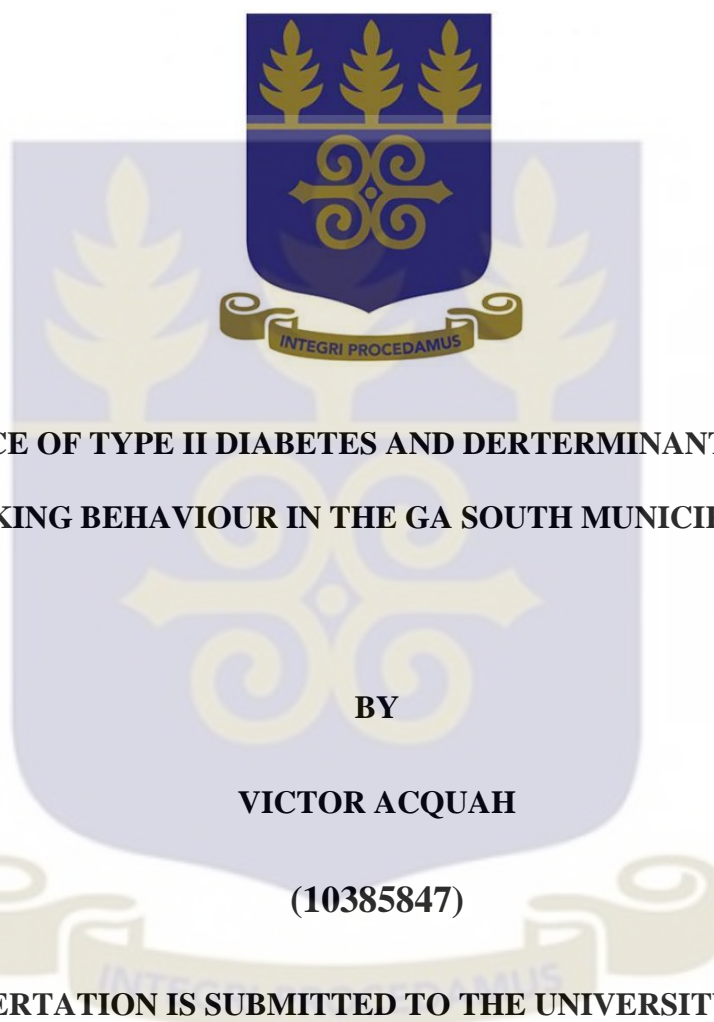


SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCE

UNIVERSITY OF GHANA



**PREVALENCE OF TYPE II DIABETES AND DETERMINANTS OF HEALTH
SEEKING BEHAVIOUR IN THE GA SOUTH MUNICIPALITY**

BY

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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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AWARD OF MSc CLINICAL TRIALS DEGREE.**

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DECLARATION

I, Victor Acquah, hereby declare that except for the works of others that have been duly acknowledged, this work is the product of my own research, under the supervision of Dr Anthony Danso-Appiah and that this dissertation either in whole or in part has not been presented elsewhere for another degree.

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Signed: **Date**.....

Dr. Anthony Danso-Appiah

(Supervisor)

DEDICATION

I dedicate this dissertation to God Almighty my creator, provider, protector, source of wisdom and knowledge. I also dedicate this work to my father, Mr. David Acquah who taught me to be honest at all times and also to my mother, Juliana Aggrey whose unending prayers keeps me going. I promise to make you proud. To my siblings Kakra, Jojo, Foster, Helena and Payin.

I Love you all.

