SOCIAL OUTCOMES OF HEALTHCARE-SEEKING BEHAVIOUR AMONG PERSONS LIVING WITH DIABETES IN RONGO SUB-COUNTY, MIGORI COUNTY, KENYA

BY

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DECLARATION

This research thesis is my original work and has not been submitted for examination to any University or any other institution of higher learning.

Signed: _____ Date: _____

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We confirm that the work reported in this thesis has been carried out by the candidate under our supervision.

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DEDICATION

This research thesis is dedicated to my wife Veronicah, daughters Georgia and Noelle, my parents, Mr Marcelus Alila and Ms Agnes Adhiambo, and siblings, not forgetting my late sister Everline (may she continue RIP).

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ABSTRACT

Diabetes is a fast-growing health and socio-economic burden which manifests in social outcomes and is highly prevalent in Kenya due to inadequacies of mitigation measures. It is manageable through appropriate healthcare-seeking behaviour (HSB) comprising biomedical, alternative, and combined interventions. Migori County with one of the highest diabetes prevalence at 2.7%, surpassing the national average of 2.2% is more susceptible to adverse diabetes-related complications specifically from malaria and HIV/AIDS. Rongo Sub-County registered the highest increment in diabetes clinic attendance in 2019 at 27.07% compared to other sub-counties in Migori County. This study sought to establish the social outcomes of HSB among persons living with diabetes. Specifically, it sought to determine the social outcomes of biomedical HSB, determine the social outcomes of alternative HSB, and determine the social outcomes of combining biomedical and alternative HSB. Social outcomes were explored in terms of ability to relate well with people, acquire life skills, and acquire nutritional knowledge. Literature review was done based on objectives and guided by the Health Belief Model. A convergent mixed-method approach involving a descriptive-exploratory design was adopted. Taro Yamane's formula was used to select 257 respondents from a target population of 718 persons diagnosed with diabetes in Rongo Sub-County in 2019. Respondents were sampled using proportionate and simple random sampling. Six healthcare workers from purposively selected health facilities were interviewed. Ethical considerations were upheld. Data collection tools comprising a questionnaire and interview schedule were tested obtaining validity and reliability index of .826 and .865 respectively. Results were analysed using mean, standard deviation, and Spearman rho correlation. Data was presented in frequency tables and bar graphs. Through computation of average means and standard deviation within a margin of $-.2 < SD < .2$, the study found that biomedical HSB (average mean= 4.54), alternative HSB (average mean= 3.78), and combining biomedical and alternative HSB (average mean= 4.10), enabled respondents to acquire life skills, acquire nutritional knowledge, and relate well with people. Using Spearman rho correlation, the study found a statistically significant and positive moderate relationship between social outcomes and biomedical HSB (.590, p=.000), a statistically significant and positive moderate relationship between social outcomes and alternative HSB (.562, p=.000), and a statistically significant and very strong positive relationship between social outcomes and combining biomedical and alternative HSB (r_s= .879, p=.000). Qualitative data was thematically analysed and revealed that perceptions, experiences, and beliefs influenced HSB and impacts on social outcomes. The study concludes that there was significant positive relationship between social outcomes and HSB among persons living with diabetes in Rongo Sub-County. The study, recommends that County Governments and MOH should step-up implementation of basic module for CHV curriculum on module 13 framework on NCDs package to upscale follow up and achieving of social outcomes; enhance investments in research on efficacy and compatibility of alternative medications thus enhancing achieving social outcomes; and enhance policy implementation on patient-healthcare worker relationships to achieve social outcomes among persons living with diabetes.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immuno-Deficiency Syndrome
CIDP	County Integrated Development Plan
HIV	Human Immuno-Deficiency Virus
IDF	International Diabetes Federation
KNBS	Kenya National Bureau of Statistics
MCHD	Migori County Health Department
MOH	Ministry of Health
NACOSTI	National Commission for Science, Technology and Innovation
NCDs	Non-communicable diseases
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Alternative healthcare seeking behaviour:	Act of seeking preventive and medicinal measures from uncertified practitioners.
Biomedical healthcare seeking behaviour:	Act of seeking preventive and medicinal measures from healthcare workers or authorized service providers.
Combining biomedical and alternative healthcare:	Act of seeking healthcare from both biomedical and alternative healthcare either simultaneously or concurrently.
Healthcare-seeking approach:	Type of healthcare sought which can include biomedical, alternative, or combining biomedical and alternative healthcare.
Healthcare-seeking behaviour:	Act of seeking preventive and medicinal measures by individuals to maintain stable/optimal health status.
Ethno-medicine practitioners:	Individuals offering preventive and medicinal measures using natural plants, and indigenous therapies.
Healthcare workers:	Professionals concerned with diabetes care (diabetologists, nutritionists/ dieticians, public health officers, pharmacists, and obstetricians).
Indigenous religions:	Religions whose belief systems are anchored on indigenous socio-cultural beliefs, and spiritual healing.
Social outcomes:	Manifestations in persons living with diabetes as a result of healthcare services offered based on healthcare seeking approach evident in ability to relate well with people, acquire life skills, and acquire nutritional knowledge.
Social support groups:	Social groups formed within the framework of conventional medicine practitioners and overseen by trained medical practitioners.
Western religions:	Religions whose origin is traced to continents other than Africa like Christianity, Islam, Judaism, Buddhism.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Chronic Non-Communicable Diseases (NCDs) are the leading causes of morbidity and mortality globally (Subramanian, 2017; Ministry of Health [MOH] Kenya, 2015; World Health Organization [WHO], 2015) and account for 71% of all deaths globally (WHO, 2021). Diabetes, with a global mortality rate of 8.4% (Vashist & Luong, 2017); is considered to be of greater health concern, because it is a risk factor for cancer, cardiovascular diseases, and chronic respiratory diseases, kidney damage, nerve damage, stroke, foot ulcers, among other health infections and complications (WHO, 2021). In 2019 alone, an estimated 1.5 million deaths globally were directly caused by diabetes, and another 2.2 million deaths were attributed to other diabetes-related NCDs (International Diabetes Federation [IDF], 2019).

There has been a steady rise in the prevalence of diabetes globally (WHO, 2021; IDF, 2017); in which case, diabetes incidence rose from 108 million in 1980 to 425 million in 2017. Africa alone accounted for approximately 10% of the global prevalence (WHO, 2021). Further estimations by IDF (2017) indicate that 79% of people diagnosed with diabetes were in developing countries; where healthcare systems are constrained by inadequate resources (Atun et al., 2017; Atun & Gale, 2015). Projections indicated that the actual prevalence could be higher; for instance, Oyando, Njoroge, Nguhiu, Sigilai, Kirui, Mbui, and Barasa (2019) revealed that two-thirds of persons living with diabetes in Kenya could be undiagnosed.

Diabetes occurs either when the human body cannot effectively use the insulin that it produces, or the pancreas is unable to produce optimal insulin (WHO, 2021; Sarwar, Gao, Seshasai, Gobin, Kaptoge, & Angelantonio, 2010). Insulin processes blood glucose enabling it to transit into body cells to provide energy for the body (National Institute of Diabetes and

Digestive and Kidney Diseases, 2020). Type 1 diabetes also known as insulin-dependent diabetes, occurs when the pancreas is unable to produce insulin, and typically starts in childhood and is influenced by both environment and genetics (IDF, 2019, p. 12; Vashist & Luong, 2017, p. 11; Chowdhury, 2014; Holt & Kumar, 2010). Type 2 diabetes which accounts for 90-95%, results from the body's insulin resistance, ineffective secretion and use of insulin; resulting from relative insulin deficiency, and mostly starts in adulthood, while gestational diabetes occurs during pregnancy (Buse, 2016; Chowdhury, 2014, p. 18; Kenya National Diabetes Strategy, 2010-2015).

Diabetes has health, social, economic, and psychological burden to individuals, families and governments (Lin, Pan, Xu, Ding, & Shan, 2020; Fisher, Mullan, Arean, Glasgow, Hessler, & Masharani, 2010; IDF, 2011). At the government level, diabetes treatment is extremely costly and places a heavy burden on the healthcare system, which has to avail resources and facilities for the same (Ministry of Health and Public Sanitation, 2010).

Stabilizing diabetes condition is a long-term engagement requiring regular and uninterrupted access to medication and healthcare (WHO, 2021). However, most Sub-Saharan countries such as Kenya have inadequate funding mechanisms for healthcare services for NCDs (IDF (2017). Therefore, patients have to bear the cost of treatment, which is often very high (Karinja, Pillai, Schlienger, Tanner, & Ogutu, 2019; Shiroya, Neuhann, Muller, & Deckert, 2019). According to Kleinman (2020), for chronic conditions like diabetes, illness becomes exemplified in specific life trajectories having personal and social significance on the individual. This further contributes to having cultural meanings and illness experience which may influence their healthcare seeking behaviours.

In many cases, patients have to make tough decisions and forced to choose between spending money on their healthcare or meeting their other social and economic obligations (Hegazi, El-Gama, Abdel-Hady, & Hamdy, 2015). In addition, type 2 diabetes, which is the most common type, mostly affects adults above the age of 20 years (WHO, 2021; IDF, 2017). This could be attributable to multimorbidity experienced by elderly persons which contribute to moderate ageing experience (Sibuor, 2018). This implies that it mostly affects people at their most productive age, thus, having serious implications on the overall socio-economic development of individuals, families, and society.

Physiologically, if left untreated, diabetes results in myriad health complications, such as gum diseases, erectile dysfunction in men, loss of hearing, skin infections, and sleeping disorders. Diabetes is also one of the leading causes of blindness, due to prolonged damage to the small blood vessels in the retina (Sarwar et al., 2010). Besides, its related morbidities have adverse implications on quality of life since they are associated with depression to the diabetes patients (Fisher et al., 2010).

Socially, health and economic burden due to diabetes have serious repercussions for individuals, families, and societies at large (Hegazi, El-Gama, Abdel-Hady, & Hamdy, 2015). It causes ruin to individuals, families, and society; personal suffering, negative effects on gender roles, stigmatism and discrimination, poor social relations, reduced productivity, and poverty due to long illness and cost implications of its management (Diabetes Declaration and Strategy for Africa, 2006). Psychosocially, it leads to psychosocial trauma, depression, poor eating habits, and anxiety due to fear of complications. These, health, social, and psychosocial effects; consequently have social, economic, psychosocial, and political manifestations and ramifications on individuals and families (Kibirige, Lumu, Jones, Smeeth, Hattersley, & Nyirenda, 2019).

Socioeconomic and health burden of diabetes can be addressed through timely diagnosis, quality care, healthier environments, education and dissemination of information, awareness creation, availing adequate and affordable medications, building capacity of health systems, improving quality of life, and reduced morbidity (Diabetes Declaration and Strategy for Africa, 2006). For these efforts to be sustainably achieved, there is need for mutual and concerted involvement of individuals, families, community, healthcare providers, and the government (Kenya Diabetes Comprehensive Care Manual, 2010; Diabetes Declaration and Strategy for Africa, 2006).

There is evidence that diabetes has no cure but can be prevented, controlled, and even go into remission, if properly managed (WHO, 2021; IDF, 2017; Global Diabetes Plan 2011-2021). That is, when timely detected, it can be effectively managed through a healthy diet, moderated physical exercises, social support, uninterrupted medication, and specialized care (National Institute of Diabetes and Digestive and Kidney Diseases, 2020; Ministry of Health and Public Sanitation, 2010). Al-Dwaikat, Chlebowy, Hall, Crawford, and Yankeelov (2020) revealed that social support encouraged behaviour modification thus leading to better health outcomes of African Americans living with type 2 diabetes. Besides, it was found that the number of support persons, quality of main intimate relationship, and functional support had negative relationship with depression. As outlined in the Global Diabetes Plan 2011-2021, nutrition is very key to promote health and prevent adverse complications in persons living with diabetes.

According to WHO (2021), the survival rate and quality of life of persons living with diabetes largely depend on their healthcare-seeking behaviour (HSB). Sultana, Sarker, Sheikh, Akram, and Ali (2019) reiterated that proper HSB and prompt management reduced severity in Bangladesh; besides preventing associated morbidity and mortality. As a measure to step

up healthcare delivery and improved positive outcomes, the Alma Ata Declaration of 1978 shifted perception on health to an emphasis on socio-economic determinants of health, from the previous emphasis on disease eradication by biomedical means (Tom & Abimbola, 2018). It recommended a blend of both biomedical and alternative healthcare; as a focus to improving the quality of life of people. Notably, passive compliance is no longer necessarily the best response from patients because medical experts have changed their role and no longer dictate patients' choices (Kushner, 2010).

HSB is influenced by manifestation of symptoms (Hjelm & Atwine, 2011); perceived and real side-effects of medication (Abdullahi, 2011); availability of information and level of education (Eisenstat, Ulman, Siegel, & Carlson, 2013); income levels, occupation and socio-economic status (Shivachi & Otengah, 2017); age (Ayah, Joshi, Wanjiru, Njau, Otieno, Njeru, & Mutai, 2013), sex (Agyei-Baffour, Kudolo, Quansah, & Boateng, 2017; Thompson, Anisimowicz, Miedema, Hogg, Wodchis, & Aubrey-Bassler, 2016); access to healthcare, quality of care, and non-relief (Nimesh, Halder, Mitra, Kumar, Joshi, Joshi, and Pakhare, 2019; Shivachi & Sidha, 2019); culture and belief sysyems (Diabetes Declaration and Strategy for Africa, 2006); doctor-patient relationships and challenges with healthcare systems (Shin, Choi, Jung, Kim, Scong, & Park, 2011); and healthcare system factors such as policies on healthcare-service delivery and behaviour of care providers (Global Diabetes Plan 2011-2021; Nimesh et al., 2019).

Nimesh et al. (2019) revealed that shifting from one healthcare provider to another was prevalent in Central India among persons living with diabetes thereby impacting quality of care. It was noted that about 41.6% of individuals shifted healthcare providers. Shin et al. (2011) also observed that biomedical healthcare switching was a common practice among persons living with diabetes in South Korea. Some patients shifted healthcare providers more

than 17 times while over 80% of them had shifted thrice. These behaviour, highlighted overlapping treatment plans which could have adverse health and social implications on individuals (WHO, 2021). As revealed in Diabetes Declaration and Strategy for Africa (2006), such behaviour could be attributed to culture and belief systems of individuals, families and communities; which consequently, highly influence healthcare seeking. This encompass their resort for biomedical, alternative, and/or combining biomedical and alternative healthcare.

In Kenya, only approximately 41% of the known persons living with diabetes were on regular treatment, and only 7% had their condition managed (Lin, Pan, Xu, Ding, & Shan, 2020; Shiroya et al., 2019). Kenya registered the second-highest mortality rate for diabetes for those living with diabetes aged between 20-79 years (at 88.4%) globally and in Africa (IDF, 2019); thereby, highlighting possibility of poor HSB.

Reports from Migori County Health Department [MCHD] in 2020 indicated that there was a diabetes prevalence of 2.7%; surpassing the 2.2% average on diabetes prevalence in Kenya. Persons living with diabetes in Migori County are more susceptible to diabetes-related multi-morbidity, associated health complications and mortality due to the predisposing factors like HIV/AIDS and malaria of which the county ranks high in prevalence as revealed by Kenya National AIDS Control Program (2018) and Kenya Population-based HIV Impact Assessment (2018) whihch reported that Migori County had the fourth-highest HIV prevalence rate, at 13.3%. While, Bashir, Nyakoe, and Sande (2019) reported that Migori and Busia Counties had the highest malaria prevalence in the Lake Endemic Region. The foregoing is alluded to the findings that there is a nexus between diabetes, malaria and HIV/AIDS (Kasaie et al., 2020; Spieler, Overton, Willig, Burkholder, Varshney, & Westfall, 2019; Pravat & Thatoi, 2018; Kalra, Khandelwal, Singla, Aggarwal, & Dutta, 2017).

According to Spieler et al. (2019), 20% of persons living with HIV/AIDS in Alabama had diabetes. Kalra et al. (2017) revealed that malaria prevention was vital for managing gestational diabetes. Diabetes further aggravates malaria infection, thus, lowering immunity of expectant women (Pravat & Thatoi, 2018).

Rongo Sub-County registered the highest increment in diabetes clinic attendance at 27.07% in 2019 as compared to other subcounties in Migori County (MCHD, 2020). Therefore, there was need to establish the social outcomes of HSB among persons living with diabetes in Rongo Sub-County, Migori County**,** Kenya.

1.2 Statement of the Problem

Diabetes is a health and socioeconomic burden with physiological, psychological, social, and economic implications for patients, their families, and the wider society. However, there is evidence that through timely diagnosis and proper management; individuals will have better quality of life manifested in improved involvement in activities of daily living such as good eating habits, emotional control, high self-esteem, enhanced economic and social productivity.

In order to achieve the social outcomes in persons living with diabetes, interventions such as Global Diabetes Plan 2011-2021; Kenya Diabetes Comprehensive Care Manual 2010 and diabetic clinics are set up to mitigate the burden of morbidity related to the prevalence of the disease in Kenya. Despite the existing mitigation measures, social outcomes of persons living with diabetes is wanting thus, implying that there is inadequacy in healthcare seeking behaviour. In Kenya, only 41% of diagnosed persons living with diabetes are on regular treatment.

Migori County with one of the highest diabetes prevalence at 2.7%, surpassing the national average of 2.2% is more susceptible to adverse effects of diabetes specifically from malaria and HIV/AIDS. Rongo Sub-County registered the highest increment in diabetes clinic attendance in 2019 at 27.07% compared to other sub-counties in Migori County. They are however those who sought alternative healthcare or combined biomedical and alternative healthcare. Hence, a need to establish the social outcomes of the different healthcare seeking behaviour among persons living with diabetes in the Sub-County.

1.3 Purpose of the Study

The study sought to establish the social outcomes of healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County, Migori County**,** Kenya.

1.3.1 Specific Research Objectives

Specifically, the study sought to:

1. Determine the social outcomes of biomedical healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County.
2. Determine the social outcomes of alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County.
3. Determine the social outcomes of combining biomedical and alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County.

1.3.2 Research Questions

The study sought to answer the following questions:

1. What is the social outcome of bio-medical healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County?

2. What is the social outcome of alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County?
3. What is the social outcome of combining biomedical and alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County?

1.4 Justification of the Study

Chronic NCDs contribute to a 33.2% reduction in household income (Hoover, Subramanian, Kibachio, Edwards, Amukoye, & Yonga, 2017); and account for 50% of total hospital admissions and 55% of hospital deaths in Kenya (MOH-Kenya, 2015). The global diabetes care expenditure rose by 213.36% from 2007 to 2017 for adults aged 20-79 years (IDF, 2019). According to Vashist & Luong (2017), health expenses on diabetes accounted for 11.2% of global health expenditure in 2015. The socio-economic burden related to diabetes with the total expenditures for diagnosis and reduced productivity was estimated to be USD 327 billion (ADA, 2018). In East Africa, the total average annual cost for care of a type 1 diabetic was USD 229 with 60-70% of this being used to purchase insulin (Jones, 2013). According to Oyando et al. (2019), the average annual direct patient cost to persons living with diabetes in Kenya, was Kshs. 53,907. In which case, medicines, transport, user charges, and food accounted for 52.4%, 22.6%, 17.5%, and 7.5% respectively of the total direct costs. The average annual indirect costs was Kshs. 23,174. These expenses were higher in cases where patients reported multi-morbidity with incidence of disastrous expenses being 63.1%.

According to the Global Diabetes Plan 2011-2021, investing in diabetes management is a major boost in addressing NCDs, tuberculosis, HIV/AIDS and malaria hence enhanced socio-economic productivity, psychosocial, and physiological stability. Sultana et al. (2019) and Metta (2016) found that seeking proper healthcare and swift management is crucial to reducing the severity of health conditions. Optimal health and quality of life for persons

living with diabetes depend on their individualised responsibility and behaviour to manage the condition (Idris, Hassan, & Sofian, 2019). However, the pluralistic notion of patient-healthcare worker relationship diversifies health consultations thus, allowing patients freedom to choose healthcare of their choice (Tom & Abimbola, 2018; Kushner, 2010). HSB of individuals can also be influenced by illness experience and cultural meanings of the condition as pointed out by Kleinman (2020). Interactions with biomedical and alternative healthcare, also, to a great extent influence decisions on the choice of HSB (Howland, 2020); these would consequently influence the social outcomes among persons living with diabetes (Idris, Hassan, & Sofian, 2019).

