appendix IV: Permit for Data Collection (Narok County Commissioner)



**OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND
COORDINATION OF NATIONAL GOVERNMENT**

Telegram: "narok@go.ke", Narok
Telephone: Narok [050] 22433
Fax: [050] 22588
If calling or telephoning ask for the undersigned.
When replying please quote;
RE: SR/ADM.15/6 VOL.1/135

County Commissioner
Narok County
P.O. Box 4 – 20500
NAROK
13th May, 2019,

Deputy County Commissioner,
NarokNorth Sub County.

RE: RESEARCH AUTHORIZATION: HENRY NYABUTO GORI

The above named is a student of University of Eastern Africa Baraton, He has been authorized to carry out research on "Knowledge, attitude, and utilization of natural remedies to cure infectious diseases among Narok residents," in Narok County for the period ending 1st April, 2020.

You are hereby, requested to give him necessary support.

**PATRICK OMBOGO
FOR COUNTY COMMISSIONER
NAROK COUNTY**

C.C.
Henry Nyabuto Gori.

Appendix V: Permit for Data Collection (Ministry of Education Narok County)



REPUBLIC OF KENYA
MINISTRY OF EDUCATION
State Department of Early Learning and Basic Education

FAX NO. 050-22391
When replying please quote;
Ref. CDE/NRK/RES/VOL1/188

COUNTY DIRECTOR OF EDUCATION
NAROK COUNTY
P.O BOX 18
NAROK

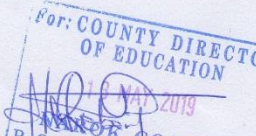
DATE: 13TH MAY, 2019

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION - HENRY NYABUTO GORI

The above mentioned is a student of University of Eastern Africa Baraton.
He has been authorized to carry out research on "*Knowledge, attitude and utilization of natural remedies to cure infectious diseases among Narok Residents,*" in Narok County for the period ending 1st April, 2020.

Please accord him the necessary assistance.


For: COUNTY DIRECTOR OF EDUCATION
NAROK COUNTY
ROBERT MOSETI
FOR: COUNTY DIRECTOR OF EDUCATION
NAROK

C.C
- The County Commissioner - Narok
- Henry Nyabuto Gori

Appendix VI: Curriculum Vitae

CURRICULUM VITAE

PERSONAL DETAILS

| | |
|-----------------------|------------------------------|
| Name | Henry Nyabuto Gori |
| Sex | Male |
| Marital status | Married |
| Date of Birth | 1967 |
| Nationality | Kenyan |
| Religion | Christian |
| Profession | Church Pastor |
| Postal address | P.O BOX 41352-00100, NAIROBI |
| Telephone | 0728333953 |
| E-mail | pastorhenrynyabuto@gmail.com |

EDUCATION BACKGROUND

UNIVERSITY EDUCATION

| | |
|-----------------------|---------------------------------------|
| Period | 2002- 2008 |
| Institution | University of Eastern Africa, Baraton |
| Degree Awarded | B.A in Theology |

COLLEGE EDUCATION

| | |
|--------------------|----------------------------------------|
| College | College Education |
| Period | 1991 – 1993 |
| Institution | Kamagambo Ministerial Training college |
| Award | Diploma |

SECONDARY EDUCATION

| | |
|----------------------------|-------------------------------------|
| Period (from to...) | 1980 -1984 |
| Institution | Lake Nakuru Secondary School |
| Certificate Awarded | Kenya Certificate Education (K.C.E) |
| Grade | Division III (Three) |

PRIMARY EDUCATION

| | |
|----------------------------|------------------------------------------|
| Period (from to...) | 1974 -1980 |
| Institution | Rietago Primary School |
| Certificate Awarded | Certificate of Primary Education (C.P.E) |
| Mean Grade | 25 marks |

PROFESSIONAL EXPERIENCE

| | |
|----------------------------|---------------------------------------------------------------------|
| Period (from to...) | 1993 to present |
| Organization | Seventh – Day Adventist Church, Central Kenya Conference (C.K.C) |
| Position | Church Pastor |

LANGUAGE SKILLS

| Language | WRITTEN | SPOKEN |
|------------------|----------------|---------------|
| English | Very Good | Very Good |
| Kiswahili | Good | Good |
| Kisii | Very good | Very good |

CONFERENCE ATTENDED

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 11th – 13th July 2017 @ UEAB 4th Annual Baraton International Interdisciplinary Research Conference | Theme : Transforming the future through Research and Innovation Solutions |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

OTHER SKILLS

- Good public skills
- Good communication skills
- Good Health Promoter and Educator

HOBBIES

Reading, listening to Christian music, travelling, reading, singing and research.

REFEREES

| | REFEREE 1 | REFEREE 2 | REFEREE 3 |
|-------------------------|-----------------------------------|---------------------------------------------|------------------------------------------|
| Full Name | JOHN KIRAGU NGUNYI | JOEL NYARANGI | ASENATH BARONGO NYANTIKA |
| Position | EXECUTIVE DIRECTOR | LECTURER | LECTURER |
| Organization | CENTRAL KENYA CONFERENCE (CKC) | UNIVERSITY OF EASTERN AFRICA, BARATON | UNIVERSITY OF EASTERN AFRICA, BARATON |
| Mail Address | 41352 -00100, NAIROBI | 2500, ELDORET | 2500, ELDORET |
| Telephone | 0729457084 | 0701811829 | 0721884318 |
| Email | | | |