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ABSTRACT

Background: Type II Diabetes (T2D) has been on the rise in recent times all over the world with the worst upsurge occurring in developing countries. In developing countries such as Ghana about half of diabetics are undiagnosed. This high number is found to be associated with the poor utilization of health services which is key in detecting hidden diseases. Health seeking behaviour is found to be directly associated with incidence and prevalence of diseases such that it ensures early detection and immediate treatment which delays disease progression. The objectives of this study was to determine the prevalence of Type II Diabetes and identify the determinants of health seeking behaviour among residents in the Ga South Municipality. **Method:** The study employed the cross-sectional study design with sample size of 311. The weight and heights of participants were taken to calculate the Body Mass Index (BMI). Blood was taken from the finger tips to determine the blood glucose level using the Fasting Blood Glucose test kits. Afterwards the health seeking behaviour questionnaire was administered to participants. **Results:** The findings of the study showed prevalence of DM to be 9.9% (95%CI: 6.9%- 13.9%), more than half (55.1%) of diabetics were undiagnosed. Increase in age, high BMI and physical inactivity was found to be associated with increasing blood glucose level. Inappropriate health seeking behaviour was observed in 50.8% of respondents. The determinants of health seeking behaviour were found to be financial constraints, time constraints, dependence on self-medication and use of local herbs, distance to health facilities and symptoms of diseases being perceived as less serious. These factors were associated with hospital utilization in the community. **Conclusion:** Age, BMI and frequency of exercise was associated with Blood Glucose level. Determinants of health

seeking behaviour was influenced by personal and community factors, current health circumstance and socio-economic factors.

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LIST OF ABBREVIATIONS

DM	Diabetes Mellitus
FPG	Fasting Plasma Glucose
FBG	Fasting Blood Glucose
HDL	High Density Lipoprotein
HSB	Health Seeking Behaviour
IGF	Impaired Glucose Fasting
IDF	International Diabetes Federation
LDL	Low Density Lipoprotein
NHIS	National Health Insurance Scheme
NIDDK	National Institute of Diabetes & Digestive & Kidney Diseases
OR	Odds Ratio
SES	Socio-economic Status
T2D	Type II Diabetes
TPB	Theory of Planned Behaviour
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

1.1.1 Diabetes

From the turn of the twentieth (20) century the scope of diseases have had a shift from infectious or communicable diseases to predominantly non-communicable or lifestyle diseases. This means that most of the conditions that affect humans currently are as a result of what they do and consume. Others also associate upsurge in non-communicable diseases to lifestyle changes created by favourable economic transitions, industrialization, urbanization, (Hills et al., 2018) and deviation from traditional ways of life (Hjelm & Atwine, 2011b) which has led to reduced nutritional quality of our food intake. These conditions are usually chronic with only a few being curable. One of these lifestyle diseases that has become very common all over the world is Diabetes Mellitus (DM) also referred to as Type Two (II) Diabetes (T2D).

Diabetes Mellitus is defined as a chronic disease that occurs when the pancreas is unable to secrete insulin, or when the body can no longer make good use of the insulin being produced (International Diabetes Federation, IDF, 2017). Insulin is a hormone that regulates the body's use and storage of glucose(also called sugar) and fats, and also ensures that the glucose derived from the food we consume moves from the blood stream

into the body cells in order to generate energy for a person (Diabetes UK, 2019). The mechanism is such that insulin signals the liver, muscle and fat cells to absorb glucose from the blood stream when their level is high. This is done by the insulin binding with insulin receptors on the surfaces of cells thereby serving as a key that opens the cells to take up the glucose. When the body cells now have sufficient glucose, the insulin then signals the liver to take up the remaining glucose and store them as glycogen. As the liver reaches its maximum capacity for glycogen the insulin then signals fat cells to take up the rest of the glucose to be stored as triglycerides. With time the body becomes unresponsive to insulin, this is called insulin resistance. This can occur due to lack of insulin receptors, change of insulin shape, excess weight and fat (Woolley, 2019). As a result the cells are less able to absorb glucose or sugar from the blood stream therefore the level of glucose in the blood becomes high which is termed hyperglycaemia. Individuals with persistent hyperglycaemia (high blood glucose) have a higher risk of developing diabetes and related comorbidities (Diabetes UK, 2019). According to the World Health Organization (WHO) (2017), Diabetes Mellitus is caused by ineffective use of the insulin produced. The diagnostic criteria for DM is a person with fasting blood glucose level ≥ 7.0 Mmol/L (126 mg/dl), while for random blood glucose level test is ≥ 11.1 Mmol/L (200 mg/dl) (WHO, 2016). Moreover the normal glucose level for fasting plasma glucose (FPG) is < 5.6 mmol/L (< 100 mg/dL) while levels between 5.6Mmol/L to 7.0Mmol is considered as prediabetes (Ergun-Longmire & Maclaren, 2000).