1.5 Significance of the Study

The findings of the study may inform policy on diabetes management which is manifested through improved social and health outcomes of individuals. Persons living with diabetes will be made aware of the healthcare seeking behaviour which will enable them achieve the improved social and health outcomes in managing the condition. Families of persons living with diabetes will benefit from appropriate HSB that will alleviate pain and misery due to enhanced socio-economic productivity of their family member(s) living with the diabetes. Policy implementations may bridge the gap of HSB experienced by persons living with diabetes. It will be of benefit to other scholars, as it will provide a basis for future scholarly work. The nation may benefit from addressing the prevalence of diabetes and subsequently positively influence sustainable socio-economic development in Kenya.

1.6 Limitations of the Study

The study was limited to persons diagnosed to be living with diabetes and attending diabetes clinics within Rongo Sub-County. This was because individuals were considered to be

having diabetes only after diagnosis by an authorized medical service provider. Secondly, the study targeted individuals attending diabetes clinics within the study area at the time the study was conducted. However, the approach tended to discriminate against some of those who had been diagnosed with diabetes but opted to either abscond from seeking biomedical care or those who had resorted to alternative care. To address this limitation, the questions were structured to capture times when the respondents sought respective healthcare.

1.7 Scope of the Study

This study on social outcomes of healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County was conducted from 2019 to 2022. It was limited to three research objectives, three main types of diabetes (type 1, type 2 and gestational diabetes), and persons diagnosed to be living with diabetes and attending diabetes clinics within the study area. The study adopted the Health Belief Model based on a convergent mixed-method approach and descriptive-exploratory design. 257 persons living with diabetes and 6 healthcare workers were selected. Data was collected using a questionnaire and interview schedule. Quantitative data collected were analysed using descriptive and inferential statistics, while qualitative data was thematically analysed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the review of secondary data based on the research objectives upon which the study was anchored, and the theoretical framework entailing analysis of the Health Belief Model. The chapter also has a conceptual framework comprising independent, dependent and moderating variables.

2.2 Social Outcomes of Biomedical HSB

Biomedical HSB involves seeking preventive and medicinal measures from medical professionals and certified persons (Molla, Gonie, Belachew, & Admasu, 2017); and is a practice preferred by most persons living with diabetes (Nimesh et al., 2019). This study conceptualized biomedical HSB in terms of seeking preventive and medicinal healthcare from healthcare workers and attending social support group meetings formed and operationalised within the framework of biomedical health service delivery. Visiting and consulting healthcare workers is regarded as the most appropriate HSB and preferred by 85.9% of individuals (Abidin, Sutan, & Shamsuddin, 2014). Compliance behaviours have significant implications on the effectiveness of medication (Buse, 2016; Anderson, 2004). Thompson and Walker (2011) noted that reduced frequency of dosages and improved simplicity of treatment improved patient adherence rates.

Diabetes, once diagnosed is a lifetime health condition, and self-discipline entailing compliance to medical guidances is desirable to minimise complications and lessen early mortality (ADA, 2018; Buse, 2016, p. 26). Shannon, Haghparast-Bidgoli, Chelagat, Kibachio, and Skordis-Worrall (2019) noted that timely diagnosis, access to quality

specialised care, stable and cost-effective insulin supply, enhanced self-management, and increased awareness; can greatly lower the health and socioeconomic burden, as well as avert the occurrence of diabetes related complications. The studies however did not capture the social outcomes of HSB.

While developing an health plan for persons living with diabetes sociodemographic and socioeconomic information pertaining to certain factors need to be assessed (Wolfsdorf, 2012). According to Jahanlou, Sobhani, and Alishan (2010), persons living with diabetes require guidance and skills to adjust their lifestyles to have the essential attitude and functioning to manage their blood sugar levels. Outcomes of which will be reflected in their physiological, socioeconomic, and psychosocial manifestations (Kibirige et al., 2019). It is however important to find out the statistical relationship between social outcomes and biomedical HSB.

According to Buse (2016, p. 26), the eventual cure for diabetes will possibly involve 'replacing' cells in the pancreas that make insulin'; and when successfully managed it undergoes remission. Diabetes can be managed through appropriate behavioural modification and adaptation in diet, social life, and exercise (Hegazi et al., 2015, p. 815; Hu, 2011, p. 1255). Moderate physical activities and modest weight loss can lower type 2 diabetes by 58% in high-risk populations (Colberg et al., 2010). Besides, encouragement and ongoing social support according to Chester, Stanely, and Geetha (2018), are crucial with changes in patients' condition, and diminishing motivation; besides, receiving support through resources for social support groups and diabetes centres. As further elaborated by Ojung'a (2016, p. 48), the interaction of persons living with a given condition and the health practitioners has a significant positive implication on positive living. These studies however, did not capture the statistical relationship between social outcomes and biomedical HSB.

Social support groups play a significant role in diabetes management because individuals like participating in social groups (Jaber et al. as cited in Eisenstat et al., 2013). Besides, they provide a platform for enhanced coordination of diabetes care, improved sharing of information, enhanced continuity of diabetes care, and encouraged decision-making. A study on Veterans Affairs facilities revealed that glycaemic control of persons living with diabetes under peer support intervention improved significantly compared to those under nurse support (Heisler, Vijan, Makki, & Piette, 2010). These findings indicated the benefits of social support groups in diabetes care. However, another study revealed that the improvement associated with peer support intervention was primarily mediated by insulin initiation, which accounted for nearly 50% of the improvement in A1c levels, but not by perceived social support (Glanz, Rimer, & Viswanath, 2015, p. 216; Piette, Resnicow, Choi, & Heisler, 2013).

A study by Ing, Zhang, Dillard, Yoshimura, Hughes, Palakiko, and Kaholokula (2016) found that there were improvements in understanding diabetes, frequency of self-care and management, and reduced systolic blood pressure due to social support groups in Hawaii. Mo and Coulson (2012) revealed that through online support groups, persons living with HIV/AIDS accessed empowerment opportunities. Similarly, Brunelli, Murphy, and Athanasou (2016) noted that social support group interventions had implications for chronic ill-health. Rad, Bakht, Feizi, and Mohebi (2013) also highlighted the status of self-care and utilization of social support groups. In Western Kenya, Pastakia, Manyara, Vedanthan, Kamano, Menya, and Laktabai (2016) noted that a comprehensive microfinance-linked, community-based, and group care model was of significance to persons living with diabetes. This study was however, not particularly addressing the social outcomes.

Karinja et al. (2019) found that 86% of diabetes and hypertension patients sought conventional healthcare services in rural Kenya. This study however, did not focus on social

outcomes of healthcare seeking. While Marton and Choo (2012), noted that individuals preferred consulting doctors, pharmacists, and nurses due to authenticity. Besides, a study by Kuan et al. (2011) revealed that seeking of biomedical healthcare could be boosted with health insurance program. This would address concerns over high-out-of-pocket medical expenses which negatively affect biomedical HSB.

Chukwuma et al. (2016) observed that more than 86.3% of Nigerians preferred biomedical medications due to their effectiveness (68.2%). Kassahun, Gashe, and Rike (2016) found that persons living with diabetes on multiple and complex treatments displayed a high non-compliance rate compared to those on single treatments in Ethiopia. In Uganda, persons living with diabetes preferred seeking biomedical healthcare; though most of them did so at late stages due to their low socioeconomic status (Hjelm & Atwine, 2011). In Botswana, Atun and Gale (2015) observed that persons living with diabetes had access to conventional healthcare. They had diabetes trained youth leaders who provided diabetes education, public health screening campaigns, and diabetes youth camps. This study however, focused more on the challenges and did not capture the social outcomes.

At the Kenyan Coast, individuals mostly first sought healthcare from health facilities and over the counters (Abubakar, Van Baar, Fischer, Bomu, Gona, & Newton, 2013). A study by Mchidi (2016) in Kakamega County, observed that predisposing, enabling, satisfaction and need factors were of great significance to healthcare seeking among nurses; 62% of the nurses sought biomedical healthcare. Kimani (2015) revealed that 84% of patients were satisfied with conventional healthcare services in Busia sub-county. This was attributed to reasonable waiting time, technical competency, health education, adequate consultation time, effective communication, empathy, respect, observance of privacy and confidentiality, accessibility, availability, convenience and affordability of healthcare services. While acknowledging the

findings of this studies, the researcher sought to find out the statistical relationship between social outcomes and biomedical HSB.

2.2.1 Limitations of Social Outcomes and Biomedical HSB

Persons living with diabetes need to seek physicians' continuous check-ups; however, they face difficulties in regularly consulting healthcare workers due to busy schedules and frustrations emanating from health systems' inefficiencies (Shareef, 2016). Some individuals consider clinical prevention and behavioural interventions as cost-effective and inaccessible (Glanz et al., 2015). According to Dutton (2018), racial and cultural discrimination, and outward rejection of persons living with diabetes in Canada do undermine the benefits of biomedical healthcare.

According to Shaw, Huebner, Armin, Orzech, and Vivian (2008, p. 3), effective and fitting healthcare in the USA is often limited due to cultural differences between them and patients. Culture, language and socio-economic status variances reduce the capability to comprehend and act on medical guidelines. Cultural dogmas also affect understanding and usage of healthcare providers' instructions; particularly, they have highly influenced men's HSB (Idris et al., 2019).

Persons living with diabetes' trust and shared decision-making are bidirectional (Peek, Gorawara-Bhat, Quinn, Odoms-Young, Wilson, & Chin, 2013). Discrimination faced when seeking biomedical healthcare influences shelving medical tests, treatment, and reduced utilization of medical services; because higher levels of mistrust make patients hardly follow physicians' guidance (Cockerham, Hamby, & Oates, 2017; Cockerham, 2010). Lack of social support, and having a long-term illness were identified to be affecting biomedical HSB in Sweden (Berglund, Westerling, & Lytsy, 2017). In addition, doubts about the effectiveness

of diabetes-care protocols, inconvenience, inaccessibility, and care expenses negatively influenced HSB (Spearson & Mistry, 2016). Mercer et al. (2019, p. 9) further revealed that 20% of anti-hypertensive medications in Rwanda were substandard while 70% had poor stability.

Acharya, Gupta, Prakash, and Singhal (2019) noted a 33% adherence rate to diabetes medication attributed to age, educational status, and duration of disease in India. This was similar to observations made by Gakidou, Mallinger, Abbott-Klafter, Guerrero, Villalpando, Ridaura, and Murray (2011) in Thailand, highlighting income disparity as a key constraint for persons living with diabetes. Azzani, Roslani, and Su (2019) revealed that financial hardships suffered by low-income households on health led to delays in seeking healthcare services. Lack of nearby health facilities also derailed compliance to diabetes medications (Bhosale, Pawar, & Kumar, 2017); these were due to, costs of medication (49.3%), treatment (46.6%), diet (33.8%), failure of relief on remedy (17.4%), and commuting to hospitals (16.7%) (Mentock, Ng, Narayana, Ullal, Kumari, Badiger, & Shetty, 2017). Bhuiya (2009) observed that medical expenses incurred when seeking biomedical healthcare was 5 to 15 times higher than when seeking alternative healthcare.

According to El Kahi, Abi-Rizk, Hlais, and Adib (2012), socio-cultural factors significantly influence HSB among adolescents in Lebanon since topics on sexuality and addictive substances were shied from and not openly discussed since they were considered taboo. In addition, some adolescents failed to consider related issues as health threats but rather normal behaviours, hence not requiring intervention. They rather opted to consult their peers than seek biomedical healthcare services.

As observed by Anwar, Green, & Norris (2012), health services delivery in public sectors was under-utilized in developing countries, particularly in rural areas. Most of the facilities faced challenges such as scarcity of medications and accessibility of healthcare workers. On the other hand, private health facilities were preferred because of their flexible access, shorter waiting times, greater confidentiality and greater sensitivity to users. However, a majority of low-income earners may hardly afford the high medical fees charged by private healthcare facilities. Such circumstances force individuals to seek alternative healthcare which was relatively affordable and convenient (Mokgobi, 2014. p. 8).

Choukem, Dimala, Maadjhou, and Mbanya (2019) revealed that inadequate availability and allocation of resources for NCDs greatly affected healthcare systems in Africa. In addition, inadequate awareness of the disease, late diagnosis, inadequate diagnostic facilities, high cost of medications, inadequate data on the actual burden of disease, and its low coverage negatively affect biomedical HSB. Mercer et al. (2019, p. 4) noted that fragmented healthcare systems and lack of a strong management framework for diseases contributed to wanting quality of diabetes care in Sub-Saharan Africa.

In Nigeria, Nwaokoro, Okokon, Nwaokoro, Emerole, Ibe, Onwuliri, and Chukwuocha (2014) observed that there were several challenges with treatment compliance. About 26% of persons living with diabetes stopped taking medications once they felt okay, while 70% of them feared hypoglycaemia. Notably, strong family support, good patient-healthcare worker relationship, and closeness to the treatment facilities improved treatment compliance. Some individuals avoided biomedical healthcare fearing a likely diagnosis that could make their condition appear more severe, and with attached financial and emotional implications (Igwesi-Chidobe, Kitchen, Sorinola, & Godfrey, 2017).

According to *'Plan Stratégique National de Lutte Contre les Maladies Non Transmissibles (MNT) 2015-2019'* as cited in Atun and Gale (2015), appropriate HSB was affected by resource constraints in Mali. There were inadequate human resources, medicines and medical equipment; these, eventually led to late diagnosis and non-optimal treatment.

Boafo (2016) found that overcrowding in hospitals in Ghana due to inadequate staff and poor infrastructure led to frustration and dissatisfaction among patients and their relatives who vent their anger through verbal abuse to the nurses. Besides, patients and their relatives contributed highly to workplace violence against nurses; depicting reasons for poor patient-healthcare worker relationship which was highly counter-productive to biomedical HSB. Abrokwah et al. (2019) further revealed that socio-economic and socio-cultural dynamics and low insurance access lowered biomedical HSB due to increased health services' out-of-pocket expenses in Ghana.

Perceptions of efficacy, beliefs and practices employed by systems greatly influenced HSB. Viewing illness as a form of punishment for moral decadence lowered its efficacy and adherence (Kpobi & Swartz, 2018). Munguambe et al. (2016) revealed that socio-structural dynamics derailed timely access to appropriate healthcare hence contributing to high mortality, especially among vulnerable low-income earners in the remote rural areas of Mozambique.

Chukwuocha et al. (2014) observed that age, marital status and educational attainment significantly influenced delay in appropriate HSB in Nigeria. Limited awareness of the causatives of health conditions, inappropriate HSB, under-usage of health facilities, and delay in healthcare-seeking highly contributed to mortality. Financial constraints further contributed to low adherence to medications given that medical expenses represented a better

share of their annual household consumption (Aderibigbe, Akande, & Mesnard, 2016). High medical costs and low accessibility to medical facilities made them opt to forego biomedical healthcare. Some resorted to cheaper medication, suggestive of lower quality care: thereby increasing the risk of severity of health condition (Adisa, Fakeye, & Fasanmade, 2011).

According to Shiroya et al. (2019), there is a discrepancy in Kenya regarding diabetes on implementation within NCDs policy agenda and how it is tackled in reality. This, therefore, calls for concerted efforts with an emphasis on population-wide prevention; and inclusion of political and non-health sector stakeholders. Nguma (2010) revealed that inaccessibility of drugs, mobility constraints, and limitations of clinics; influence low usage of diabetes drugs. As highlighted by Mwaura, Wandibba, and Olungah (2017**),** frequency of seeking healthcare was low as the distance travelled to health facilities increased in rural areas of Kiambu County. Howland (2020) further noted that numerous cases of counterfeit medicines in Kenya highly contribute to mistrust of biomedical healthcare hence giving an upper hand to alternative healthcare. High economic burden due to high expenditure and inadequacy of facilities led to late diagnosis (Owuor et al. (2005; Subramanian et al., 2018).

According to Clement et al. (2016), covering long distances to health facilities affected attendance at diabetes clinics in Western Kenya. Besides, there were low awareness levels on causes that had implications on HSB; in which case, only 18.4% linked it to high blood sugar levels (Orimadegun & Illesanmi, 2015).

2.3 Social Outcomes and Alternative HSB

This study conceptualized alternative healthcare in terms of ethnomedicine and spirito-therapy (Egharevba, Ibrahim, Kassam, & Kunle, 2015; Johnson, Chin, Kajumba, Kizito, & Bangirana, 2017; Sofowora, 2008). Indigenous medicine refers to medical knowledge and

practice systems developed over centuries within various societies before the era of biomedical medicine (Sofowora as cited in Egharevba et al., 2015, p. 120). It encompasses knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures. It is intended for the maintenance of stable health, prevention, diagnosis, improvement, and treatment of illnesses (WHO as cited in Mbwayo, Ndetei, Mutiso, & Khasakhala, 2013, p. 134).

According to Gakuya, Okumu, Kiama, Mbaria, Gathumbi, Mathiu, and Nguta (2020), indigenous medications have been used since time immemorial in Kenya. It was however, outlawed under the Witchcraft Act of 1925 and practised till 1963. Oliver (2013) noted that before colonization, indigenous healing was prominent and was the sole primary healthcare among the Aboriginal Australia. In a study by Odinka et al. (2014), it was observed that 76% of the individuals first sought alternative healthcare before resorting to biomedical healthcare. These studies however, were limited in their scope and failed to capture social outcomes of alternative healthcare.

There has been high prevalence in utilization of alternative healthcare as revealed by WHO report that an estimated 80% prevalence in the usage of indigenous healthcare in developing countries (Gathara, 2018). Tomar (2016) revealed that more than 95% of inhabitants of developing countries seek and utilize alternative healthcare services. Eddouks and Chattopadhyay (2012) observed that about 40% of conventional medicine were derived from natural products. A study by Das, Mia, Hanifi, Hoque, and Bhuiya (2017), found that alternative healthcare providers comprise 51-96% in developing countries. Peltzer, Pengpid, Puckpinyo, and Yi (2016) further revealed that ethnomedicine practitioners were highly sought compared to other forms of alternative healthcare in Vietnam, Cambodia, and Thailand. In Kenya, Abdullahi (2011) found that seeking healthcare from indigenous

religions was preferred by 70-80% of the population. These studies highlighted that the utilization of alternative healthcare was highly pronounced in developing countries. It was therefore important to determine the statistical relationship between social outcomes and alternative HSB.

The utilization of alternative healthcare in developing countries can be attributed to convenience, affordability and cultural acceptability as found by Das et al. (2017). According to Kuan et al. (2011), individuals who experienced recurrent seizures and whose parents were less educated, were highly likely to seek alternative healthcare. A study by Peltzer et al. (2016) revealed that alternative healthcare seeking was more pronounced among the elderly, those with multi-morbidity, females, urban residents, and those with formal education. Adams, McIntyre, Frawley, Lauche, Broom, and Sibbritt (2019) observed that 53.7% of females averagely aged 69 years utilized alternative services for treatment and managing chronic illnesses. These studies however focused more on patterns of utilization of alternative healthcare.

According to Oliver (2013), alternative healthcare has continually been widely used due to socio-cultural beliefs about the type and causes of medical conditions and accessibility of indigenous healers and medications. El Kahi et al. (2012) also observed that young people in Lebanon preferred seeking alternative healthcare services when faced with certain health concerns. They tended to either seek alternative medication or forego biomedical healthcare services when faced with psychological, relational, drug, and substance abuse issues. It was of need to establish the social outcomes of alternative HSB among adults and not only youths due to the varying dynamics.

Culturally, individuals especially children suffering from type 1 diabetes are perceived to be bewitched hence resort to indigenous healers; and only visiting healthcare workers upon

noticing complications (Abubakar et al., 2013; Diabetes Declaration and Strategy for Africa, 2006). Abbo et al. (2019) noted that about 80% of Ugandans relied on alternative healthcare for mental illnesses and related medical conditions due to sociocultural factors. Jambo et al. (2018) also found that most expectant women preferred ethno-medications due to their effectiveness (35.92%) and fewer side effects (59.86%). However, there studies only addressed preference, utilization and justification but did not capture the subsequent social outcomes.

According to Cockerham, Dingwall, and Quah (2014), socio-cultural beliefs of societies on the sick, illnesses and associating circumstances with sorcery, witchcraft and evil spirits; influenced their utilization and seeking of alternative healthcare. Besides, belief systems and models of causality of diseases and treatment influenced the usage of indigenous religious healing (Ashing-Giwa, Gonzalez, Lim, Chung, Paz, Somlo, & Wakabayashi, 2010). According to Ojung'a (2016, p. 58), some individuals attributed their misfortunes and illnesses to witchcraft hence their resort to seeking healthcare services from spiritual healers. These were however, more focused on determinants of healthcare seeking and social outcomes.

Rutebemberwa, Bagonza, and Tweheyo (2019, p. 5) observed that for individuals who first sought services of ethnomedicine practitioners, 16.7% revisited them, while 1.9% of those who first visited private clinics resorted to ethnomedicine practitioners. This, highlighted inconsistency in healthcare seeking which could have implications on the quality of care. Hjelm and Atwine (2011) further observed that individuals disgruntled with biomedical healthcare resorted to ethnomedicine practitioners for prescription of herbs or food supplements, especially women. In addition, preference for indigenous healers and home-based treatment was influenced by good personal experience(s) and low cost of care (Agu &

Nwojji as cited in Orimadegun & Illesanmi, 2015). Pretorius and Joubert (2014) revealed that religion rekindled patients' hope of getting well hence individuals preferred to utilize it; however, it failed to capture the associated social outcomes.

Most individuals in Taiwan sought traditional Chinese medicine and temple worship as the preferred forms of alternative healthcare (Kuan et al., 2011). In Bangladesh, alternative healthcare was preferred and perceived to be cheaper even when illnesses were severe (Baqui et al., 2008). In addition, they were more accountable and often sought to maintain the trust of the community since they were closer to the community; with a well-known track record. They also offered flexible modalities for their clients to cater for medical expenses (Ensor & Witter as cited in Sudhinaraset, Ingram, Lofthouse, & Montagu, 2013). Cross and MacGregor (2010) observed that alternative healthcare providers were uniquely connected with the socio-cultural dynamics of the community as compared to biomedical healthcare providers.

Some indigenous Chinese and Indian ethno-medications, according to findings of Kuan et al. (2011) have been found to be valuable to persons living with diabetes and for treating epilepsy in Taiwan. Although some provide questionable and even harmful care; others are highly trusted because their services are intricately embedded in the social fabric (Das et al., 2017). For instance, Bangladesh successfully used ethnomedicine in managing tuberculosis. Besides, standardization, quality regulation, and random clinical trials should be enhanced to achieve their potential benefits (Wang, Wang, & Chan, 2013).

According to Bird, Conrad, Fremont, and Timmermans (2010), religion plays a vital role in HSB; recognizing that most first hospitals were founded by religious organizations and through missionary works. Eighty percent (80%) of Americans believed that religious practices boosted the treatment of medical conditions, besides being a source of social

support for the sick. In which case, 25% were reported to have recovered from illnesses through prayers, while a majority of both health professionals and non-medical professionals believed in miracle healing (Jacobs et al. as cited in Bird et al., 2010). Besides, over 60% of Americans wished physicians would inquire about their spiritual histories. It was also observed that 66.67% of hospitals had chaplains (Bird et al., 2010); thus highlighting the value of religion and spiritual support among patients. The studies however failed to address the social outcomes on individuals, especially persons living with diabetes.

The preference for indigenous medications continues to be motivated by socio-economic constraints and inaccessibility of biomedical services (Mahomoodally, 2013). There is a significant relationship between health and spirituality (Rogers & Wattis, 2015; Zehtab & Hajbaghery, 2014; Reeve & Basalik, 2011). In which case, spirituality plays a crucial role in healthcare communication in-and-outside hospital environs thus affecting HSB, utilization, and outcomes as observed during delivery experiences (Miller & Rubin, 2011). Therefore, it is important to find out the statistical relationship between social outcomes and spiritotherapy.

Alternative HSB, as revealed by Matheka and Demaio (2013), was influenced by beliefs, age, duration of diabetes, the magnitude of complications, and social networks. Socio-cultural authority embedded in the beliefs on causes of illness further greatly influenced the resort to alternative HSB in Ghana (Ae-Ngibise, Cooper, Adiibokah, Akpalu, Lund, Doku, & the MHAPP research Programme Consortium, 2010). Such a scenario was attributable to delays and challenges faced in accessing biomedical healthcare (Bakare, 2013). Some patients preferred indigenous healers due to their strong belief in indigenous medications and provision of immediate symptomatic pain relief (Birhanu et al., 2012). In addition,

indigenous healing was acceptable and functional (Batisai, 2016, p. 120). However, there was need to establish the social outcomes of seeking services of indigenous healers.

According to Mokgobi (2013, p. 2), indigenous African medications have been more popular in rural areas due to socio-cultural orientation. However, this scenario changed in the 21st century since indigenous healthcare services became common in urban settings due to rural-urban migrations. For instance, McCallum as cited in Mokgobi (2013, p. 3) noted that there was hardly an urban centre or village in Africa that lacked interest and demand for indigenous healthcare provider services. These studies however, focused more utilization and determinants of alternative healthcare but failed to capture the social outcomes.

Alternative healthcare service providers contribute significantly to the health sector, and most individuals in Sub-Saharan Africa preferred them due to their affordability, convenience, and socio-cultural conformity (Sudhinaraset et al., 2013). Laleye, Mensah, Assogbadjo, and Ahissou (2015) revealed that the utilization of indigenous medications in Benin was influenced by high poverty levels which limited access to biomedical healthcare. It further emerged that knowledge of indigenous medications varied with age, gender, occupation, and locality. In which case, the elderly persons and men were more knowledgeable about medicinal plants. It was also noted that there were sustainability issues due to environmental conservation challenges. These studies however did not capture the social outcomes of HSB.

Odinka et al. (2014) observed that 76% of the respondents first sought alternative healthcare before resorting to biomedical healthcare. Challenges faced while seeking biomedical healthcare greatly influenced inhabitants of rural Nigeria ailing from chronic low back pain to seek alternative healthcare (Igwesi-Chidobe, Sorinola, Kitchen, & Godfrey, 2017). In

addition, some alternative healthcare providers' beliefs and strategies were aligned with that of their clients.

According to Winkler, Mayer, Schnaitmann, Ombay, Mathias, Schmutzhard, and Jilek-Aall (2010), individuals in some communities in Tanzania perceived some medical conditions to be resulting from sorcery, witchcraft, or the effects of taboos. These beliefs explained why the Maasai community of Kenya and Tanzania have upheld their preference for indigenous medications in an environment trending in new lifestyles and urbanization, (Kamau, Mbaabu, Karuri, Mbaria, & Kiama, 2017). Similarly, Makulilo (2016) reported that many individuals rushed to visit Mr Ambikile Mwasapila alias *'Babu wa Loliondo',* a popular faith healer in 2011 in Loliondo Tanzania, to seek cure for tuberculosis, diabetes, and HIV/AIDS. Through his vision of the cure for HIV/AIDS, he convinced many people to disregard ARVs (Dukes, 2012). It is however important to establish the social outcomes and statistical relationship of the HSB.

In Kenya, Kigen, Kipkore, Wanjohi, Haruki, and Kemboi (2017) observed that ethnomedicine comprising animal and plant products and bi-products were used in Elgeyo Marakwet to treat diabetes. Keter and Mutiso (2012) also identified plants in Lower Eastern Province for treating diabetes. Okello, Nyunja, Netondo, and Onyango (2010) observed that indigenous remedies were more accessible, convenient, cheaper, and more compatible with the culture of natives of Mt. Elgon. However, Kigen et al. (2017) noted that some medicinal plants were endangered because they had been over-utilized, due to inadequate conservation measures; hence recommended domestication of indigenous medicinal plants.

Studies in Nigeria by Adanikin, Onwudiegwu, and Akintayo (2014) and Eldoret by Kamaara, Nyongesa, et al. (2019) revealed that spiritual care was on-demand by expectant mothers but

was deficient. For some Kenyan women, they were driven by a feeling of vulnerability when expectant due to fear of witchcraft normally associated with high maternal mortality hence the need for spiritual protection. According to Callister and Khalaf (2010), the scenario was similar in developed countries due to the belief that spiritual powers influenced delivery outcomes.

Seeking healthcare from indigenous religions has been of great value due to challenges faced in seeking bio-medications; such as concerns over cost, access, drug resistance, and side effects of medications (Abdullahi, 2011). In addition, alternative healthcare provides avenues for preserving and respecting cultural heritage. Indigenous healers are often consulted when individuals want to put illnesses at bay, and when they attribute causes of illness to supernatural factors and prolonged suffering from chronic illnesses while at the same time using biomedical healthcare (Abubakar et al., 2013).

Most patients in Gucha, Kisii County, preferred ethno-medications while occasionally seeking hospital-based services for various health conditions (Ondicho, Ochora, & Matu, 2015). Besides, it was noted that ethno-medications were natural, of better quality services, and had a deeply rooted belief of efficacy for sustained good health. Mbwayo et al. (2013) revealed that indigenous healers were normally the first healthcare providers sought in case of mental-related illness. Alternative healthcare providers were available, accessible, and acceptable as they were part of the community's social fabric; citing that, socio-cultural factors influenced HSB due to varied interpretations of the causes of such illnesses. Spiritual healing was further sought to reconcile the spiritual world and the living since individuals believed that the spirits influenced various events.

According to Mchidi (2016), increased nursing education was highly associated with alternative HSB since 79.3% of diploma holders and below utilized biomedical healthcare as opposed to 20.7% of the nurses who had a higher diploma and above. Most healthcare workers have little experience and knowledge concerning indigenous healing, psychiatric nurses were relatively more informed about them than other healthcare workers (Mokgobi, 2014, p. 8). General nurses also had comparatively more knowledge of indigenous healing since most of them served in hospital facilities located in rural areas. According to Shivachi (2012), utilization of services of ethnomedical and biomedical practitioners was strongly prevalent and had very high success rates. However, the study cited the insignificant influence of religious affiliation on patterns of utilization of ethnomedicine in Iguhu, Kakamega County. Studies by Shivachi and Otengah (2017), Clement, Mutai, and Mutsami (2016), and Chukwuocha et al. (2014) noted that the influence of level of education was skewed, with those at both extremes of the level of education having high rates of utilization.

In the Nyanza region, according to Owuor et al. (2005), interventions for illnesses among the Luo community were normally sought from the physical and spiritual world. In which case, some of the community members attributed causes and treatments of such diseases to their socio-cultural and religious beliefs including customary laws, taboos, and spirits; while Christians often attribute misfortunes to evil spirits. Besides, it was revealed that there was confidence bestowed on indigenous spiritual healers due to socio-cultural values and perceptions which motivated continued utilization of alternative medications.

2.3.1 Limitations of Social Outcomes and Alternative HSB

There are concerns over efficacy of alternative healthcare in Africa; thus, derailing its applicability (Abdullahi, 2011). There is inadequate evidence on the efficacy of alternative

healthcare and their safety for human health hence calling for medical inquiries (Mahomoodally, 2013). Besides, some are inefficient (Chadza et al., 2012). There are worries about the inadequacy of information on treatments concerning the composition of remedies. Herbs have varied chemical compositions and hence vary based on their botanical species, chemotypes, anatomical part of the plant used, storage, environmental conditions, type of ground, time of harvest, and geographic area. These significantly result in differences in pharmacological activity and their use should be strictly supervised particularly during pregnancy or lactation (Antwi-Baffour et al., 2014).

According to Mathibela et al. (2015), indigenous spiritual healing has been ignored in South Africa since it could not be included in formal education curricula and policy documents. It was noted that documentation would reduce knowledge erosion on the medicinal value of some plants, besides, boosting efforts on environmental conservation. In Nigeria, there were concerns over standardization of the practice, endangering of some plant species, lack of documentation of some medicinal plants and their uses, while some indigenous practitioners regard them as individual property thus keeping them as a secret (Egharevba et al., 2015, p. 125). Feyera, Tajune, and Tarekagn (2009) revealed that utilization of alternative healthcare in Ethiopia was limited by its toxicity (46.7%), lack of scientific knowledge (46.7%), and the possibility of contaminations (35.9%), and lack of standard qualified dosages (71.7%). In addition, a majority of individuals using alternative healthcare did not confide with their healthcare workers, hence a challenge of monitoring of the alternative HSB (Adams et al., 2019).

Religion affects people's lives by helping solve some social problems, on the other hand, it may be counterproductive in some cases. For instance, the Apostolic sect members in Zimbabwe were associated with high maternal mortality as their beliefs and practices

increased delays between onset of maternal complications and receiving appropriate healthcare; therefore, calling for adaptive and complementary approaches (Kenneth et al., 2016). Therefore, it will be important to determine the statistical relationship between social outcomes and seeking healthcare from religious healers.

According to Rumun (2014), sometimes religious beliefs may make patients forfeit needed medications, decline medical procedures, and/ or stop using appropriate prescribed medication by choosing to stick to their faith instead of medicine; hence the need to learn and respect patients' decisions based on their religious beliefs. Mwaura (2019) observed that western religions practised under highly spiritualized contexts can be counter-productive to disease and illness if individuals rely too much on the clergy for spiritual healing. Besides, the anti-diabetes efficacies of some medications have not been validated thereby undermining the promotion of their usage (Kamau et al., 2017). Vahakangas (2015) noted that the Tanzanian government strongly backed and endorsed concoctions offered by *'Babu wa Loliondo';* however, eyebrows rose after reports of deaths of individuals who had disregarded and discarded ARVs.

Sudhinaraset et al. (2013) found that alternative healthcare was limited due to low compliance and lack of a parameter for measuring the quality of care. Indigenous African medicinal practices are characterised by secrecy, lack of regulations and inadequate infrastructural planning and support attributable to prohibitions by the British and apartheid government under the pretext of witchcraft in South Africa (Molebatsi, Breed, & Stafford, 2020). As a remedy to such setbacks and to officially recognize the practice(s); the South African government gazetted the Traditional Health Practitioners Act. Traditional healing was found to be holistic as it considered symptoms and social relationships. Besides, the setting, herbal component and dialogue with healers provide physical comfort and a sense of

cultural belonging to patients. Keter and Mutiso (2012) also found that there was an inadequacy of data on medicinal plants for managing diabetes in Kenya.

2.4 Social Outcomes of Combining Biomedical and Alternative HSB

Combining biomedical and alternative healthcare offers a wide range of options for patients which needs to be explored (Egharevba et al., 2015, p. 125). Various global declarations acknowledged the value of alternative healthcare and asserted the need for combining some aspects with bio-medications. For instance, the Alma-Ata Declaration of 1978 recognized the role of alternative healthcare (Tom & Abimbola, 2018); Beijing Declaration of 8th November 2008 reiterated the need for governments to ensure efficient use of alternative medicine and incorporating into the national health systems; and World Health Assembly of May 2009 in its resolutions of WHA62.13 and WHA67.1812, urged Member states to combine biomedical and alternative medications, increase efficacy, establish accreditation systems and enhance access (Tomar, 2016, p. 30).

Religion and biomedical therapy have a long history of conformity; ranging from spiritual healers and religious health facilities to religiously-based bioethics and studies on the implications of religion and beliefs on mental and physical well-being (Levin, 2020). Guerra and Nicdao (2014) noted that the healing power of God should not be neglected, rather, there should be a balance between various approaches, which can instil hope among individuals suffering. Convetional medicine according to Ly, Saide, and Richert (2020), is perceived to be more effective in alleviating health concerns. Individuals also perceive prayers to be effective when performed in group settings especially when there is high frequency of religious activity. However, the studies did not capture the social outcomes of the various HSB.

Pastakia et al. (2016) revealed that a context-based care delivery model based on the unique needs of patients had significant results in improving medical conditions. China, for instance, developed a unique integrative model of healthcare delivery system; hence achieving good health and decreased mortality rate. Besides, Hsu, Tsai, Lai, Wu, Lin, and Huang (2014) found that combining biomedical and alternative healthcare for persons living with diabetes lowered the risk of developing kidney failure. The studies in a bid to highlight opportunites in combining biomedical and alternative HSB limited their scope to medical outcomes.

According to Green and Colucci (2020), both indigenous and convetional healthcare practitioners acknowledge possibility of patients benefiting from a combination of both. The study, however, noted that there were different conceptualizations on causality of illnesses. Combining biomedical and alternative healthcare provides opportunities for enhancing outcomes of healthcare delivery in the community (Krah et al., 2018). In Ghana, biomedical healthcare is considered superior to alternative healthcare (Boateng, Danso-Appiah, & Turkson, 2016); a move perceived to be an attempt to govern alternative healthcare practices.

Fokunang, Ndikum, Tabi, Jiofack, Ngameni, Guedie, and Tembe-Fokunang (2011) also revealed the high cost of medications and cases of drug resistance; in addition to the history of success of indigenous therapies greatly boosted the efforts by the government of Cameroon in collaboration with the WHO to strategize on combining biomedical and alternative healthcare. These studies acknowledged need for combining biomedical and alternative, however, their scope was limited to related challenges and opportunities.

The growing popularity of indigenous Chinese medications could be attributed to perceived inadequacies of biomedical medications, the need for patient autonomy, and the preference for holistic therapy (Liao, Lin, Li, & Lin, 2012). This study was however limited in scope as

it only focused on medical outcome of combining biomedical and alternative HSB. A study by Oliver (2013) on the role of indigenous medicine among the Aboriginal Australia revealed that there was complex medical pluralism. In most cases, indigenous healing was combined with bio-medicine. It thus, recommended more focus at combining biomedical and alternative healthcare. The study was however, limited in its scope and failed to capture the social outcomes of alternative HSB. Complementary and alternative therapies, including nutritional medicine, are preferred for diabetes treatment (Vashist & Luong, 2017; Buse, 2016; Chowdhury, 2014). The extent of utilization and value of alternative healthcare cannot be underestimated given that they comprise 51-96% in developing countries and have been used in the treatment of various illnesses (Das et al., 2017).

Most individuals seeking biomedical healthcare for mental-related disorders in Africa first resort to alternative healthcare (Burns & Tomita, 2015; Odinka et al., 2014). It was also observed that alternative healthcare had a higher capacity to admit patients than biomedicine-based mental health facilities in Kenya, Ghana, and Nigeria; it however, failed to capture its implications and significance on the patients.

According to Gureje, Nortje, Makanjuola, Oladeji, Seedat, and Jenkins (2015), indigenous medicine is embedded in socio-cultural contexts and is more commonly used for persons with mental illnesses; attributable to beliefs on their nature and causality. There is need for a focus on the socio-cultural meanings and conceptualizations which could consequently infuence patterns of utilization of healthcare; hence impacting on the social outcomes (Verginer & Juen, 2018; Nzimakwe as cited in Mokgobi, 2014). As recommended by Rumun (2014) and Mokgobi (2014), healthcare workers should understand beliefs and practices significant to a patient's health. Some indigenous healers believed that conventional medications could not effectively treat some conditions which they believed to be caused by

evil spirits (Keikelame & Swartz, 2015). Mbwayo et al. (2013) also recommended educating indigenous healers on the diagnosis and treatment of mental disorders and making of referrals in case patients fail to respond positively to treatments. These studies recommended need for collaboration between alternative and western-trained health practitioners, but failed to outline the social outcomes thereof.

Feyera et al. (2009) found that 43.4% of medical practitioners in Ethiopia preferred combining biomedical and alternative healthcare, while 64.13% reported that indigenous medications were advantageous over biomedical healthcare due to their cost-effectiveness and accessibility. Johnson et al. (2017) found that preference for indigenous healers in addressing medical conditions could be attributed to fact that mental health professionals are in short supply. For instance, in Uganda which is under-resourced in terms of mental health-related professionals (Kigozi et al., 2010). Agyei-Baffour et al. (2017) also reported that high feasibility and acceptability enhanced efforts to combine biomedical and alternative healthcare in Ghana.

Biomedical and alternative healthcare are complementary and do not change the contribution of either (Abubakar et al., 2013; Ganz, Fung, Sinsky, Wu, & Reuben, 2008). It rather changes the interaction between biomedical and alternative healthcare provided to patients (Janse, Huijsman, Looman, & Fabbricotti, 2018). It was further observed that combining biomedical and alternative healthcare enhanced outcomes in the patterns of associations when combining biomedical and alternative healthcare in comparison to isolated care. The study by Ganz et al. (2008) was a longitudinal study focused only highlighting the key elements of service delivery elderly persons.

According to Batisai (2016, p. 119), biomedical and alternative healthcare interact in various forms influenced by accessibility, affordability, availability and satisfaction levels. As the illness progress, patients oscillate between the two types of healthcare. They normally intend to maximise usage and increase chances of regaining optimum health outcomes faster. The study focused on HIV/AIDS patients in Zimbabwe, while this study focused on diabetes.

A study by Flint (2015) found that there are ongoing debates on value and efficacy of indigenous healing in South Africa for treatment of HIV/AIDS. Instances of combining biomedical and alternative healthcare have also been evident in treatment of tuberculosis in Gabon (Cremers et al., 2013), HIV/AIDS in Zimbabwe (Ngarivhume et al., 2015); a behaviour attributed to stigma, ignorance, shortages of medications, and financial constraints when seeking biomedical healthcare. Besides, there has been an emphasis on a complimentary engagement between indigenous and biomedical healthcare systems.