As at 2016 it was reported that 422 million people are living with T2D that is more than 4 times increase from the 1980 prevalence of 108 million (WHO, 2017). International Diabetes Federation (IDF) (2017) estimated that the previous number had increased to 425 million, meaning within a year there were 3 million new cases of diabetes globally. The interesting revelation is that one (1) in two (2) people with diabetes were found to be undiagnosed, that makes up approximately 212 million people walking around with the condition unaware (IDF, 2017).

The WHO diabetes report (2016), revealed that 1.5 million people globally died directly from diabetes in 2012, with other associated deaths of additional 2.2 million people. In total 3.7 million deaths in 2012 were associated with high blood glucose level. The report also found that 43% of those who died were below the age of seventy (70). Mortality was also found to be higher in males than females and also high in low and middle income countries. Other report also showed that 21 million live births (that is 1 in 7 births) had diabetes during pregnancy (IDF, 2017). In terms of regional distribution as at 2017, the IDF found the prevalence in North America and Caribbean to be 46 million people that is 1 in every 7 adults. Europe had a prevalence of 58 million with 1 in 6 live births also suffering with hyperglycemia during pregnancy. The Middle East and North Africa had 39 million patients with 1 in 5 live births having hyperglycemia. Type II Diabetes contributed to 1 out of 2 deaths for persons under 60 years in that region. Sub-Saharan Africa had a prevalence of 16 million with a high number of diabetics found to be undiagnosed (i.e. 2 out of 3 people). Ghana was ranked 6th in terms of diabetes prevalence in Africa by the WHO 2016 report. In 2017, IDF, reported that out of the

14,586,000 adult population in Ghana 518,400 of them have diabetes mellitus representing 3.6% prevalence rate.

The common symptoms of DM includes excessive thirst and hunger, frequent urination, blurred vision, numbness in the hand and feet, excessive weight loss, unhealed sores and fatigue. However about 50% of people who are later diagnosed of diabetes mellitus do not experience these symptoms and hence are not aware they have the disease. These symptoms develop gradually and could take years to detect (National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK), 2016). Peer, Kengne, Motala, & Mbanya, (2014), found age of the population as a major risk factor in the diabetes epidemic in Africa. This was evident in a report where 43.2% of diabetics were between the ages of 40-59 years. This shows that the risk of Type II Diabetes increases with increase in a person's age.

The upsurge in the T2D in Africa in recent years is traceable to developmental factors such as urbanization, globalization and changes from the known traditional ways of African societies which includes lifestyle changes. Most Africans are now dependent heavily on fast foods, processed and canned foods which could lead to obesity due to excessive calories from daily consumption (Misra & Khurana, 2008). The surge in urbanization within several parts in the African region has become a major contributor to the increasing cases of T2D (Werfalli et al., 2014). These phenomena leads to high increase in sedentary lifestyle attributable to the long hours individuals spend in their

offices, dependence on processed foods and fast foods due to less time available to them (Peer et al., 2014). Using Ghana as a focus point, there has been a revamp of most cities as well as escalation of modern residential areas over the past decade all owing to the growing urbanization in the country. As urbanization and industrialization increases there is also an increase in office jobs and increase in the number of people that spend more hours in the office or in a confined place with less mobility. This sedentary life is found to be a major risk factor of Type II Diabetes. Also, as urbanization increases, people tend to have little time for themselves in terms of physical activity, seeking medical care, going for medical screening or checkup, and preparing known traditional nutritional foods. Since people have little time at their disposal, not much is done to ensure that whatever they take into their body is of the right nutrition. The situation has brought an upswing in fast foods consumption for most people at a very swift pace.