Chukwuma et al. (2016) found that various factors influenced HSB including personal choice/ belief (51.2%), spousal influence (48.3%), and family values (39.3%) in Nigeria. It was further observed that 63.7% of the participants sought both biomedical and alternative medications when unwell. Among these, 71.3% were influenced by their family members while 65.0% were influenced by their previous experiences. Eboh et al. (2019) revealed that attitudes and beliefs significantly influenced expectant women's utilization of indigenous medications and combining biomedical and alternative healthcare; thus, calling for the need for recognition of alternative medications. The study, however, focused on expectant women attending clinics in Nigeria.

Kamaara, Oketch, et al. (2019) revealed that faith-based institutions are vital in providing an estimated 40% of healthcare services since they form an integral part of the social fabric in Kenya. Most clergy and biomedical healthcare providers acknowledged the value of

increased participation of clergy in boosting the conceptualization of bio-medical HIV/AIDS prevention. The study however, was limited to finding out the history and relations of religion and conventional medicine but did not capture the social outcomes of seeking faith based healing and biomedical healthcare which was the subject of this study.

Biomedical healthcare was preferred though indigenous healing was sought when biomedical healthcare failed, and for conditions perceived to have paranormal causes (Abubakar et al., 2013). Indigenous healing practices form part of the cultural heritage and a major part of the Sabaot's primary healthcare in Mt. Elgon. However, there are few documentation on the species of plants given that most indigenous healers since some are held with utmost secrecy (Okello et al., 2010). In as much as the studies highlighted the significance of combining biomedical and alternative HSB, they failed to clearly outline the social outcomes from such HSB.

2.4.1 Limitations of Social Outcomes and Combining Biomedical and Alternative HSB

Combining alternative medical modalities with biomedical healthcare is not easily achieved due to scientific, socio-cultural, educational, and legal reasons (Tomar, 2016). This was due to concerns over its efficacy, how to train medical doctors, cases of fake healing, and ideological and epistemological differences between biomedical and alternative practitioners (Abdullahi, 2011). Some patients also have low awareness and understanding of potential outcomes of interactions of particular ethno-medications with biomedical healthcare; consequently, affecting HSB (Peltzer et al., 2016).

In South Africa, bringing on board alternative healthcare providers into the country's mainstream healthcare system; according to Mokgobi (2013, p. 5), was challenging due to the state's overstretched budget. Efforts at combining biomedical and alternative healthcare

should ensure harmful indigenous treatment practices are well addressed (Esan et al., 2019). It has also been reported that only 14% of clients disclosed such usage to their biomedical healthcare providers (Agyei-Baffour et al., 2017). Ngarivhume et al. (2015) noted that only 25% of indigenous practitioners referred malaria patients to hospitals in case they failed to respond positively to medications

Jaiswal and Williams (2017) revealed that inadequate understanding of similarities and differences between theoretical doctrines of indigenous medications is a major limitation to incorporating them with biomedical healthcare and consequent global harmonization and acceptance. Another notable challenge in combining biomedical and alternative healthcare as expounded by Ojung'a (2016, p. 90) was the discouragement by ethnomedicine practitioners to their patients against the usage of drugs but rather have faith in God that after receiving concoctions given they will be fully healed. Some behaviours also have negative implications on the patients by exposing them to opportunistic infections and risk multimorbidity and mortality. Indigenous beliefs on certain medical conditions in Tanzania disregard biomedical remedies and work contrary to prescriptions issued (Nnko et al., 2015). Besides there is fear that alternative healthcare could replace biomedical diabetes treatments (Matheka & Demaio, 2013).

The choice of alternative healthcare which can be combined with biomedical therapy may be limited in Kenya. Most urban Kenyans and medical practitioners had negative attitudes and perceptions toward indigenous medicine and indigenous healers. However, the value of alternative medicine should not be underrated due to its social and economic value in rural areas where bio-medications have less penetrated or can hardly be accessed (Gathara, 2018). It is therefore important to establish the significance of combining biomedical and alternative HSB among persons living with diabetes in the study area.

2.5 Literature Gap

The researcher while reviewing literature on studies done, it was observed that there was methodological, conceptual, theoretical, and geographical gap. Most studies reviewed were found to be focused on determinants, preference, utilization, and limitations of HSB in managing diseases; some focused on divergence as opposed to a convergence of biomedical and alternative healthcare. Most studies on diabetes also did not capture the social outcomes. Besides, Nimesh et al. (2019) in a study on patterns of healthcare-seeking behaviour among persons with diabetes in Central India recommended a study on quality of life among individuals switching healthcare. Shiroya et al. (2019) noted that there exists a discrepancy between ideal and actual implementation of diabetes management within the NCDs policy agenda: a gap which the study sought to fill due to the observed differential patterns of utilization of healthcare. By exploring the social outcomes of HSB, the study further sought to outline a need which according to Tilburt and Kaptchuk (2008) is one of the ethical rules for clinical trials of traditional medicine.

2.6 Theoretical Framework: Health-Belief Model

Health Belief Model (HBM) is a social psychological theoretical model developed in the 1950s by social psychologists in the US Public Health Service to explain why many people failed to participate in public health programs (Becker et al., 1977; Metta, 2016, p. 29; Rosenstock, 1966). HBM suggests that a person's belief in the personal threat of an illness together with belief in the effectiveness of recommended health behaviour or action predicts the likelihood of adopting a particular behaviour (Rosenstock, 1974). According to Kolling et al. (2010) and Metta (2016, p. 29), the central tenets of HBM are that behaviour is a function of the subjective value of an outcome and of the subjective probability or expectation that a particular action will achieve that outcome.

HBM has six constructs: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, self-efficacy, and cues to action (Janz & Becker, 1984 as cited in Martin & DiMatteo, 2014; Metta, 2016, p. 30); in which case perceptions on the barriers of the healthcare has the strongest influence. It was further revealed that self-efficacy and cues to action were not original tenets of HBM but were borrowed from Bandura's Social Learning Theory for self-efficacy (Metta, 2016; Rosenstock et al., 1988) and cues to action was also included as one of the tenets (Graham et al., 2001 as cited in Metta, 2016, p. 32). Cockerham et al. (2014) revealed that perceived benefits and barriers to behaviour are vital in the decision, for or against particular actions whose benefits out-do costs (Marton & Choo, 2012). People fear worsening of health condition(s), and the choice of HSB depicts the level of fear and perceived threat; hence take measures to avert contracting other diseases, and undesirable health ramifications and/or potential social ramifications (Janz & Becker, 1984 as cited in Martin & DiMatteo, 2014). Self-care increases due to perceptions of more benefits, effectiveness, fewer perceived barriers, and more social cues (Ma, 2018; Ayele et al., 2012).

Adopting HSB requires several beliefs and situations working in concert and critical enough to merit remedy (Anderson, 2004). In which case, individuals have to be conscious of the health risk and perceive it to be sufficiently serious and likely to affect them before considering taking action. This is in addition to a belief that particular behaviours will be effective in protecting them from negative outcomes and overcoming possible costs. Healthy lifestyles are based on decisions from available alternatives to people as per their life chances (Cockerham, 2012). HBM emphasises the likelihood that healthcare services will be used grounded on the beliefs of individuals (Rosenstock et al., 1988).

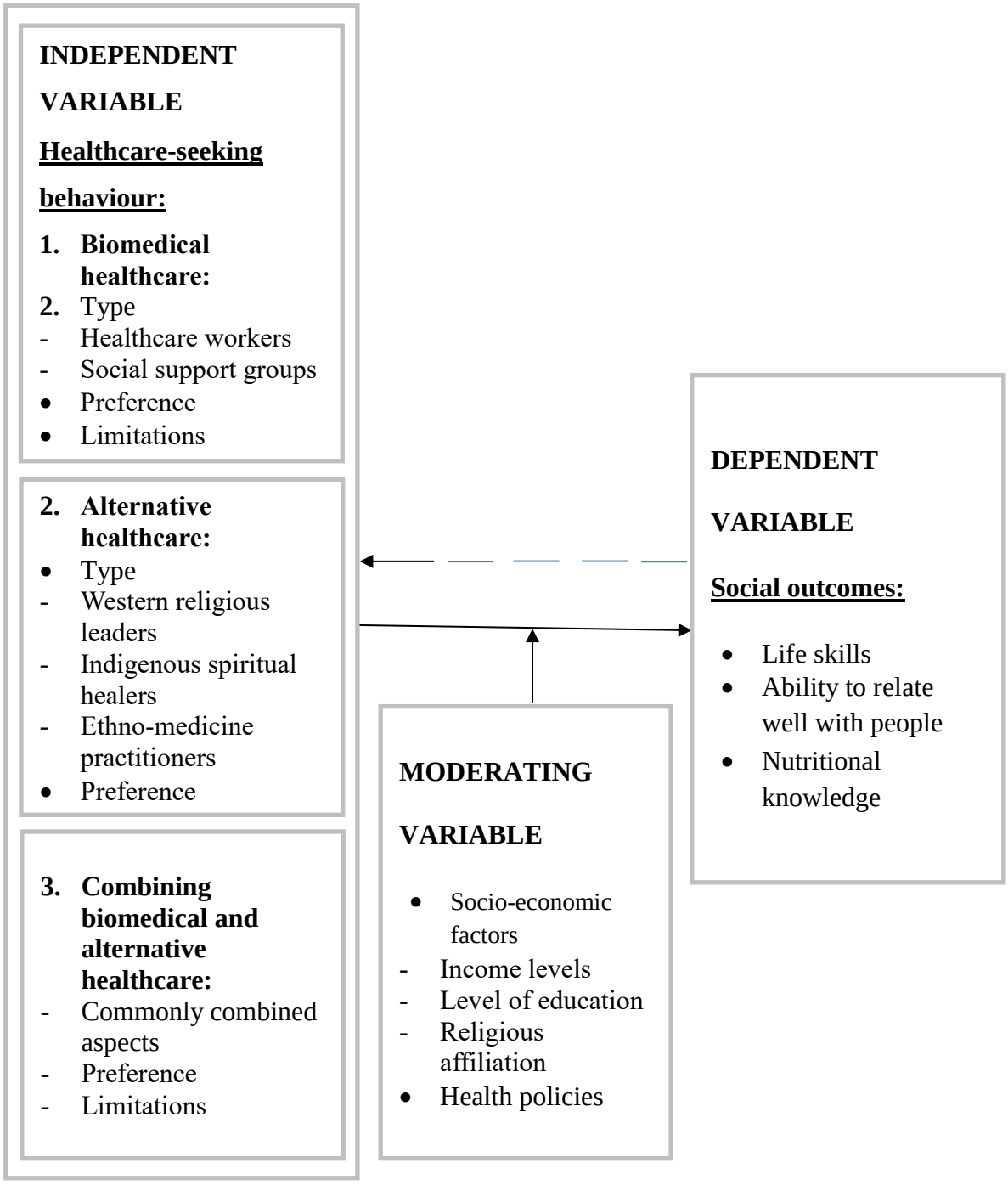
HBM is critiqued due to the view that it simplifies barriers and benefits without specifying beliefs underlying these constructs; and that intentions and self-efficacy are not overtly

considered, and account for social pressures (Harrison et al., 1992 as cited in Martin & DiMatteo, 2014). The theoretical model was of great significance in enhancing a comprehensive understanding of why persons living with diabetes resorted to particular HSB which could thereof influence diabetes management since it can be used to predict actual behaviour; besides, it recognizes social outcomes/ context (Green et al., 2020). The model was also used by Costa (2020) to confirm popular beliefs relating to risks of coronavirus infection. It was also used by Darvishpour et al. (2018) to predict breast cancer screening behaviours. Didarloo et al. (2017) revealed that self-efficacy was the most predictor of behaviour and noted that interventions based on perceived self-efficacy, perceived benefits, and perceived severity could help increase regular screening for breast cancer. Aldohaian et al. (2019) found a low incidence of anticipated barriers and a high incidence of anticipated benefits on motivation for cervical cancer screening. It was also found that HBM-based nutrition education improved the nutritional knowledge and dietary practices of expectant women (Diddana et al., 2018). Tong et al. (2020) also established that adherence to coronavirus precautions was significantly associated with HBM constructs.

2.7 Conceptual Framework

Figure 1

Conceptual Framework



The conceptual framework shows the relationship and interactions between the independent variable (healthcare-seeking behaviour) and the dependent variable (social outcomes), and

their link with the moderating variable (socio-economic factors). In this case, the study hypothesized that the healthcare-seeking behaviour of persons living with diabetes could influence the social outcomes. The study also acknowledged that the relationship was likely to be two-way in the sense that, there were chances that, if the given healthcare seeking behaviour enabled the respondents to achieve the social outcomes, then social outcomes could also influence their subsequent healthcare-seeking behaviour. The study also explored how socio-economic factors could influence the relationship between the independent and dependent variable.

An independent variable determines what happens to a dependent variable. It is considered as an inducement of influence that is not affected by another variable (Cohen et al., 2018, p. 728). The dependent variable measures the influence of the independent variable; that is, whether changes in the independent variable influences the dependent variable (Kumar, 2011, p. 11).

The independent variable in this study was healthcare-seeking behaviour (HSB), with its key aspects being biomedical, alternative, and combining biomedical and alternative HSB. Biomedical HSB had the following aspects: healthcare workers and social support groups. It was explored in terms of preference and challenges faced by the respondents during utilization. Alternative HSB had the following aspects: western religions, indigenous religions and ethnomedicine practitioners. It was studied in terms of preference and challenges faced during utilization. Combining biomedical and alternative healthcare HSB had the following aspects: commonly combined aspects encompassing forms of biomedical and alternative HSB often combined or utilized inter-changeably; preference of consultations and challenges faced during utilization.

The indicators for social outcomes were adopted from the goals which according to Kenya National Diabetes Comprehensive Care Manual (2010); if achieved, then diabetes management and remission could be realized. These included: acquiring life skills, ability to relate well with people, and acquiring nutritional knowledge. It is important to note that the social outcomes could also subsequently HSB, though this was not tested within the scope of this study.

The moderating variable of the study were socio-economic factors like income levels, level of education, and religious affiliation and health policies on patient care and service delivery. The study observed that the relationship between individuals' HSB and social outcomes could be affected by socio-economic factors and health policies.

The choice of biomedical, alternative, and/ or combining biomedical and alternative could have implications on social outcomes due to inconsistency of care, competing views, and contradicting healthcare guidance; these, if not adequately addressed could lead to confusion and stoppage of care-seeking. Concerns that are counter-productive to managing of diabetes, discontentment as the diabetes clients may suffer complications or even bouts due to poorly managing blood sugar levels. The challenges faced could also affect choice, motivate healthcare shifting, non-compliance, and stoppage of healthcare-seeking. Besides, socio-economic determinants such as income, level of education, and religious affiliation could affect decision making, while government policies could guide medical services delivery specifications entailing patient-healthcare worker relationships and expectations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research approach, research design, study area, target population, sampling techniques, sample size, validity, reliability, and ethical considerations. These are discussed in more detail in this section.

3.2 Research Approach and Design

The study adopted a convergent mixed-method approach and descriptive-exploratory research design. According to Creswell (2012), the problems addressed by social and health science are complex; therefore, using either qualitative or quantitative approach alone could have been inadequate. Mixed-method approach enabled collecting both qualitative and quantitative data and combining both data in the study, thus providing room for further probing and seeking explanations for incongruent findings (Creswell & Creswell, 2018, p. 52). It is problem-centred, thus, provided added value and comprehensive understanding and analysis of the problem (Leavy, 2017, p. 164). It further enabled exploring the strengths of both by allowing for triangulation of findings to strengthen the validity thus increasing the utility of the study; by putting the findings in a context (Creswell & Plano, 2011). Convergent mixed approach involves collecting both quantitative and qualitative data concurrently and analysing them independently; after which the researcher compares and relates or merges the results and draws general conclusions or interprets the results together (Fetters et al., 2013). Descriptive studies provide valid and accurate representation of determinants significant to the set research questions for exploring attributes of a phenomenon including existence of a relationship (Asenahabi, 2019; Kumar, 2011, p. 10; Salkind, 2010, p. 118; Teddlie &

Tashakkori, 2009). While exploratory design is the most useful design for studies addressing a subject which has high levels of uncertainty or unknown aspects. In this case, the study sought to establish the social outcomes of HSB among persons living with diabetes in the study area.

3.3 Study Area

This study was conducted in Rongo Sub-County which is one of the 10 sub-counties in Migori County. Google coordinates of the study area are: Latitude of -0.75766° or 0° 45' 28" South, Longitude of 34.60364° or 34° 36' 13" East, and an altitude of 1,474 metres (4,386 feet) above sea level (Google Maps, 2022).

Rongo sub-county recorded the highest increase in diabetes clinic attendance in 2019 in the County at 27.07% (MCHD Records, 2020). It is the second-most densely populated sub-county at 583.82 persons per square kilometre compared to other sub-counties in Migori County (Migori CIDP, 2018-2022). It has three health facilities offering diabetes care which were purposively selected. These included: Rongo Sub-County Hospital and Royal Hospital (both in Central Kamagambo Location), and Lwala Community Alliance Hospital (North Kamagambo Location).

Table 1

Study Area

Item/ Feature	Description
Size	213.40 km^2
Population	124,587 people
Population density	583.82 persons per km^2
Neighbours	Kisii County (East), Homa Bay County (West), Narok County (South East), and Awendo Sub County (South)
Main economic activities	Gold mining, crop farming, and livestock farming, and general business activities
Communities	Predominantly Luos and Kisiis
Persons diagnosed with diabetes in 2019	718

3.4 Target Population

The target population was 718 persons diagnosed with and attending diabetes clinics in the health facilities offering diabetes care within Rongo Sub-County.

3.5 Sample Size and Sampling Procedures

The sample size for this study was 257 respondents. This was arrived at using the formula suggested by Taro Yamane (1967). The formula is recommended for use when using simple random sampling and proportions (Israel, 1992).

Using a 95% confidence level and p =1.0, with ±5% precision, sample size was calculated as follows:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{718}{1+718(0.05)^2} \quad = 256.89 = 257 \text{ respondents}$$

Where *n* is the sample size, *N* is the population of persons living with diabetes and attending diabetes clinics within the study area, and, *e* is the level of precision.

The researcher used proportionate sampling to select respondents from the health facilities which were purposively selected. The number of respondents from the given facilties was divided by the total population of persons living with diabetes as per MCHD records (2020), and then multiplied by 257 and the figures as shown in Table 2 were arrived at. Simple random sampling was used to ensure each person living with diabetes had an equal chance of selection to participate in the study (Alvi, 2016; Kothari & Garg, 2014). Using simple random sampling, the researcher picked the respondents from a list provided from the facilities. The key informants who were healthcare workers were purposively selected due to their expertise on the subject of study (Kothari & Garg, 2014; Kumar, 2011; Vander-Stoep & Johnston, 2009).

Table 2

Sampling Frame

Health Facility	**Population of persons diagnosed with diabetes**	**Sample for respondents**	**Sample for key informants**
Rongo Sub County Hospital	317	113	2
Lwala Community Alliance Hospital	212	76	2
Royal Hospital	189	68	2
Total	**718**	**257**	**6**

3.6 Data Collection Instruments and Procedures

Data for the study were collected using a questionnaire and an interview schedule as described in this section.

3.6.1 Questionnaire

A questionnaire developed by the researcher in line with objectives of the study was administered to persons living with diabetes. It consisted of closed-ended and open-ended questions; which according to Kumar (2011) are easy to administer and valuable in obtaining factual information and collecting sensitive data. The questionnaire had four sections, with each item having a brief open section for respondents to explain their choice/ behaviour. The open-ended sections of the questionnaire were captured as verbatim and summarised to highlight emerging themes. The researcher administered the questionnaires to the respondents by giving those who were able to read to fill on their own, and helped those who could not fill them on their own in filling.

3.6.2 Interview Schedule

Interview schedule was used to collect qualitative data from the key informants. These included nutritionists, pharmacists, public health officers, clinical officers, nurses, and obstetricians offering diabetes care in the selected facilities. This was meant to enable collection of in-depth information (Noor, 2008). The responses were captured as verbatim in field note book and summarised to highlight key themes. This was done through a combination of listening and notes-taking, and subsequently highlighting dominant themes.