Most people get home late and as a result they resort to wayside fast foods that are found to be high in fats and carbohydrates generating high calories. The adaptation and influx of foreign or Western delicacies in recent times cannot be ignored when talking about nutritional deficiency and their contribution to several non-communicable diseases including Type II Diabetes (Tuei, Maiyoh, & Ha, 2010). Most Ghanaian communities are filled with local street food vendors and fast foods “joints” which most people consume on regular basis. These foods are usually high in refined carbohydrate and saturated fats as well as trans fats due to the deep frying in partially hydrogenated oils that tend to raise LDL i.e. “bad cholesterol” which is one of the risk factors of Type II Diabetes (CDC, 2012.; Heart Foundation, 2018; Misra, Khurana, Isharwal, & Bhardwaj, 2009).

Accompanying these delicacies at the food “joints” is the high consumption of alcoholic and sweetened beverages that have also flooded the market in recent times and have been established to contribute to the conditions that cause T2D (Drinkaware UK, 2016). All these factors put together make urbanization a risk factor and thereby evident in studies that found higher prevalence of T2D in the urban areas than in the rural communities (Sobngwi et al., 2002; Zaoui, Biémont, & Meguenni, 2007). Although urbanization is very important in our lives, it is worth knowing that it comes with its own consequences. Obesity, physical inactivity, nutritional and lifestyle changes all have resulted from urbanization which has increased morbidity and mortality of Diabetes Mellitus (Misra & Khurana, 2008; Tuei, Maiyoh, & Ha, 2010).

Common complications of DM includes blindness and visual disability, heart attack, stroke and kidney failure. However, resource utilization, diabetes education programs (training on self-monitoring of glucose level, drugs usage, how to reduce risk factors of comorbidities, etc.) play significant role in improvement of the condition in all areas including less severe comorbidity and reduced mortality (Brown, Nichols, & Glauber, 2000). In a clinical trial conducted by Group (2010) they found that the onset of comorbidities related to retinopathy, nephropathy and neuropathy in T2D patients are delayed when patients are involved in intensive therapy and seek treatment appropriately. Also contemporary studies have shown that lifestyle adaptation has proven to inhibit or delay the incidence or progression of DM, as well as good dietary programs, regular exercise and appropriate health seeking behaviours can help reduce the risk of advancement of T2D, (Knowler et al., 2002).

1.1.2 Health seeking behaviors (HSB)

Health seeking behaviour describes how people access the health systems in their communities with respect to socio-economic, cultural and demographic factors (Musoke, Boynton, Butler, & Musoke, 2014). Appropriate health seeking behaviour entails seeking early treatment, checking up on your health whether sick or not, and engaging in activities that ensures good health such as regular exercise and other preventive measures. Health seeking behaviours are very crucial in assessing the consequence of chronic diseases over a period of time (Thapa, 2018). Persons with appropriate health seeking behaviour are able to recognize symptoms of diseases especially non communicable chronic diseases early enough hence seek medical care which will more likely lessens disease progress and possible co-morbidities (Hjelm & Atwine, 2011b). The health seeking behaviour of Ghanaians was found to differ with respect to one's socioeconomic status, that is, persons with higher socioeconomic status were found to utilize health facilities than those with low socioeconomic status (Danso-Appiah et al., 2010). From the Ghanaian perspective, usually the only time most people utilize health care facilities is when they have developed signs and symptoms of a particular condition. Even on that note help is not sought at the very onset instead either the person is reluctant to go for help or other avenues such as traditional or herbal medicine and spiritual remedies are sought until the condition begins to deteriorate before family members carry the person to the health facility. This poor health seeking behaviour is influenced by several factors which include age, sex, level of education, cultural beliefs and socio-economic background of individuals (Thapa, 2018).

Diabetes is a condition that develops gradually, as a result it could take years to manifest itself in the body. If a person is conscious about his/her health matters and thus goes for regular check-ups it is likely they would have a hint when they are approaching the prediabetes range at the first onset. And for that reason measures to avert the disease from escalating would have been put in place with timely and appropriate care (Espinosa & Espinosa, 2017). It is similar to the other lifestyle and chronic diseases such as hypertension. Most hospitals currently include blood glucose test as one of the first diagnosis when you visit the hospital even with different conditions. Individuals who utilize the hospital regularly are likely to be up to date on their blood glucose level (or blood sugar level). Persons who go for regular check-ups or utilize health services are more likely to adjust their eating or lifestyle habits once they are told that their blood glucose level is increasing. Conversely, it is quite unfortunate that most people are unaware of their health status and even the causes of some of the most common and pressing conditions in communities. In our societies people are either ignorant of available preventive measures of type II diabetes or unaware of how to manage its complications from the beginning (Sawant & Kokiwar, 2017).