3.7 Piloting

Piloting was done to check the clarity and relevance of the instrument and determine feasibility of the design (Cohen et al., 2018, p. 262). Suna East Sub-County, in Migori County, was selected because it has almost similar features to the study area. Twenty-six (26) respondents were selected as recommended by Franzosi, Hardy, and Bryman (2009), who noted that between 9% and 10% of the sample of the study was adequate; while less than 30 respondents were recommended by Perneger et al. (2015). The findings from piloting were used to modify the tools accordingly before actual study was conducted. The questions which were ambiguous were revised for clarity.

3.8 Validity and Reliability

The study ensured that the instruments had acceptable validity and reliability through tests done and piloting.

3.8.1 Validity

Content validity is the relevance of instruments, according to Cohen et al. (2018), and was ascertained through expert opinion and analysis by the Rongo University supervisors. Each question was analysed to achieve acceptable face, content, construct, and internal and external validity as recommended by Cohen et al. (2018), Taherdoost (2016), and Kim (2009). The items were rated into categories of relevance scale of 1-4 (4-very relevant, 3-quite relevant, 2-some-what relevant, and 1-not relevant. A content validity index of .85 was obtained which was above the accepted validity threshold of .70. Items rated to be relevant by a critical number of panellists were included in the final instrument, while those below the threshold were discarded (Kim, 2009). In addition to the recommendations from piloting

questions were revised for clarity while one question on blood sugar level was dropped since it was considered not relevant to the scope of the study. Five questions on sociodemographic information were also found not to be consistent with the objectives; however, it was recommended by the experts that they be included to show representativeness of the respondents.

$$\text{Content validity index} = \frac{\text{No. of items rated relevant by experts}}{\text{Total no. of items in the instrument}}$$

$$\text{Content validity index} = \frac{19}{23}$$

$$=.826$$

3.8.2 Reliability

Internal consistency reliability was tested because it's conservative and requires single administration; hence most appropriate for testing dynamic behaviours (Taherdoost, 2016; Salkind, 2010; Robinson, 2009). While designing data collection instruments, adequate safeguards against bias were ensured; questions were examined and unambiguity was ensured (Kothari & Garg, 2014; Kothari, 2004). Cronbach alpha (*a*) which is recommended for descriptive studies was used (Bolarinwa, 2015). According to Vander-Stoep and Johnston (2009), Cronbach alpha measures the degree to which items in a questionnaire are related; thus, it is a reflection of how well different items complement each other. The instruments were tested for reliability as computed on SPSS software and Cronbach alpha of .865 was achieved, which was very high reliability; and above the minimum threshold of .70 as recommended by Garson (2013).

Table 3

Reliability

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.888	.865	23

3.9 Data Analysis and Presentation

Both descriptive and inferential statistics were used to analyse quantitative data. Descriptive statistics were used to describe the characteristics of individuals. However, since it showed minimal desire to uncover new findings (Kern, 2013); inferential statistics was used to measure the relationship between the independent and dependent variables. Inferential statistics enabled making conclusions beyond observed data thus detecting differences between groups that failed to differ adequately (Cohen et al., 2018, p. 728; Kern, 2013). Quantitative data were analysed using descriptive statistics such as percentage counts, frequency counts, mean and standard deviation (Cohen et al., 2018, p. 758; MacDonald & Headlam, 2010). On the other hand, qualitative data were transcribed, classified and analysed based on the identified dominant themes; as the convergent method was utilized in data synthesis.

In the case of inferential statistics, Spearman's rho correlation was run to establish the relationship between the independent variable and dependent variable. It helped in determining the strength and direction of association between the variables (Ali et al., 2019; Elst, 2019, p. 31; Kothari, 2004). Bordens and Abbott (2018) recommended Spearman's correlation when both variables are measured on an ordinal or interval scale; and for both linear and non-linear relationships (Liu et al., 2016). It is also recommended for Likert scale data (Norman, 2010). The conclusion from the correlation was made based on the modal

value because it is useful in situations where there is need to eliminate the effect of extreme variations and in ordinal data (Seeram, 2019; Liu et al., 2016).

Correlation coefficients range on a scale of -1.0 to 1.0. Elst (2019, p. 31) recommended the scale on Appendix scale as a rule of thumb for Spearman's rho correlation coefficient:

A positive correlation shows that as one variable increases (or decreases), the other also increases (decreases), while for a negative correlation, as one variable increases, the other variable decreases (Walliman, 2011, p. 758; Patel, 2009; VanderStoep & Johnston, 2009).

Quantitative data were summarized and presented using frequency tables, bar graphs, frequencies, and percentage counts (Cohen et al., 2018, p. 758; MacDonald & Headlam, 2010). Data were scored and run in the SPSS software version 26.0; while qualitative data was classified based on themes.

3.10 Ethical Considerations

The researcher got permission to conduct the study from Rongo University School of Post Graduate Studies (Appendix VIII), National Commission for Science Technology and Innovation (NACOSTI) (Appendix IX), Migori County Commissioner's Office (Appendix X), and Migori County Government Health Department (Appendix XI). While seeking preliminary data on the diabetes prevalence, the researcher sought permission through Migori County NCDs Coordinator's Office vide a letter (Appendix VII). The researcher gave copies of letters from NACOSTI and Migori County Government Health Department to the head of the various facilities targeted. The researcher committed to uphold confidentiality, anonymity, covid-19 protocols, and ethical standards while conducting the study.

The researcher got permission and formal introduction through the healthcare workers and politely requested respondents to participate in the study. They were informed of the purpose of the study and the expected duration of participation. They were assured that their personal information would be treated with utmost confidentiality and not revealed to anyone. To achieve this, no personal details of the respondents that could reveal their identity were captured, instead, questionnaires and interview schedules were coded for purposes of data entry. The researcher also attached statements of privacy and confidentiality alongside the questionnaires for respondents to read and accept by signing, hence obtaining consent (Appendix I). Considering that during the time of study, there was high prevalence of covid-19; the researcher strictly observed the Ministry of Health protocols on containment of the pandemic incuding correct wearing of masks, and sanitizing.

Table 4

Quantitative Data Analysis and Presentation

Research Objective	**Independent Variable**	**Dependent Variable**	**Method of Analysis**	**Method of Presentation**
To determine the social outcomes of biomedical HSB among persons living with diabetes.	Biomedical HSB	Social outcomes	Frequency, percentages, mean & standard deviation (SD) Spearman's rho correlation Thematic analysis	Bar graph Frequency tables Narrative
To determine the social outcomes of alternative HSB among persons living with diabetes.	Alternative HSB	Social outcomes	Frequency, percentages, mean & SD Spearman's rho correlation Thematic analysis	Bar graph Frequency tables Narrative
To determine the social outcomes of combining biomedical and alternative HSB among persons living with diabetes.	Combining biomedical and alternative HSB	Social outcomes	Frequency, percentages, mean & SD Spearman's rho correlation Thematic analysis	Pie chart Frequency tables Narrative

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

The chapter discusses analysis, presentation and interpretation of study findings as per the specific research objectives and methodology.

4.2 Response Return Rate

A total of 257 questionnaires were administered and 174 questionnaires were completed and returned. This gave a response of 67.70% which is more than 60% recommended by Fincham (2008) to be adequate for analysis, reporting and survey research.

4.3 Socio-Demographic Information

Socio-demographic information on the respondents specifically age, sex, income, education, and religious affiliation was collected to determine representativeness of the sample to the population and generalization of findings.

4.3.1 Sex of the Respondents

The study found that a majority of the respondents were female persons (96; 55.2%) while 78 (44.8%) were male persons as shown in **Table 5**. This suggested that more female persons frequently sought diabetes care. The findings were consistent with observations made by Agyei-Baffour et al. (2017), and Thompson et al. (2016) who reported that more women sought healthcare. This was attributable to females' socio-cultural responsibilities which entailed being carers for the family and themselves. In addition, it was attributable to gender-biased approaches in healthcare delivery which focused more on females hence leading to

the invisibility of males' illness. The findings were however inconsistent with findings by Ayah et al. (2013) which noted that more males had diabetes. Gregg and Bracco (2019) also revealed that more males had diabetes globally. This, therefore, suggested that more males could be living with diabetes but have low HSB as alluded by Idris et al. (2019) in a study in Brunei which only focused on male persons.

4.3.2 Age of the Respondents

Table 5 indicate that 106 (60.9%) respondents were aged above 50 years; consistent with observations made by Ayah et al. (2013) that diabetes prevalence progressed with age. This was attributable to the low immunity of most elderly persons which made them more susceptible to poor health in case they had diabetes as noted by Mathenge et al. (2014). It was also comsistent with findings of Sibuor (2018) in Rachuonyo North Sub County, that elderly persons experienced moderate aging due to multimorbidity. It was further observed 156 (89.6%) respondents were aged above 30 years confirming findings by Chowdhury (2014) that most individuals were diagnosed when they were above 30 years. Further concern was that 50 (28.7%) respondents aged below 40 years were diagnosed to be living with diabetes. This was contrary to what numerous studies revealed and the misconception that diabetes was only a preserve for elderly persons.

4.3.3 Level of Education of the Respondents

The study found that 104 (59.7%) respondents had post-primary education suggesting that they could easily comprehend health instructions hence making informed decisions on their life with diabetes as shown in **Table 5**. This was consistent with findings by Ayah et al. (2013) that most respondents in Kibra slums had a minimum of primary school education.

4.3.4 Religious Affiliation of the Respondents

As shown in **Table 5**, the study found that 172 (98.9%) respondents were affiliated to western religions. This was consistent with the findings of the KNBS (2019) Census Report which revealed that majority of residents in the study area were Christians. Since spirituality, as posited by Mwaura (2019) influences HSB, therefore, the religious affiliation of the respondents could consequently have implications on the social outcomes of HSB among the respondents.

4.3.5 Average Monthly Income of the Respondents

As indicate in **Table 5**, the average monthly income of 80 (46.0%) respondents was below Ksh. 20,000. This finding was in agreement with Zehtab and Adib-Hajbaghery (2014), who revealed that Western Kenya was relatively resource-constrained. These findings were attributable to the finding shown **Table 5** that 78 (44.8%) respondents were aged above 60 years which is the retirement age in Kenya. It also highlighted hardships faced on medical and food expenses; which could eventually have implications on the HSB and subsequently influence social outcomes. This finding was consistent with observations made by Oyando et al. (2019) that diabetes care services were unaffordable.

Table 5

Socio-Demographic Information

Item		Frequency (No.)	Percent (%)
Sex of respondent	Male	78	44.8
	Female	96	55.2
	Total	174	100.0%
Age of respondent	18-30 years	18	10.3
	31-40 years	32	18.4
	41-50 years	18	10.3
	51-60 years	28	16.1
	Above 60 years	78	44.8
	Total	174	100.0%
Level of education	Primary	70	40.2
	Secondary	30	17.2
	Certificate/ diploma	42	24.1
	Graduate	28	16.1
	Postgraduate	4	2.3
	Total	174	100.0%
Religious affiliation	Christian-Catholic	52	29.9
	Christian-Protestant	100	57.5
	Muslim	20	11.5
	African Independent Churches	2	1.1
	Total	174	100.0%
Average monthly income	Below 20000	80	46.0
	20001-30000	52	29.9
	30001-40000	30	17.2
	40001-50000	6	3.4
	Over 50000	6	3.4
	Total	174	100.0%

4.4 Social Outcomes of Biomedical HSB

To determine the social outcomes of biomedical HSB among persons living with diabetes in the study area, the study explored preference of seeking healthcare from healthcare workers and from social support groups. The outcomes are discussed in the following section.

4.4.1 HSB based on Healthcare Workers

Findings illustrated in **Figure 2** reveal that 158 (90.8%) respondents preferred seeking healthcare from healthcare workers. These findings were attributable to the observation that most respondents were used to visiting healthcare workers; as revealed in qualitative findings. The findings were consistent with observations made in a study by Abidin et al. (2014) which noted that most persons living with diabetes sought appropriate healthcare; the study however was limited to analysing prevalence and determinants of HSB and did not capture the social outcomes. The findings were also consistent with Chukwuma et al. (2016) who found that individuals preferred seeking biomedical healthcare due to its effectiveness in Nigeria; however, the study focused on the prevalence and determinants of HSB. The findings were also consistent with observations made by Marton and Choo (2012) which revealed that most individuals preferred seeking healthcare from healthcare workers a behaviour attributable tp perceived authenticity. These findings were however, based on a secondary literature review and not actual data from the field hence could be affected by limitations of the studies reviewed. The findings were, however, inconsistent with observations made by Howland (2020) who highlighted that there were numerous cases of counterfeit medicines in Kenya contributed to mistrust of biomedical healthcare and low HSB.

Qualitative responses collected from key informant interviews (KIIs) reveal that seeking healthcare from healthcare workers was recommended. This was attributable to its authenticity which was consistent with observations made by Marton and Choo (2012). However, challenges faced prompted dissatisfaction when visiting healthcare workers. Some of the respondents said:

'... sometimes I come to the hospital and the doctor prescribes to me some medicine to take but when I go to the hospital pharmacy am told there is no medicine. If I have money sometimes, I go and buy from the chemists which are very expensive. The government should help us.' (**Respondent: R-008**)

'I cannot say that I am satisfied coming to the hospital for medication. There is nothing else I can do, imagine every month having to close my business coming here. I am also unable to do a lot of things like other people.' (**Respondent: R-014**)

The challenges reported by respondents confirmed findings on limitations to biomedical HSB as observed in previous studies by Adisa et al. (2011) and Azzani et al. (2019) which highlighted financial constraints; Berglund et al. (2017) highlighted lack of social support; while Spearson and Mistry (2016) highlighted inconvenience and inaccessibility of healthcare service providers. The financial challenges faced by the respondents as they sought healthcare was relatable to the observation that average monthly income of 80 (46.0%) respondents was below Ksh. 20,000 and the finding that 106 (60.9%) respondents were aged above 50 years as also shown in **Table 5**. These limitations could negatively influence seeking healthcare seeking behaviour and have implications on the social outcomes.

4.4.2 HSB from Social Support Groups

Findings illustrated in **Figure 2** reveal that 4 (1.1%) respondents preferred seeking healthcare from social support group meetings. These findings could be attributed to the observation that most respondents were not aware of social support groups as also highlighted qualitative findings. These findings confirm observations made by Rad et al. (2016) that social support groups were less popular and that their utilization was not ideal. However, this was desktop

review. This suggested that efforts to enhance biomedical HSB through social support group meetings were still very low.

Key informant interviews also confirmed that social support groups had not been extensively used in the study area. Healthcare workers highlighted importance of social support groups, one of them said:

'Social support group meetings are important in providing emotional and moral support to patients, whereby they get opportunities to share experiences and learn from experiences of other persons living with diabetes… We have trained community health volunteers coordinating such group activities… social media platforms like Facebook groups also provide platforms where persons living with diabetes share experiences, but for these, they need to share with diabetes specialist.' **(Key Informant: K-002)**

Sentiments by **Key Informant K-002** reveal that attending social support group meetings was beneficial, a finding which was consistent with findings of Eisenstat et al. (2013) which noted that it provides a platform for enhanced coordination of diabetes care, improved sharing of information and encouraged decision-making. It was also found that usage of social media platforms was a common practice though recommended when guided by healthcare worker to avoid misleading information. Value of social support groups was consistent with observations made by Mo and Coulson (2012) who noted that online social support groups enabled access to empowerment opportunities.

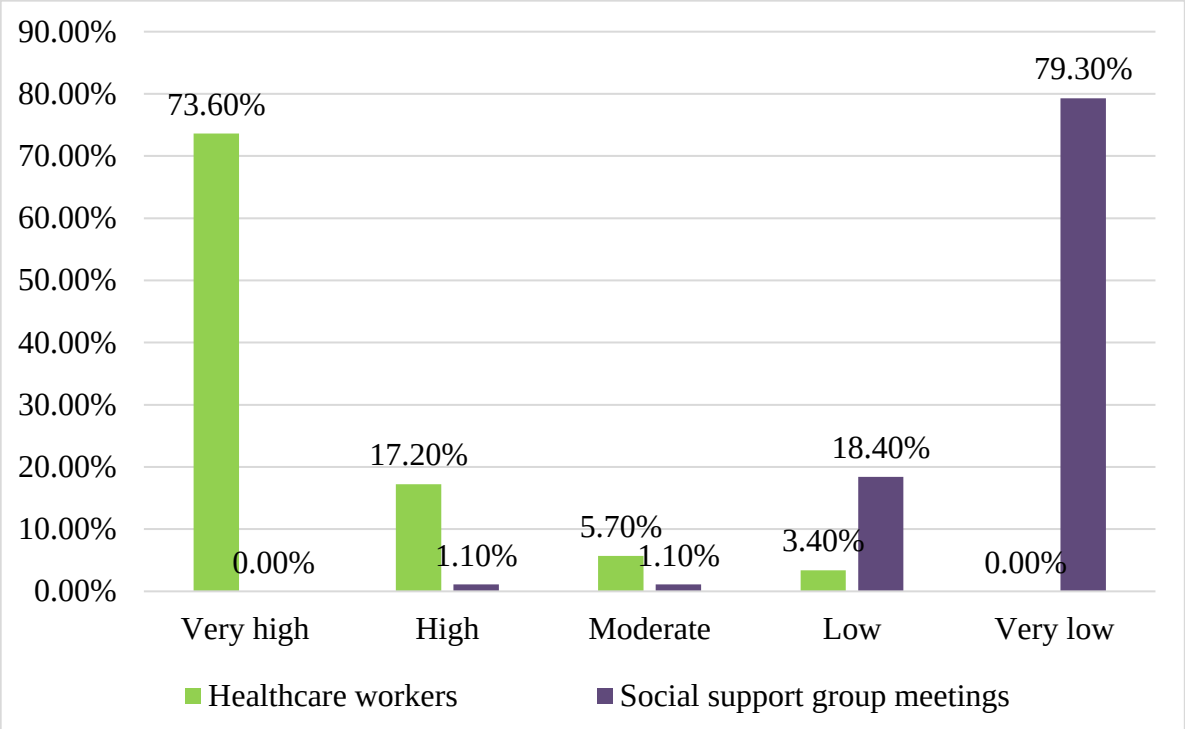
One of the respondents while sharing sentiments on social support groups said:

'I attended some group meetings and heard the way some people had lived with diabetes and the challenges they had faced, but they were still strong and had hope that one day they will get well.' (**Respondent: R-018**)

Sentiments of **Respondent R-018** highlighted resilience by persons living with diabetes and hope for better days which was encouraging to those who were newly diagnosed. It also revealed that individuals liked sharing information and experiences within group settings as noted by Eisenstat et al. (2013).

Figure 2

Preference Seeking Biomedical Healthcare



4.4.3 Social Outcomes and Biomedical HSB

Figure 2 show that respondents preferred seeking healthcare from healthcare workers. In **Table 6**, respondents were asked to comment on the social outcomes of preferring seeking from healthcare workers which respondents rated as the most preferred hospital-based healthcare.

Table 6

Social Outcomes on Preference to Healthcare Workers

Statement	Very high	High	Moderate	Low	Very low	Mean	SD
Able to relate well with people.	86 (49.4%)	68 (39.1%)	12 (6.9%)	6 (3.4%)	2 (1.1%)	4.322	.8397
Acquired life skills.	122 (70.1%)	38 (21.8%)	14 (8.0%)	0 (.00%)	0 (.00%)	4.621	.6314
Acquiring nutritional knowledge.	126 (72.4%)	38 (21.8%)	10 (5.7%)	0 (.00%)	0 (.00%)	4.667	.5823
Total	334	144	36	6	2		
Percentage (%)	**63.98**	**27.59**	**6.90**	**1.15**	**0.38**	**4.536**	

The findings in **Table 6** indicate that seeking biomedical healthcare (healthcare workers) enabled 334 (63.98%) respondents to achieve social outcomes with an average mean of 4.54. Respondents agreed that it enabled them to relate well with people (Mean=4.322; SD=.8397), acquire life skills (Mean=4.621; SD=.6314), and acquire nutritional knowledge (Mean=4.667; SD=.5823). These findings concurred with Sultana et al. (2019) and Metta (2016) who observed that seeking proper healthcare and swift management was crucial to reducing severity of health condition(s). This, therefore, confirmed the significance of biomedical HSB as an approach among persons living with diabetes in Rongo Sub-County. Findings in **Table 6** also show that standard deviations (SD) were less than 1 hence small and within a margin of $-.2 < SD < .2$; thus implying that the data sets were more reliable and there were no outliers. As revealed from the findings, respondents agreed that seeking healthcare from healthcare workers enabled them to achieve social outcomes; suggesting that they were on a positive course to diabetes remission as observed in behavioural modification, change in diet, improved social life, and enhanced physical exercises as revealed by Hegazi et al. (2015) and Hu (2011).

One of the respondents said:

'... every month I need to come for clinic and I don't have money, I just struggle and even request any bodaboda that I find on the way to carry me with the little money I have so that I can reach the hospital. It is tough, but there is nothing I can do….' (**Respondent: R-025**)

Challenges faced by respondents as revealed in sentiments of **Respondent R-025** show that most individuals would undoubtedly shift from biomedical healthcare and seek alternative healthcare. These observations reiterate that perceived barriers which is one of the tenets Health Belief Model could be a factor in influencing their HSB.

KIIs revealed similar findings, in which case, it was noted that seeking biomedical healthcare (healthcare workers) was scientifically proven, reliable and guaranteed to help persons living with diabetes. This confirmed findings by Chukwuma et al. (2016) who cited effectiveness of biomedical healthcare. Findings from KIIs reiterate that living with diabetes was costly, more so, for individuals who lack medical covers and have low incomes. One of the key informants noted that:

*'Some medications from the hospital may have side-effects to patients, so they need to be very close to the specialists and report any challenges or 'strange' feelings observed for further guidance…' (***Key Informant: K-005**)

Sentiments of **Key Informant K-005** were consistent with findings by Abdullahi (2011) which revealed that side effects of biomedical healthcare downplayed its significance. Spearson and Mistry (2016) also found that some diabetes-care protocols had negative implications among persons living with diabetes due to inconvenience, inaccessibility of healthcare service providers and clinical treatment, and care expenses.

Respondents also shared their sentiments on their experience with seeking healthcare from healthcare workers. One of them said:

> *'Since I started going to the hospital to be treated for diabetes, I have been able to avoid frequently rising sugars. I don't know how I would have been if I was not assisted by the doctors.'* (**Respondent: R-094**)

Sentiments of **Respondent R-094** highlighted significance of visiting healthcare workers and was consistent with observations made by Martin and Choo (2012) that biomedical HSB enabled individuals to stabilise diabetes condition manifested in the social outcomes.

4.4.4 Summary of Sub-Themes of Social Outcomes and Biomedical HSB

This section provides a summary of key themes identified from qualitative data collected from the main respondents and key informants.

Table 7

Emerging Themes on Biomedical HSB

Persons living with diabetes	Key informants
✓ Resilience. ✓ Hospital-based healthcare beneficial. ✓ Use of social media platforms like Facebook. **Limitations** ✓ Inadequacy of drugs in public health facilities. ✓ Financial constraints faced.	✓ Need for close monitoring of social support groups. ✓ Reliability and authenticity of hospital-based healthcare. ✓ Psychosocial support from social support groups. **Limitations** ✓ Out-of-pocket medical expenses costly. ✓ Side effects of some medications.

4.4.5 Association of Social Outcomes and Biomedical HSB

To determine the association between social outcomes and biomedical HSB among persons living with diabetes, a 2-tailed Spearman's rho correlation was used and an association was

computed. A moderately strong positive relationship was obtained between social outcomes and biomedical HSB (healthcare workers) (n= 174; r_s= .590; p= .000) as presented in **Table 8**.

Table 8

Relationship between Social Outcomes and Biomedical HSB (healthcare workers)

Social outcomes		**Preference of healthcare workers**
Able to relate well with people	Spearman's rho correlation	.414**
Acquire life skills	Spearman's rho correlation	.529**
Acquire nutritional knowledge	Spearman's rho correlation	.590**
	Sig. (2-tailed)	.000

Note:
**-Correlation is significant at the .01 level (2-tailed).

Findings in **Table 8** show that a p-value of .000 was found which is lower than the set p-value of .01. This reveals that social outcomes has statistically significant and moderately strong positive relationship with biomedical HSB (healthcare workers) suggesting that seeking healthcare from healthcare workers moderately enhanced achieving social outcomes. These findings concurred with observations made by Shannon et al. (2019) that timely diagnosis and quality specialised care highly boosted health of persons living with diabetes. The study noted that biomedical HSB was of significance to persons living with diabetes, thus, the need to address the limitations was highlighted. This could boost efforts to achieve the Universal Health Coverage goal of reducing impoverishment associated with high health, social, and economic costs of healthcare as advocated for by the WHO (2020_b). These findings agreed with arguments put forth in the Health Belief Model that belief systems influenced healthcare seeking behaviour of the respondents.

4.5 Social Outcomes of Alternative HSB

To determine the social outcomes of alternative HSB among persons living with diabetes in the study area, the study explored preference of western religions, ethnomedicine practitioners and indigenous spiritual healers. The outcomes are discussed in the subsequent sections.

4.5.1 HSB from Western Religions

In **Figure 4,** findings show that 84 (48.3%) respondents preferred seeking healthcare from western religious leaders. These were attributable to beliefs and features of most western religions that treatment of medical conditions was possible through prayers and miracle healing as articulated by Bird et al. (2010).

One of the respondents had the following sentiments on seeking healthcare from western religious leaders:

> *'In our Church, we normally have lessons on healthy living. During these lessons, we are taught what to eat and live… we are also encouraged to be strong despite the conditions we are facing.'* (**Respondent: R-107**)

Sentiments of **Respondent: R-107** show that some Churches have forum for dissemination of healthcare to their congregants. In which case, some respondents agreed to having benefited. They noted that it boosted their spirit and desire to live, concurring with findings of Pretorius and Joubert (2014) that religion offered social support, rekindled hope of getting well, and provided spiritual strengthening. Similarly, Adanikin, Onwudiegwu, and Akintayo (2014) and Kamaara, Nyongesa et al. (2019) observed that spiritual care was in high demand.

4.5.2 HSB from Ethnomedicine Practitioners

In regard to seeking healthcare from ethnomedicine practitioners, findings illustrated in **Figure 4,** findings show that 104 (59.8%) respondents preferred the approach. It emerged that seeking healthcare from ethnomedicine practitioners was most preferred compared to the other alternative healthcare; concurring with findings of Peltzer et al. (2016) who while seeking to determine the prevalence of utilization of traditional, complementary and alternative medicine for NCDs and mental disorders in Cambodia, Thailand and Vietnam found that ethnomedicine was preferred. The study findings agreed with observations made by Shivachi (2012) who noted that utilization of ethnomedicinal services was strongly prevalent. These findings were attributable to its being strongly knit with socio-cultural dynamics and beliefs as noted by Das et al. (2017), Mbwayo et al. (2013), and Mokgobi (2013, p. 2), Cross and MacGregor (2010), and Baqui et al. (2008). The findings also confirmed arguments as postulated in the Health Belief Model that belief systems influenced healthcare seeking behaviour of individuals.

Responses from key informant interviews show that healthcare workers discouraged utilization of alternative healthcare. A possible reason for the relatively low number of respondents who preferred seeking alternative healthcare as compared to those seeking biomedical healthcare (healthcare workers) as illustrated in **Figure 2**. Sentiments from KIIs reiterate findings from a study by Gathara (2018) that most healthcare workers have negative perception on ethnomedicine and indigenous spiritual healers. However, one key informant who had positive sentiments on alternative HSB stated that:

> '*I can recommend the use of some herbal medicine when their condition is a bit stable. They can also use prayers but they should share this with their specialists and never*

forego hospital-based care unless with the prior consent of a specialist.' (**Key Informant: K-003**)

Sentiments of **Key Informant K-003** reveal acknowledgement of ethnomedicine among some healthcare workers consistent with observations made by Mchidi (2016) who observed that increased nursing education was highly associated with alternative HSB among nurses working in public hospitals in Kakamega County. This could attributed to increased open-mindedness since they acknowledged limitations of biomedical healthcare and strengths of alternative healthcare. These findings reveal significance of indigenous therapies as witnessed in the success in utilization of indigenous Chinese and Indian medications in Bangladesh (Das et al., 2017) and China, India, and Taiwan (Kuan et al., 2011). Respondents also had mixed reactions; some of whom had the following sentiments:

'A friend of mine encouraged me to use some herbal medicine which had helped her relative in managing diabetes. I have been using them ever since and it has helped me a lot.' (**Respondent: R-027**)

'*I have never used herbal medicine… these people nowadays are here to do business. They will not tell you the side-effects of the herbs, as opposed to the doctors who tell us that some drugs will have certain negative effects if used… so you become prepared… you will hear them advertising every day on the radio, but in the past, it was those they helped that advertised them'* (**Respondent: R-103**)

Furthermore, sentiments by respondent R-103 revealed that ethnomedicine practitioners marketed their services for awareness creation, and due to the dynamic need to penetrate the highly religious community. The findings revealed a concurrence with Health Belief Model tenets, for instance, **Respondent '*R-027*'** was motivated to seek healthcare from

ethnomedicine practitioners due to perceived benefits and external cues to action: this was due to influence from the friend alluding the likelihood of positive outcomes.

4.5.3 HSB from Indigenous Spiritual Healers

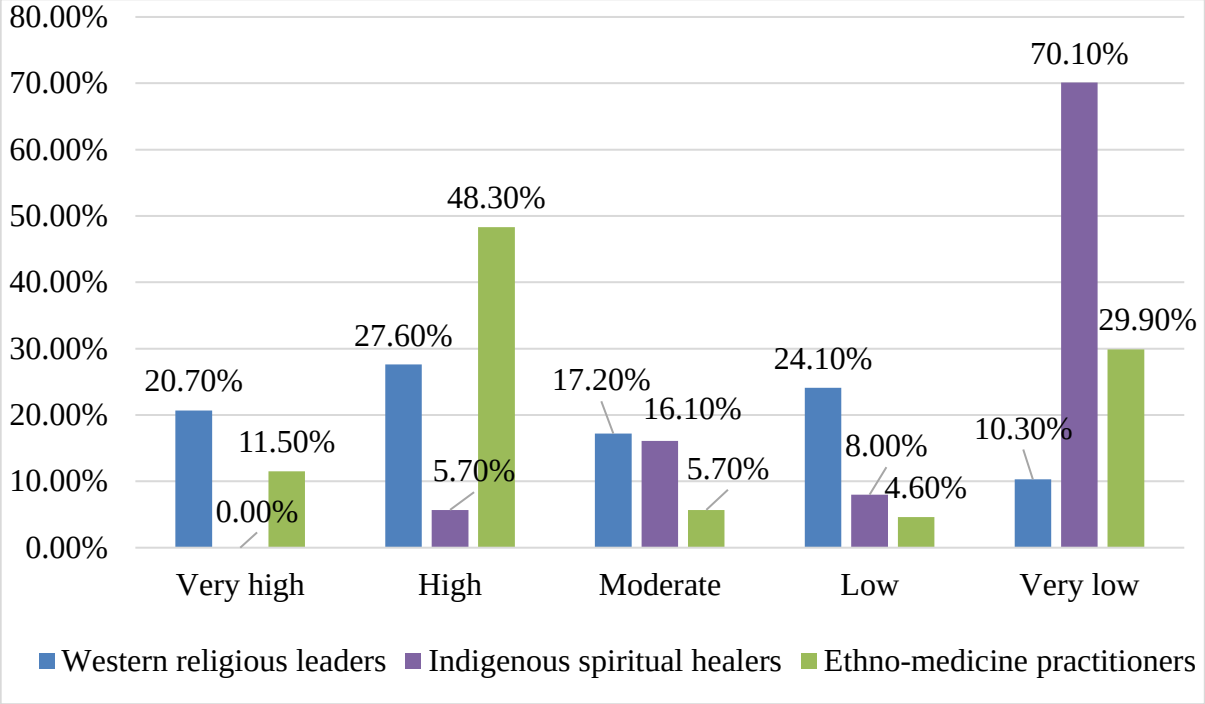
In **Figure 4,** findings show that 10 (5.7%) respondents preferred seeking healthcare from indigenous spiritual healers. This could be attributed to observations that 172 (98.9%) respondents as shown in **Table 5** were affiliated to western religions.

> *'... I was travelling in a matatu and knocked my head on a metal on the door when I was alighting. That is when this disease of sugar and pressure started... I was advised to visit somebody who prays for people for three months.'* (**Respondent: R-163**)

Sentiments by **Respondent R-163** concurred with observations made by Cockerham et al. (2014) noting that some individuals attributed unwanted circumstances to customary laws, witchcraft, taboos, and spirits thereby influencing their HSB. The findings agreed with Callister and Khalaf (2010) that perceptions and beliefs on the authority of spiritual powers influenced delivery outcomes. It was also consistent with the findings of Owuor et al. (2005) and Winkler et al. (2010) which indicated that Christians attributed diseases and misfortunes to evil spirits. Besides, they were consistent with findings of Ashing-Giwa et al. (2010), that models of causality of diseases and treatment influenced utilization of religious healing.

Figure 3

Preference seeking Alternative Healthcare



4.5.4 Social Outcomes of Alternative HSB

Findings illustrated in **Figure 4** reveal that respondents preferred seeking healthcare from ethnomedicine practitioners. As presented in **Table 9**, respondents were asked to comment on the social outcomes of their preferred seeking alternative healthcare. Social outcomes were investigated based on: ability to relate well with people, acquire life skills, and acquire nutritional knowledge.

Table 9

Social Outcomes of Alternative HSB (Ethno-Medicine Practitioners)

Statement	Very high	High	Moderate	Low	Very low	Mean	SD
Able to relate well with people.	58 (33.3%)	58 (33.3%)	24 (13.8%)	14 (8.0%)	20 (11.5%)	3.690	1.320
Acqure life skills.	68 (39.1%)	56 (32.2%)	22 (12.6%)	10 (5.7%)	18 (10.3%)	3.839	1.289
Acquire nutritional knowledge.	62 (35.6%)	64 (36.8%)	14 (8.0%)	20 (11.5%)	14 (8.0%)	3.805	1.262
Total	188	178	60	44	52		
Percentage (%)	**36.01**	**34.10**	**11.49**	**8.43**	**9.96**	**3.778**	

Findings in **Table 9** indicate that seeking alternative healthcare (ethnomedicine practitioners) among persons living with diabetes enabled 188 (36.01%) respondnets to achieve social outcomes at an average mean= 3.78. Respondents agreed that it enabled them to relate well with people (Mean=3.690; SD=1.320), acquire life skills (Mean=3.839; SD=1.289), and acquire nutritional knowledge (Mean=3.805; SD=1.262). These were consistent with findings of Shivachi (2012) in rural settings of Iguhu location of Kakamega District which revealed that utilization of ethnomedicine services was strongly prevalent with very high success rates. However, this study was more focused on determining utilization and role of ethnomedicine and not social outcomes.

Qualitative responses showed that respondents cited trust, affordability, convenience and embedment in the social fabric as motivators; findings of which were consistent with observations made by Das et al. (2017) and Ondicho, Ochora, and Matu (2015). For instance, one of the respondents said:

'*The herbal medicines are cheap and readily available. They also take their time in explaining how to use them. These herbs were even used by our forefathers so some we know and they help.'* (**Respondent: R-149**)

Most key informants discouraged alternative healthcare asserting that most of them were based on myths and lacked scientific proof. They noted that some could be misleading and hence likely to cause more harm than good. This was inconsistent with findings of Shivachi (2012) who found that healthcare workers were willing to cooperate and learn from ethnomedicine practitioners. These sentiments highlighted limitations of alternative HSB consistent with observations made by Gathara (2018) that healthcare workers discouraged and have negative attitude towards use of alternative healthcare.

4.5.5 Summary of Sub-Themes of Social Outcomes and Alternative HSB

This section provides a summary of key themes identified from qualitative data collected from the main respondents and the key informants.

Table 10

Emerging Sub-Themes of Social Outcomes and Alternative HSB

Persons living with diabetes	**Key informants**
✓ Health education sessions in some Churches. ✓ Nexus of onset of diabetes to witchcraft. ✓ Relatively cheap and convenient. ✓ Marketing of services on radios **Limitations**: ✓ Profit-making. ✓ Non-disclosure to diabetes specialists. ✓ Discouragement due to religious affiliation.	✓ Guidance of diabetes specialists required. ✓ In case of negative reactions advisable to stick with biomedical healthcare. **Limitations:** ✓ Some based on myths, can be misleading.

4.5.6 Association of Social Outcomes and Alternative HSB

To determine the association between social outcomes and alternative HSB, a 2-tailed Spearman's rho correlation was used and an association between social outcomes and preference seeking alternative healthcare (ethnomedicine practitioners) was computed obtaining a moderately strong positive relationship was obtained (n= 174; r_s= .562; p= .000) as shown in **Table 11**.

Table 11

Relationship between Social Outcomes and Alternative HSB

Social outcomes		**Ethnomedicine practitioners**
Able to relate well with people.	Spearman's rho correlation	.562**
Acquire life skills.	Spearman's rho correlation	.414**
Acquire nutritional knowledge.	Spearman's rho correlation	.420**
	Sig. (2-tailed)	.000

Note:

**-Correlation is significant at the .01 level (2-tailed).

Table 11 on relationship between social outcomes and preference seeking alternative (ethnomedicine practitioners) among persons living with diabetes obtained a p-value of .000 which was lower than the set p-value of .01. This shows that social outcomes has statistically significant and moderately strong positive relationship with preference seeking alternative healthcare (ethnomedicine practitioners). That is, alternative HSB moderately enhanced achieving social outcomes. The findings suggest that individuals are likely to better live with diabetes as manifested in social outcomes. The findings were in agreement with observations made by Kuan et al. (2011) where indigenous Chinese medications were used to treat illnesses, and was of great value as reported by Abdullahi (2011); though the studies did not capture the social outcomes of the HSB. The findings also agreed with Ondicho, Ochora, and Matu (2015) who found that ethnomedicine had high efficacy and perceived better-quality services; however, this study did not capture the implications on social outcomes.

The findings were however, inconsistent with observations made by Chadza et al. (2012) that some were inefficient; while Egharevba et al. (2015) found that lack of standardization of indigenous medications could have negative implications on alternative HSB among persons living with diabetes. Besides, they were further devalued by findings of Mahomoodally (2013) and Abdullahi (2011) which revealed that there was inadequate evidence on efficacy of alternative medications and questionable safety for human health.

4.6 Social Outcomes of Combining Biomedical and Alternative HSB

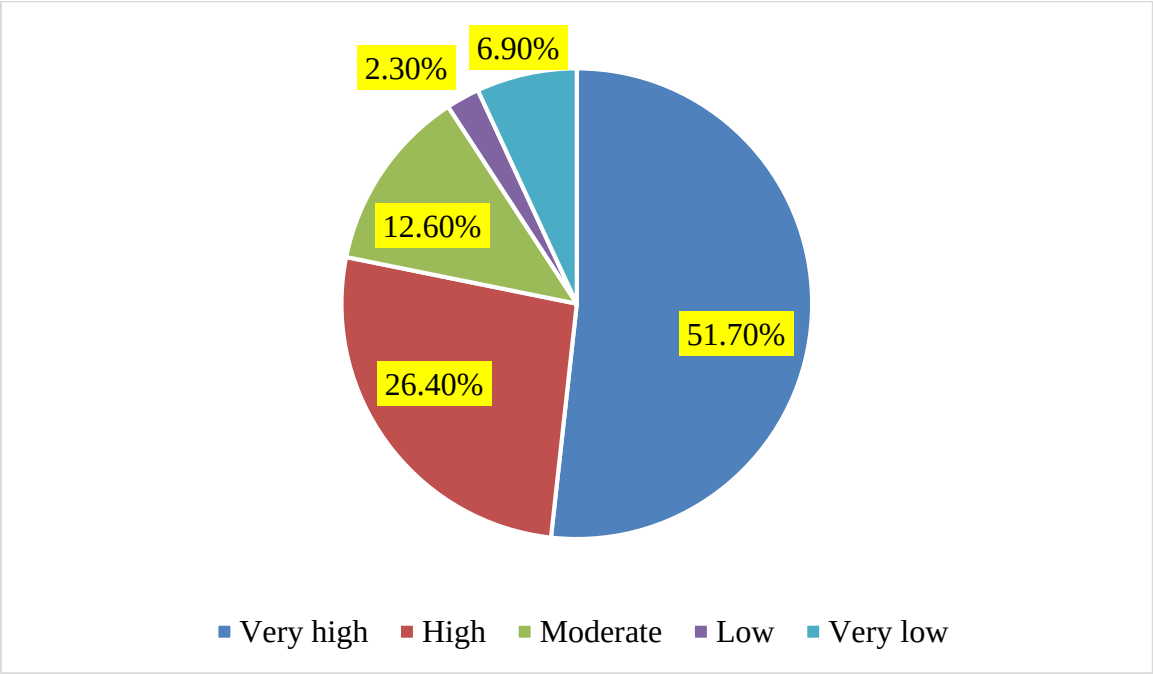
In order to ivestigate the social outcomes of combining biomedical and alternative HSB among persons living with diabetes in the study area, the study explored preference combining biomedical and alternative HSB; and the related social outcomes. Correlation between social outcomes and preference combining biomedical and alternative HSB was computed and results presented in subsequent section.