Many studies have found disparities in sex with regards to health seeking behaviour either after diagnoses have been made or even before such diagnoses. Hjelm & Atwine (2011), in their study found females to follow-up more on their diabetes condition than their male counterparts. Also, out of hospital help such as help from traditional and spiritual healers and herbal medicine use was also found to be common in females than

males. Most research look at the health seeking behaviors from the individual level, however recent studies have now tried to focus beyond the individual and instead look at it from the societal and community level, cultural and religious perspective and the environmental conditions. These are very important in influencing the decisions of an individual. A considerable number of Ghanaians are reluctant or not used to going for regular checkups or utilizing health services until they are bedridden. For this reason individuals are usually not privy to their health status including their diabetes status or the current level of their blood glucose.

Therefore this study seeks to determine the prevalence of Type II Diabetes among respondents and then examine the factors that determines their health seeking behaviour as well as explore the health seeking behaviour patterns in the Ga south municipality of the Greater Accra region of Ghana.

1.2 Problem Statement

According to the International Diabetes Federation's Diabetes Atlas, 8th edition 2017, there are 425 million people globally with diabetes and interestingly half of the people with diabetes don't know they have it and thus undiagnosed. In the case of Africa, it is estimated that two out of three people with diabetes are undiagnosed. A report by Gatimu, Milimo, & Sebastian (2016), found the prevalence of Type II Diabetes among adults over 50years in Ghana to be 3.95% as at 2016. In Ghana 69.9% of people with diabetes were found to be undiagnosed (Amoah, Owusu & Adjei, 2002). The major

contributing factor to the high number of undiagnosed diabetes has to do with poor health seeking behaviour and the less attention individuals dedicate to their health matters (Hausmann-Mueala, Muela-Ribera & Nyamongo, 2003).

Studies on Health Seeking Behaviours in Ghana has not seen enough light and much poorly with regards to urban areas. Most of the research on health seeking behaviours were conducted in the Western countries that have a whole different belief system, ideologies, health systems and infrastructures with different cultural context. In developing countries such as Ghana, access to health facilities in various communities are usually a complex task partly as a result of cost, distance to the hospital since most communities do not have one for themselves, religious implications and cultural interpretations of disease (Sarfo, 2015). Other studies suggest that health seeking behaviours are influenced by lack of trust in the health system, inadequate health infrastructure, attitudes of health professionals, financial and socioeconomic status, sex, age and type and severity of illness (Chauhan, Manikandan, Purty, Samuel & Singh, 2015). Due to the urbanized nature of the Ga south municipality more residents are immersed in their daily work schedule while paying less attention to things regarding their health. Several research have shown that more individuals visit the hospital only when they are sick or their disease have worsen which is seen to be associated with disease progression. Because of this they are unaware of the period of disease onset.

Appropriate health seeking behaviour ensures good health and early detection of any unforeseen health problems and prevents progression into other complications of DM (Bhosale, Pawar & Kumar, 2017). Conversely being unaware of ones DM status or

delays in seeking appropriate care and not seeking care at all, contribute to a high rate of complications of diabetes and mortality in developing countries and for that matter sub-Saharan Africa (Mbanya, Motala, Sobngwi, Assah & Enoru, 2010).

Major risk factors of DM has to do with age, low nutritional quality, lifestyle changes, lack of physical activity (Hills et al., 2018), higher body mass index (BMI), family history of DM, excess body fat and higher waist circumference (WHO,2016). These attributes are common features in urban cities of which the Ga South municipality is no exception. The communities in the Ga South Municipality are found to be the home of numerous pubs, wayside food vendors and fast food “joints” which become very busy from dusk to dawn. Foods sold in these pubs and fast food joints are fried foods, pork, chicken, beef etc., which are found to contain high amount of saturated fats which increase “bad cholesterol” (LDL) in the body which are known to be associated with T2D (Diabetes UK, 2018). There is therefore the assumption that the presence of these wayside fast foods and abundance of pubs in the municipality may have exposed some residents to a higher risk of T2D of which they may even not be aware. It is unsurprising that the Diabetes clinic registry in the Municipality has over one thousand diabetics under treatment, hence showing the prone nature of the municipality in terms T2D epidemic.