4.6.1 Preference Combining Biomedical and Alternative HSB

In this section, the study sought to find out the preference of combining biomedical and alternative HSB.

Figure 4

Preference Combining Biomedical and Alternative Healthcare



In **Figure 4.5,** findings reveal that 136 (78.1%) respondents preferred combining biomedical and alternative healthcare attributable to desire to complement healthcare and increase chances of getting well faster as observed by Ganz et al. (2008), concurring with observations made by Chukwuma et al. (2016) which revealed prevalence of combining biomedical and alternative healthcare among households. However, the study was limited to determinants and preference of healthcare and did not capture the social outcomes. These findings were also consistent with Cremers et al. (2013) in a study on perceptions and implementation of a tuberculosis control programme in Gabon who found that most individuals combined biomedical and alternative healthcare. The high preference was attributable to socio-cultural conformity manifested when combining biomedical and alternative healthcare as revealed by Okello et al. (2010) and Owuor et al. (2005. The findings were also consistent with observations made by Abbo et al. (2019), and Verginer and Juen (2018) that most individuals

incorporated traditional cultural knowledge. These findings agreed with qualitative responses of some respondents, for instance, one of them said:

'...I have been going to the hospital and using herbal medications. Combining these has helped me feel better. Only that you cannot tell which one helped you more.' (**Respondent: R-114**)

Contrary sentiments also emerged from some respondents who noted that most ethnomedicine practitioners were only focused on making profit at the expense of making patients feel better. One of the respondents said:

'*... these people nowadays are here to do business. They will not tell you the side-effects of the herbs…'* (**Respondent: R-103**)

Most healthcare workers discouraged combining biomedical and alternative healthcare arguing that it could be confusing and counter-productive to persons living with diabetes. They cited lack of authenticity and were concerned that most alternative healthcare were based on myths. These findings agreed with Gathara (2018) that most urban Kenyans and healthcare workers had negative attitudes and perceptions toward indigenous therapies. It also concurred with Feyera et al. (2009) that majority of healthcare workers in Ethiopia did not prefer combining biomedical and alternative healthcare. The study, however, focused on healthcare workers but not diabetes clients which was the focus of this study. These findings agreed with arguments put forth by Marton and Choo (2012), that the decision, for or against a particular HSB depends on whether benefits out-do costs or not as per the assessment of the individuals.

Some respondents also cited discouragement by healthcare workers on combining biomedical and alternative healthcare as a contributing factor to non-disclosure which was found to be very rampant among respondents as shown in sentiments of **Respondent: R-062**.

> *'…I have never told the doctor because I know they will not accept… I just use it, and also when I come to the hospital, they give me theirs which I also use.'* (**Respondent: R-062)**

The sentiments agreed with observations made by Adams et al. (2019) in a study focusing on women with chronic illnesses and Agyei-Baffour et al. (2017) in Ghana that most individuals hardly disclosed combining biomedical and alternative healthcare to healthcare workers. Non-disclosure was attributable to reluctance of individuals who feared reactions of healthcare workers and negative perceptions on alternative healthcare as further highlighted by Adams et al. (2019).

Findings of the study agreed with arguments put forth in Health Belief Model since it emerged that fear of worsening of diabetes condition and perceived benefits made some respondents to combine biomedical and alternative healthcare. One of the respondents had the following sentiments:

> *'… this condition started after an incident where I knocked my head while alighting from a matatu. I believe it was directed to me by some evil person. That is why I normally seek services of indigenous spiritual healers, herbalists and even doctors.'* (**Respondent: R-163**)

Sentiments by **Respondent R-163** show that combining biomedical and alternative HSB was attributed to perceptions that some diseases and misfortunes were caused by evil spirits as also found by Winkler et al. (2010) in a study on belief systems and attitudes toward people living with epilepsy in a rural community of Northern Tanzania and Owuor et al. (2005) in a

study on indigenous snake bite remedies among Luo of Western Kenya. Besides, they agreed with findings of Ashing-Giwa et al. (2010), that models of causality of diseases and treatment were influenced by utilization of religious healing. The findings also concurred with observations made by Eboh et al. (2019) which in a study on expectant women attending clinics in Nigeria found that attitude and beliefs significantly influenced combining biomedical and alternative HSB.

4.6.2 Social Outcomes of Combining Biomedical and Alternative HSB

In **Table 12**, after respondents agreed that they preferred combining biomedical and alternative healthcare as shown in **Figure 4.5,** they were asked to comment on the social outcomes of combining biomedical and alternative HSB and their responses computed**.**

Table 12

Social Outcomes of Preferring Combining Biomedical and Alternative HSB

Statement	**Very high**	**High**	**Moderate**	**Low**	**Very low**	**Mean**	**SD**
Able to relate well with people.	72 (41.4%)	66 (37.9%)	14 (8.0%)	6 (3.4%)	16 (9.2%)	3.989	1.212
Acquire life skills.	88 (50.6%)	56 (32.2%)	12 (6.9%)	2 (1.1%)	16 (9.2%)	4.138	1.199
Acquire nutritional knowledge.	92 (52.9%)	50 (28.7%)	14 (8.0%)	4 (2.3%)	14 (8.0%)	4.161	1.186
Total	252	172	40	12	46		
Percentage (%)	**48.28**	**32.95**	**7.66**	**2.30**	**8.81**	**4.10**	

252 (48.28%) respondents as shown in **Table 12** agreed that preference combining biomedical and alternative healthcare enabled them to achieve social outcomes with an average mean of 4.10. Respondents were able to relate well with people (Mean=3.989; SD=1.212), acquire life skills (Mean=4.138; SD=1.199), and acquire nutritional knowledge

(Mean=4.161; SD=1.1864). These findings were consistent with observations made by Janse et al. (2018) and Batisai (2016) that combining biomedical and alternative healthcare enhanced achieving positive health outcomes in comparison to isolated care given that maximised usage and hastened regaining optimum health. This was attributable to individual desire to benefit from various healthcare. The findings also agreed with observations of Agyei-Baffour et al. (2017) that high feasibility and acceptability boosted efforts to combine biomedical and alternative healthcare. These findings reiterated arguments put forth by Metta (2016) on Health Belief Model since health seeking behaviours of the respondents was influenced by the belief that perceived benefits of combining biomedical and alternative healthcare would out-do the related costs as postulated by Cockerham et al. (2014) and Marton and Choo (2012).

Qualitative responses from respondents revealed that they benefited when combining biomedical and alternative healthcare. One respondent said:

> *'Apart from going to the hospital, I normally seek support from my pastor and herbalists. They have helped me a lot…'* (**Respondent: R-20**)

The findings were consistent with observations made by Flint (2015) which revealed continued combining biomedical and alternative HSB while treating HIV/AIDS and countering debates on its value and efficacy in South Africa. These sentiments were however inconsistent with Shaw et al. (2008) who found that socio-cultural differences between healthcare workers and patients in USA reduced capability of individuals to comprehend and act on medical guidelines. These findings highlight need for a more open-minded approach towards combining biomedical and alternative therapies among persons living with diabetes. One of the key informants shared the following sentiments:

'I can recommend utilization of both hospital-based and non-hospital-based care provided clients do good spacing and not default from hospital-based medications… they can use hospital-based medications in the mornings and herbal medications in the evenings. They can also use herbal medications once their condition stabilizes; but if unfortunately, their sugar levels rise, then they should stick to hospital-based care. I can recommend the use of prayers but never to forego hospital-based care unless with the prior consent of a specialist.' (**Key Informant: KII-K003**)

Sentiments of the **key informant: KII-K003** reveal that biomedical HSB is superior to alternative HSB. These sentiments concurred with findings by Flint (2015) in a study on HIV/AIDS treatment in South Africa which asserted that there should be a complementary engagement between biomedical and alternative healthcare, but the former should not be viewed as an alternative to the latter. The study findings were also consistent with observations made by Feyera et al. (2009) that most healthcare workers in Ethiopia reported regarded indigenous medications to be advantageous over biomedical healthcare due to cost-effectiveness and accessibility. The study, however, focused on healthcare workers and not patients which was the focus of this study.

4.6.3 Summary of Themes of Social Outcomes and Combining Biomedical and Alternative HSB

This section provides a summary of key themes identified from qualitative data collected from respondents and key informants.

Table 13

Emerging Themes of Social Outcomes and Combining Biomedical and Alternative HSB

Persons living with diabetes	Key informants
✓ Link onset of diabetes witchcraft ✓ Relatively cheap and convenient ✓ Marketing on radios **Limitations**: ✓ Some alternative providers are after profit-making and not the welfare of diabetes clients ✓ Non-disclosure ✓ Discouragement due to religious affiliation	✓ Guidance by diabetes specialists needed ✓ In case of negative reactions advisable to stick with biomedical healthcare **Limitations:** ✓ Alternative healthcare based on myths and misleading

Limitations to combining biomedical and alternative healthcare as revealed in the findings agreed with findings from a study by Esan et al. (2019), who noted that combining biomedical and alternative HSB should ensure harmful indigenous treatment practices are well addressed. Findings of Peltzer et al. (2016) further revealed that low awareness and inadequate understanding of potential outcomes of interactions of combining biomedical and alternative therapies could water its value among persons living with diabetes.

4.6.4 Association of Social Outcomes and Combining Biomedical and Alternative HSB

To determine the association between social outcomes and combining biomedical and alternative HSB, a 2-tailed Spearman's rho correlation was used; and an association between social outcomes and preferring combining biomedical and alternative HSB was calculated.

A significant very strong positive correlation obtained (n= 174; r_s= .879; p= .000) and presented in **Table 14**.

Table 14

Relationship between Social Outcomes and Combining Biomedical and Alternative HSB

Social outcomes		**Preference combining biomedical and alternative HSB**
Able to relate well with people.	Spearman's rho correlation	.861**
Acquire life skills.	Spearman's rho correlation	.879**
Acquire nutritional knowledge.	Spearman's rho correlation	.840**
	Sig. (2-tailed)	.000

Note**:**

**-Correlation is significant at the 0.01 level (2-tailed).

Computation on the relationship between social outcomes and preference combining biomedical and alternative healthcare in **Table 14** obtained a p-value of .000 which was lower than the set p-value of .01, showing that social outcomes had a statistically significant and very strong positive relationship with preferring combining biomedical and alternative HSB. From the findings it emerged that relationship between social outcomes and combining biomedical and alternative HSB was stronger among persons living with diabetes compared to either biomedical HSB (.590) or alternative HSB (.562) alone. These findings concurred with observations made by Janse et al. (2018), and Batisai (2016) which indicated that combining biomedical and alternative HSB enhanced the outcome of treatments as compared to isolated care; however, the former was a longitudinal study focusing only on elderly persons, while the latter was focused on HIV/AIDS patients. It also enhanced conceptualization of medical conditions hence offering more understanding of what was to

be treated as highlighted by Verginer and Juen (2018). The study reiterates significance of combining biomedical and alternative HSB among persons living with diabetes in the study area since combining biomedical and alternative healthcare would help address non-compliance issues related to socio-cultural dynamics, as well as being integral to preserving cultural heritage as revealed by Abdullahi (2011).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter discusses the summary, conclusions, recommendations and suggestions for future studies. These are based on the specific objectives of the study which are to determine the social outcomes of biomedical HSB, determine the social outcomes of alternative HSB, and determine the social outcomes of combining biomedical and alternative HSB among persons living with diabetes.

5.2 Summary of Key Findings

The study found that respondents preferred seeking biomedical healthcare (healthcare workers), alternative healthcare (ethnomedicine practitioners), and combining biomedical and alternative healthcare. Findings show that preference for healthcare workers was highest (158; 90.8%). Seeking healthcare from healthcare workers, ethnomedicine practitioners and combining biomedical and alternative healthcare enabled majority of persons living with diabetes to relate well with people, acquire nutritional knowledge, and acquire life skills. Details of the key findings are done per objective in subsequent sections.

5.2.1 Objective 1: Social Outcomes and Biomedical HSB

The findings on the social outcomes on biomedical HSB among persons living with diabetes in the study area was that 158 (90.8%) respondents preferred seeking biomedical healthcare (healthcare workers) as illustrated in **Figure 2**. **Table 6** on social outcomes and preference shows that 334 (63.98%) respondents preferred seeking healthcare from healthcare workers. This enabled majority of persons living diabetes to have stable diabetes condition manifested

in their ability to relate well with people, acquire life skills, and acquire nutritional knowledge (average mean= 4.54). Using a 2-tailed Spearman's rho correlation, the study found that there was a moderately strong positive relationship (.590, Sig. .000) between social outcomes and seeking biomedical healthcare (healthcare workers) and was statistically significant as shown in **Table 8** which revealed that biomedical HSB moderately enhanced achieving social outcomes.

Qualitative responses summarised in **Table 7** indicates that key informants recommend adherence to biomedical healthcare, citing effectiveness and authenticity as a motivation factors to their HSB. It emerged that individuals sought diabetes care from social support groups on physical and online platforms of Facebook and WhatsApp; both of which were well-monitored by healthcare worker.

5.2.2 Objective 2: Social Outcomes and Alternative HSB

On social outcomes of alternative HSB among persons living with diabetes, the study found that 104 (59.8%) respondents preferred seeking alternative healthcare (ethnomedicine practitioners) as illustrated in **Figure 3**. **Table 9** on social outcomes and preference shows that 188 (36.01%) respondents preferred seeking healthcare from ethnomedicine practitioners. This enabled majority (average mean= 3.78) of the respondents to achieve social outcomes as manifested in their ability to relate well with people, acquire of life skills, and acquire nutritional knowledge. Using a 2-tailed Spearman's rho correlation, the study found that there was significant and moderately strong positive correlation (.562, Sig. .000) between social outcomes and preferring ethnomedicine practitioners as shown in **Table 11**. This reveals that alternative HSB moderately enhanced achieving social outcomes.

Findings summarised in **Table 10** from qualitative responses indicate that healthcare from ethnomedicine practitioners was relatively cheaper, readily available, affordable, and highly

trusted by most respondents. Alternative healthcare was sought by respondents who believe that their condition was due to witchcraft hence warranting alternative therapies.

5.2.3 Objective 3: Social Outcomes of Combining Biomedical and Alternative HSB

Findings on social outcomes of combining biomedical and alternative HSB among persons living with diabetes in Rongo Sub-County show that 136 (78.1%) respondents preferred seeking both biomedical and alternative healthcare as illustrated in **Figure 4**. **Table 12** showing findings on social outcomes and preference of combining biomedical and alternative HSB indicate preference by 252 (48.28%) respondents. This enabled majority (average mean= 4.10) of the respondents to have stabilized diabetes condition as manifested in their ability to relate well with people, acquire life skills, and acquire nutritional knowledge. Using a 2-tailed Spearman's rho correlation, the study reveals that there was a very strong positive relationship (.879, Sig. .000) between social outcomes and combining biomedical and alternative HSB as shown in **Table 14** revealing that combining biomedical and alternative HSB enhanced achieving social outcomes among persons living with diabetes. This was attributable to socio-cultural conformity, trust relationships resulting from frequent interactions between biomedical and alternative healthcare providers as individuals sought to complement, and increased chances of getting well faster.

Qualitative responses summarised in **Table 13** indicate that persons living with diabetes linked onset of diabetes to witchcraft and perceived alternative healthcare to be relatively cheap and convenient. Healthcare workers discouraged combining biomedical and alternative healthcare but recommended guidance from healthcare worker in case one had such practice and reiterating need to stick to biomedical healthcare in case an individual observes side effects while using alternative healthcare. It emerged that persons living with

diabetes failed to disclose their HSB, a behaviour attributable to discouragement linked from their religious leaders and healthcare workers who argued that alternative healthcare was based on myths and could be misleading.

5.3 Conclusions

Objective 1: In determining the social outcomes of biomedical healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study concluded that there was statistically significant relationship (.590, p=.000) between social outcomes and biomedical healthcare-seeking behaviour (HSB); possibly due to perceived effectiveness and authenticity of biomedical healthcare.

Objective 2: In determining the social outcomes of alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study concluded that there was statistically significant relationship (.562, p=.000) between social outcomes and alternative healthcare-seeking behaviour, possibly due to. This was attributable to cultural conformity, perceived cost friendliness, and ready availability.

Objective 3: To determine the social outcomes of combining biomedical and alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study concluded that that there was statistically significant relationship (.879, p=.000) between social outcomes and combining biomedical and alternative healthcare-seeking behaviour. This was attributable to perceived socio-cultural conformity and increased chances of getting well faster.

The study, therefore, concluded that there was a significant and positive relationship between social outcomes and healthcare-seeking behaviour among persons living with diabetes in Rongo Sub-County.

5.4 Recommendations

To address social outcomes in people living with diabetes, the study makes the following policy recommendations and best strategies for practice.

To determine the social outcomes of biomedical healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study is recommending that County Governments should step up implementation of basic module for community health volunteers' curriculum on Module 13 framework on NCDs package to enhance follow up on persons living with diabetes, thus boosting achieving of social outcomes.

In determining the social outcomes of alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study is recommending that County Governments in collaboration with the Ministry of Health should intensify investing in research on efficacy and compatibility of alternative healthcare, and prompt dissemination of such findings through sensitizations which would help boost achieving social of outcomes among persons living with diabetes.

To determine the social outcomes of combining biomedical and alternative healthcare-seeking behaviour among persons living with diabetes in Rongo Sub County, the study is recommending that County Governments in collaboration with the Ministry of Health should enforce policies on friendly patient-healthcare worker relationships to enhance individuals' willingness to disclose their alternative healthcare practices; thereby increasing chances of achieving social outcomes among persons living with diabetes.

5.5 Suggestions for Further Research

1. There is a need for a study on the efficacy of virtual-based social support groups as a model in diabetes care in rural settings.
2. A comparative study should be done on the efficacy of ethnomedicine on persons living with diabetes in rural and urban settings.
3. A clinical study should be done on elements of alternative healthcare which can be combined or utilized inter-changeably with biomedical healthcare among persons living with diabetes.

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APPENDIX I: INFORMED CONSENT FORM

Dear respondent.

I McDonald Odhiambo, am pleased to inform you that am a researcher in the Department of Humanities and Social Sciences, Rongo University. I am conducting research whose purpose is to establish the **Social Outcomes of Healthcare-Seeking Behaviour among Persons Living with Diabetes in Rongo Sub-County.**

I kindly request you to participate in this study by honestly and accurately responding to all items in the questionnaire or interview schedule used in data collection. Your response will be treated anonymously and with the utmost confidentiality. It will not be used for any other purpose except to achieve the objectives of the study. Do not write your name on the questionnaire.

Your participation in this study is voluntary and you are free to withdraw at any time. There are no risks involved directly or indirectly in participating in this study.

Thank you.

Kindly sign in to the space provided below if you accept to participate in this study.

Sign: …… Date: …….

APPENDIX II: QUESTIONNAIRE

INSTRUCTIONS

Dear Respondent, kindly cycle/ mark your selected answer/ response to the respective question.

1. **SOCIO-DEMOGRAPHIC INFORMATION**

a) What is your sex? (1) Male (2) Female (3) Intersex/ transgender?

b) Select your age bracket in years.

(1) 18-30 (2) 31-40 (3) 41-50 (4) 51-60 (5) Above 60

c) State your highest level of education.

(1) Primary (2) Secondary (3) Certificate/ Diploma (4) Graduate (5) Postgraduate

d) State your religious affiliation?

(1) Christian-Catholic (2) Christian-Protestant (3) Muslim (4) African Independent Churches (5) Others

e) Select your average monthly income bracket. (In Kenya Shillings)

(1) Below 20,000 (2) 20,001-30,000 (3) 30,001-40,000 (4) 40,001-50,000 (5) Over 50,000

1. **SOCIAL OUTCOMES AND BIOMEDICAL HEALTHCARE**

(In a scale of 1 to 5, please rate your responses on the following questions)

	Very low	Low	Moderate	High	Very high
a) What is your preference seeking hospital-based healthcare for managing diabetes from healthcare workers?	1	2	3	4	5
Briefly explain your answer:……					
b) What is your preference seeking hospital-based healthcare for managing diabetes from social support groups?					
Briefly explain your answer:……					
c) To what extent did your preferred hospital-based healthcare help you relate well with people?					
Briefly explain your answer:……					
d) To what extent did your preferred hospital-based healthcare help you in acquire life skills?					
Briefly explain your answer:……					
e) To what extent did your preferred hospital-based healthcare help you in acquire nutritional knowledge?					
Briefly explain your answer:……					
f) State the challenges faced in using healthcare from the following sources.					