This phenomenon coupled with poor health seeking behaviour is likely to breed masses of people with type II diabetes that are undiagnosed. If no measures are put in place it would lead to a high number of people being at risk or even having DM unaware which would result in increasing onset of comorbidities and eventual mortality which will affect the population’s health. Also as the burden of diabetes mellitus increases and more

people being affected, the economy of the community will also be affected as more people will not be healthy enough to engage in day to day economic activities.

Therefore carrying out this study is very essential and necessary to uncover those at higher risk and even those who may be diabetics but unaware among the residents of Ga South Municipality and thus draw the attention of health authorities and policy makers in bridging the awareness and treatment gap.

1.3 Justification of the Study

Health seeking behaviour is one of the essential aspects of health services but unfortunately it is understudied and also less attention has been drawn to it over the years. There is little availability of research in this area and also less documented in Ghana as a whole. Most individuals are of the believe that the only time to visit the hospital is when one is sick and even that they do not go to the hospital at the onset of the signs and symptoms but rather after the condition has escalated to an unbearable stage. As a result treatment becomes difficult due to the delay. This study is based on these major factors:

- i. Data on the prevalence of Diabetes mellitus and health seeking patterns of persons in Ga south municipality is very limited or less accessible.
- ii. There is high increase in the cases of Type II Diabetes and late diagnosis in the municipality according to records from the Diabetes Clinic in the Ga South Municipal Hospital and that most of these patients come after the condition has deteriorated and

other comorbidities have already set in. Since records show increasing number of DM and late reportage the study seeks to examine the nature or pattern of health seeking behaviour exhibited by residents and then identify the determining factors.

- iii. WHO (2014) reported that 2 out of 3 diabetics in sub-Saharan Africa are undiagnosed which are found to be associated with poor utilization of health services. Moreover, in the sub-region averagely 50% of participants in Diabetes surveys were found to have the condition and were undiagnosed. It is likely that some of the residents in this community may be at higher risk of T2D or may have T2D but unaware of which this research seeks to find and therefore have an overview of its prevalence in the municipality which will enable the health authorities to take measures which will impact the wellbeing of residents.