Healthcare workers: …….....……

Social support groups: ……

2. **SOCIAL OUTCOMES AND ALTERNATIVE HEALTHCARE**

(In a scale of 1 to 5, please rate your responses on the following questions)

	Very low	Low	Moderate	High	Very high
a. What is your preference seeking healthcare from your pastor/Imam/religious leader?					
Briefly explain your answer:……					
b. What is your preference seeking healthcare from indigenous spiritual healers?					
Briefly explain your answer:……					
c. What is your preference seeking healthcare from ethno-medicine practitioners?					
Briefly explain your answer:……					
d. To what extent did your preferred non-hospital-based healthcare help you relate well with people?					
Briefly explain your answer:……					
e. To what extent did your preferred non-hospital-based healthcare help you acquire life skills?					
Briefly explain your answer:……					
f. To what extent did your preferred non-hospital-based healthcare help you acquire nutritional knowledge?					
Briefly explain your answer:……					

g. State the challenges faced when seeking healthcare from the following sources.

Western religious leaders: …….....

Indigenous spiritual healers:

…….....

Ethno-medicine practitioners:

…….....

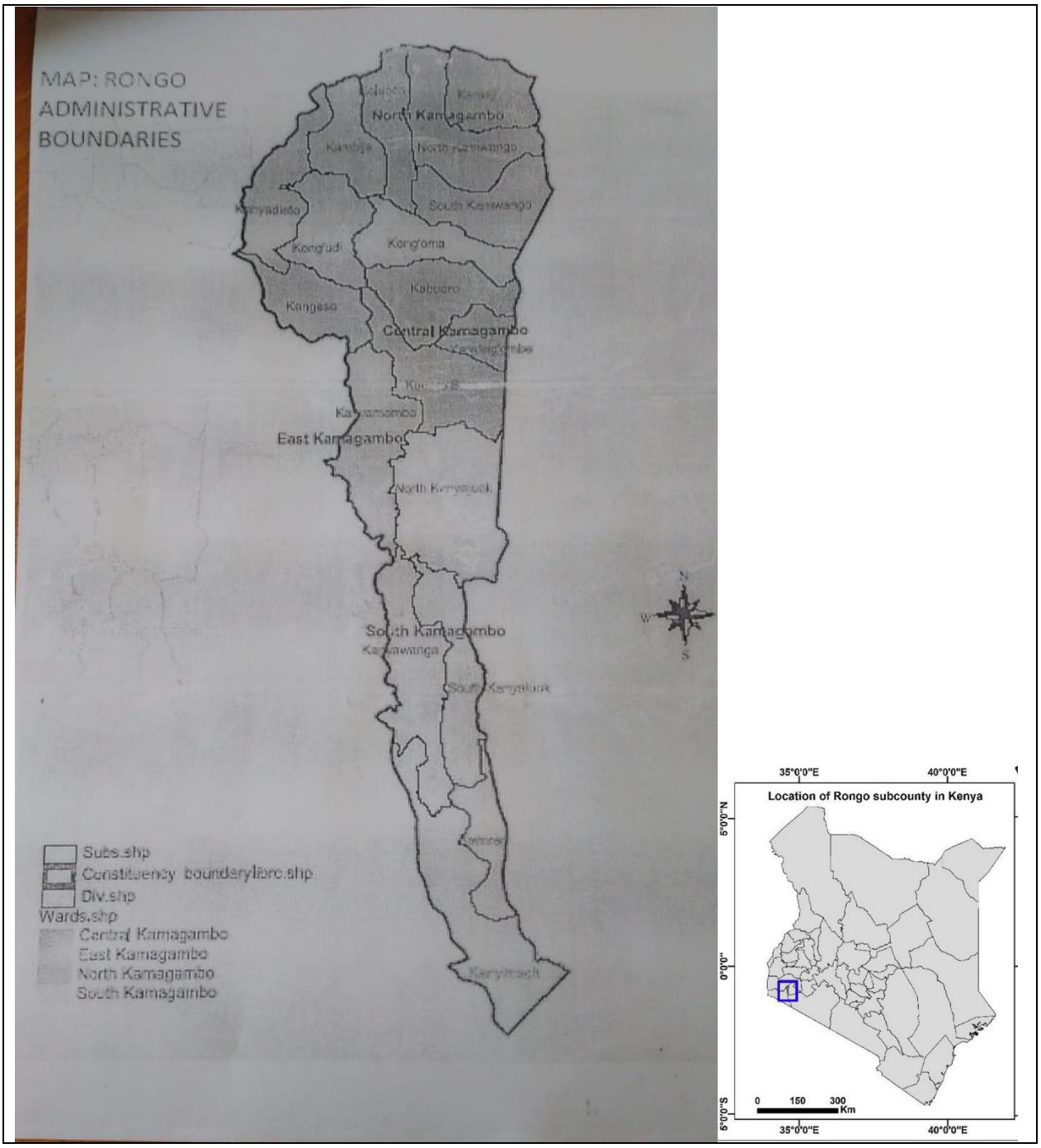
3. **SOCIAL OUTCOMES OF COMBINING BIOMEDICAL AND ALTERNATIVE HEALTHCARE** (In a scale of 1 to 5, please rate your responses on the following questions)					
	Very low	Low	Moderate	High	Very high
a. What is your preference seeking both hospital-based and non-hospital-based healthcare?					
Briefly explain your answer:……					
b. To what extent did seeking both hospital-based and non-hospital-based healthcare help you relate well with people?					
Briefly explain your answer:……					
c. To what extent did seeking both hospital-based and non-hospital-based healthcare help you acquire life skills?					
Briefly explain your answer:……					
d. To what extent did seeking both hospital-based and non-hospital-based healthcare help you acquire nutritional knowledge?					
Briefly explain your answer:……					
e. State the challenges faced in using both hospital-based and non-hospital-based healthcare: …… State the sources of hospital-based and non-hospital-based healthcare that you normally combine or use interchangeably: ……..					

APPENDIX III: INTERVIEW SCHEDULE

1. **INTERVIEW SCHEDULE FOR KEY INFORMANTS**	
Biomedical healthcare	5.1 a) What is your view on the usage of healthcare by persons living with diabetes gotten from: - Health-care workers. - Social support groups. 5.2 b) How do the above factors affect persons living with diabetes? - Relate well with people. - Acquire life skills. - Acquire nutritional knowledge. 5.3 c) What are the challenges faced by persons living with diabetes in seeking healthcare from the following: - Health-care workers - Social support groups.
Alternative healthcare	a) What is your view on the following alternative healthcare: - Pastor/Imam. - Indigenous religions. - Ethno-medicine practitioners. b) How do the above factors affect persons living with diabetes? - Relate well with people. - Acquire life skills. - Acquire nutritional knowledge. c) Tell me about the challenges of the following: - Pastors/Imams. - Indigenous religions healers. - Ethno-medicine practitioners.
Combining biomedical and alternative healthcare	a) What is your view on diabetes clients' combining biomedical and alternative healthcare? - Do you recommend this practice for diabetes clients? - Which forms of alternative healthcare should be combined with hospital-based healthcare?

	- What are your reasons for this? b) How does combining biomedical and alternative healthcare achieving the following aspects? - Relate well with people. - Acquire life skills. - Acquire nutritional knowledge.

APPENDIX IV: MAP OF RONGO SUB-COUNTY



Source: IEBC (2019)

APPENDIX V: POPULATION DENSITY IN MIGORI COUNTY

	Population	Land Area	Density
Migori County	**1,116,436**	**2,613.5**	**427.18**
Awendo	117,290	255.3	459.42
Kuria East	96,872	187.6	516.38
Kuria West	208,513	395.7	526.95
Nyatike	176,162	676.9	260.25
Rongo	**124,587**	**213.4**	**583.82**
Suna East	122,674	205.1	598.12
Suna West	128,890	287.5	448.31
Uriri	141,448	392.1	360.74

Source: Kenya Population and Housing Census (KNBS, 2019)

APPENDIX VI: DIABETES CLINIC ATTENDANCE IN MIGORI COUNTY

Sub-County	Routine Diabetes clinic 2018	Routine Diabetes clinic 2019	Deviation	Proportion of County Deviation (%)
Awendo	239	444	205	9.42
Kuria East	258	307	49	2.25
Kuria West	368	749	381	17.51
Nyatike	1393	1367	-26	-1.19
Rongo	658	1247	589	27.07
Suna East	939	1433	494	22.7
Suna West	1266	885	381	17.51
Uriri	116	219	103	4.73
Migori County	**5,237**	**6,651**	**2,176**	**100**

Source: MCHD Records (2020)

APPENDIX VII: INTEPRETATION SCALE FOR SPEARMAN'S RHO CORRELATION

.00 = $|r_s|$- no rank correlation,
.00 < $|r_s|$ < .20 - very weak rank correlation,
.20 ≤ $|r_s|$ < .40 - weak rank correlation,
.40 ≤ $|r_s|$ < .60 - moderately strong rank correlation,
.60 ≤ $|r_s|$ < .80 - strong rank correlation,
.80 ≤ $|r_s|$ < 1.0 - very strong rank correlation,
1.0 = $|r_s|$ -perfect rank correlation, 0.0
= $|r_s|$ - there is no statistical relationship,
+1.0 or -1.0 - shows a perfect correlation.

APPENDIX VIII: LETTER TO COUNTY GOVERNMENT HEALTH DEPARTMENT

RONGO UNIVERSITY

Gateway of Knowledge and Innovation

P.O BOX 103, 40404

TO
THE DIRECTOR PUBLIC HEALTH MANAGEMENT,

MIGORI COUNTY REFFERAL HOSPITAL,

P.O BOX 1045-40404,

SUNA-MIGORI

THRO'

THE CO-ORDINATOR FOR NON COMMUNICABLE DISEASES.

Dear Sir/Madam

REF: RESEARCH PERMIT FOR MR. MACDONALD ODHIAMBO MSCO/6002/2018

I wish to inform you that the above named person is a bona fide graduate student of Rongo University in the School of Arts and Social Sciences. He is supervised by Prof. Wilson A.P Otengah (PhD).

He is pursuing Master of Art Degree in Sociology. His research title: ''***Patterns of Diabetic Patients Healthcare seeking behavior on Diabetics management in Rongo Sub-County, Kenya***''

This is therefore to request your Office to assist him access data/statistics to enable him compile his literature review and complete the development of research proposal hence proceed for field work.

Your assistance to him is highly appreciated.

Thank You.

Prof. W. Otengah
Associate Professor in Medical Sociology &
Director ODeL
RONGO UNIVERSITY

APPENDIX IX: LETTER TO NACOSTI

RONGO UNIVERSITY

OFFICE OF THE DEAN

SCHOOL OF GRADUATE STUDIES

Email address: graduatestudies@rongovarsity.ac.ke

P.O. Box 103 - 40404
RONGO

Our Ref: **MSOC/6002/2018**

Date: August 4, 2020

The Chief Executive Officer,
National Commission for Science, Technology & Innovation,
off Waiyaki Way, Upper Kabete,
P.O Box 30623-00100,
Nairobi-KENYA.

Dear Sir,

RE: RESEARCH PERMIT FOR MR. MCDONALD ODHIAMBO-MSOC/6002/2018

We wish to inform you that the above person is a bona fide graduate student of Rongo University in the School of Arts and Social Sciences pursuing a Masters degree in Sociology. He has been authorized by the University to undertake research titled; **"Influence of Patterns of Diabetics' HealthCare-Seeking Behaviour on Diabetes Management in Rongo Sub-County, Kenya".**

This is, therefore, to request the commission to issue him with a research permit to enable him proceed for field work.

Your assistance to him shall be highly appreciated.

Thank you.

RONGO UNIVERSITY
THE DEAN
04 AUG 2020
SCHOOL OF GRADUATE STUDIES
P. O. BOX 103 - 40404, RONGO

Dr. Edward Anino
DEAN, SCHOOL OF GRADUATE STUDIES

Copy to: Vice Chancellor
Deputy Vice Chancellor (Academic and Student Affairs).
Dean, School of Arts and Social Sciences
HoD, Social Sciences

APPENDIX X: NACOSTI PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 796956

Date of Issue: 12/August/2020

RESEARCH LICENSE

This is to Certify that Mr.. MacDonald Odhiambo Owuor of Rongo University, has been licensed to conduct research in Migori on the topic: Influence of Patterns of Diabetics Healthcare-seeking Behaviour on Diabetes Management in Rongo Sub County, Migori County, Kenya. for the period ending : 12/August/2021.

License No: NACOSTI/P/20/6166

796956

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

APPENDIX XI: COUNTY COMMISSIONER'S PERMIT

THE PRESIDENCY

MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telephone: (059) 20511
FAX (059)20361
Email:
countycommissionermigori@yahoo.com

OFFICE OF THE COUNTY COMMISSIONER
MIGORI COUNTY
P.O. BOX 2 - 40400
SUNA- MIGORI.

When replying please quote

Ref. No: CC/ED.12/19 VOL.III/117

Date: 13th August, 2020

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION

Mac Donald Odhiambo Owuor NACOSTI/P/20/6166 a student at Rongo University has been authorized to carry out research on ***"Influence of Patterns of Diabetic Health-care seeking Behavior on Diabetes Management in Rongo Sub County, Migori County, Kenya"*** for the period ending 12th August, 2021.

Accord him the necessary assistance.

THOMAS KOROS
FOR: COUNTY COMMISSIONER
MIGORI COUNTY

CC
The County Director of Education
MIGORI COUNTY

APPENDIX XII: MIGORI COUNTY GOVERNMENT HEALTH DEPARTMENT APPROVAL

MIGORI COUNTY HEALTH DEPARTMENT

Telegrams:
Telephone: 0722998309
Email:countydirectorofpublichealth@gmail.com
When replying, kindly quote

DIRECTOR PUBLIC HEALTH MANAGEMENT
MIGORI COUNTY
P O BOX 1045-40400
SUNA –MIGORI

REF: NO. MIG/MOH/DPHO/VOL 2/48

28TH SEPTEMBER, 2020

TO THE SCPHO – RONGO

Dear Sir,

RE: ACCEPTANCE FOR MR. MCDONALD ODHIAMBO REG NO. MSCO/6002/2018 TO CARRY OUT RESEACH ON THE INFLUENCE OF PATTERN OF DIABETES HEALTH SEEKING BEHAVIOUR ON DIABETES MANAGEMENT IN RONGO SUB COUNTY.

This is to confirm our acceptance for the above named student to collect data on the above mentioned field at your Sub County for academic purposes for a period of one month. The student is taking degree in Sociology at Rongo University.

The student is advised to observe civil service codes of regulations and departmental policies and rules during his time with us.

Thank you.

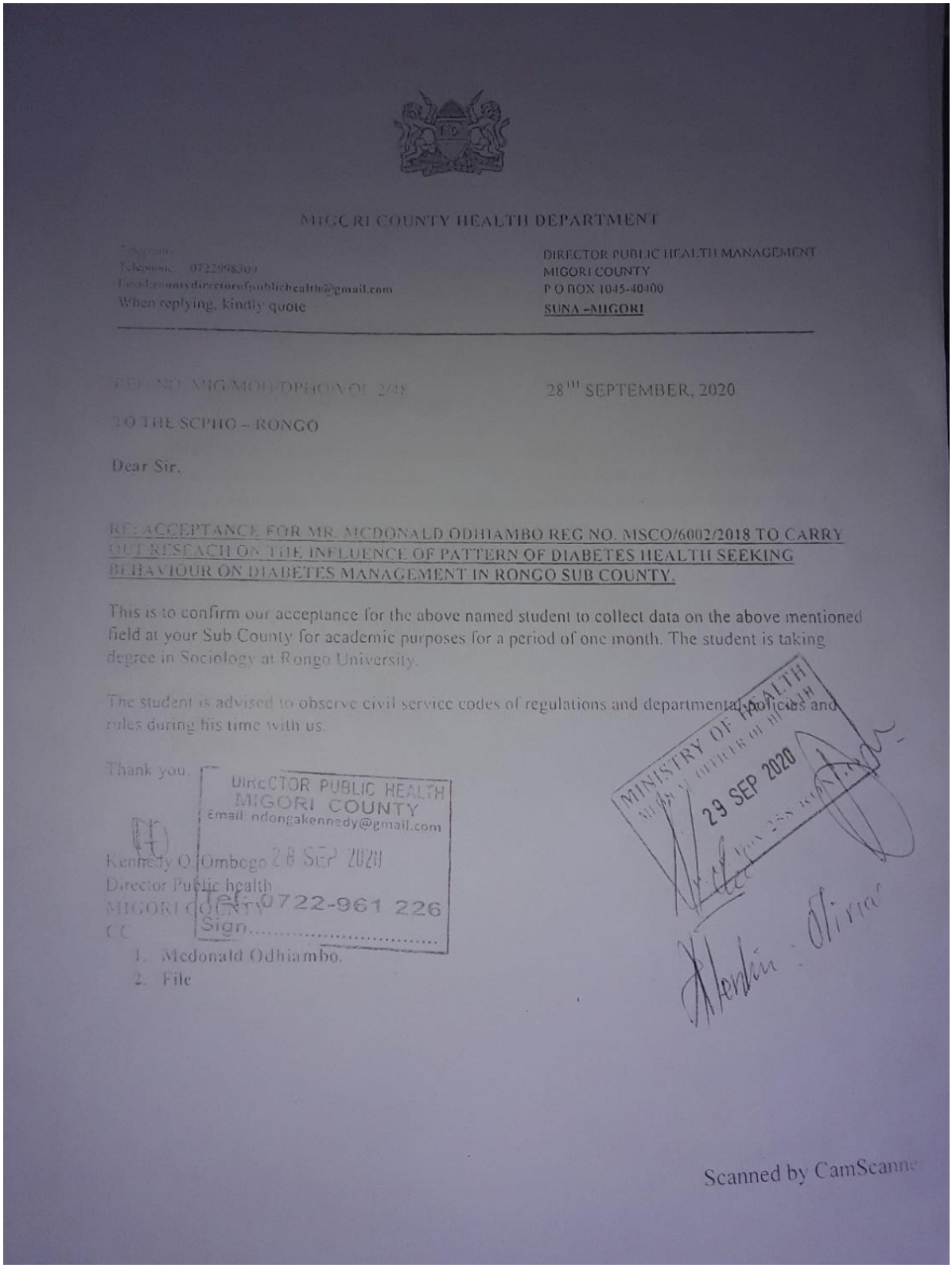
DIRECTOR PUBLIC HEALTH
MIGORI COUNTY
Email: ndongakennedy@gmail.com
28 SEP 2020
Tel: 0722-961 226
Sign.....

Kennedy O. Ombogo
Director Public health
MIGORI COUNTY

CC

1. Mcdonald Odhiambo.
2. File

APPENDIX XIII: RONGO SUB COUNTY HEALTH DEPARTMENT APPROVAL



MIGORI COUNTY HEALTH DEPARTMENT

Telegram:
Telephone: 0722998309
Email:countydirectorofpublichealth@gmail.com
When replying, kindly quote

DIRECTOR PUBLIC HEALTH MANAGEMENT
MIGORI COUNTY
P O BOX 1045-40400
SUNA –MIGORI

REF: NO. MIG/MOH/DPHO/VOL 2/48 28TH SEPTEMBER, 2020

TO THE SCPHO – RONGO

Dear Sir,

RE: ACCEPTANCE FOR MR. MCDONALD ODHIAMBO REG NO. MSCO/6002/2018 TO CARRY OUT RESEACH ON THE INFLUENCE OF PATTERN OF DIABETES HEALTH SEEKING BEHAVIOUR ON DIABETES MANAGEMENT IN RONGO SUB COUNTY.

This is to confirm our acceptance for the above named student to collect data on the above mentioned field at your Sub County for academic purposes for a period of one month. The student is taking degree in Sociology at Rongo University.

The student is advised to observe civil service codes of regulations and departmental policies and rules during his time with us.

Thank you.

DIRECTOR PUBLIC HEALTH
MIGORI COUNTY
Email: odongakennedy@gmail.com

Kennedy O Ombogo 28 SEP 2020
Director Public health
MIGORI COUNTY
Tel: 0722-961 226
Sign.....

CC

1. Mcdonald Odhiambo.
2. File

MINISTRY OF HEALTH
29 SEP 2020

Scanned by CamScanner