1.4 Conceptual Framework

Conceptual framework on determinants of health seeking behavior among

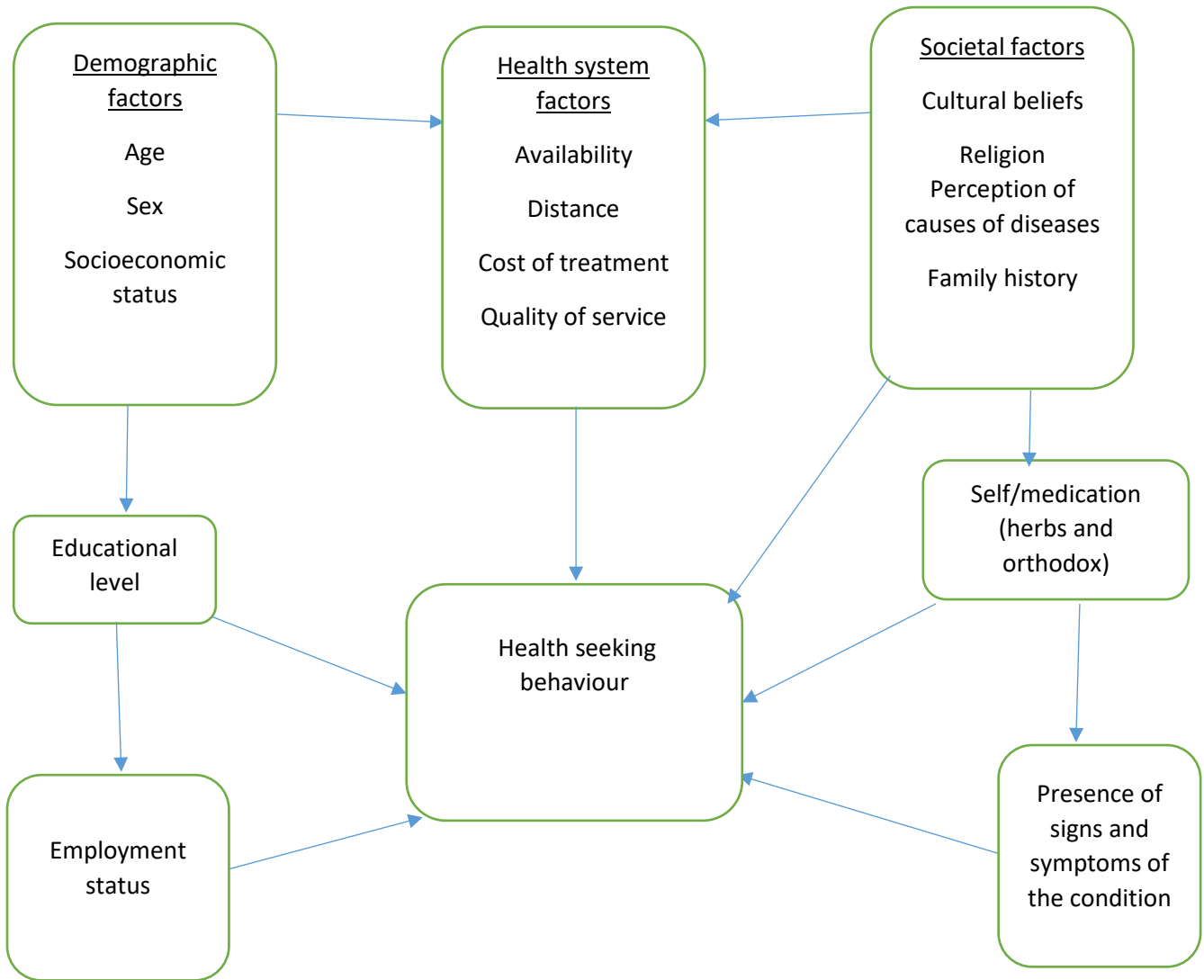


Figure 1: health seeking behaviour predictors

Figure 1 shows the conceptual framework of the various factors that influence ones health seeking behaviour.

Demographic factors such as age, sex and socio-economic status (SES) impacts on the educational level of individuals. That is, socio-economic status affects the educational level of a person, a higher SES ensures higher education because such individual can afford the cost while those with lower SES tend to have lower education which then influences the health seeking behaviour of the person. In terms of sex more men are known to have higher educational level than the females. All these then impact on the educational level of a person and therefore affects how they utilize health systems and services. Also educational level impacts on employment status of the individual. Highly educated persons are likely to be in high office positions who may have constrained time schedule which will affect their HSB. Education also ensures that people are privy to health information hence more likely to have good health seeking behaviours as they may go for regular check-ups, cautious of what they eat and seek treatment to any signs and symptoms early enough.

Demographic factors also impacts on the health system factors. With regards to age and distance, older people may be reluctant to visit hospitals that are not closer or far from the community. SES may affect accessibility to health services due to high cost of healthcare that are not affordable. Those with lower SES may not be able to afford hospital services therefore they'll have poorer health seeking behaviour.

Societal factors such as cultural beliefs and religion impacts on individuals to resort to self-medication. Individuals with closer family members may help them in diagnosing

their illness due to familiarity with the symptoms. Once they are able to treat themselves the learned experience is shared with other family members hence affecting how they utilize the health system. Also family history may lead to individuals having previous experience of how the lifestyle of a close family member brought about T2D and may avoid such lifestyle or the person maybe frequent at the health facility for checkup since it's known to exist in the family line. Quality of service at the health facility also determines a person's utilization of the health facility. If individuals perceive the health facility to have adequate equipment and the staff does have much professionalism they tend to visit more often due to better treatment they expect to have but if the health professionals are known to be unreceptive, individuals do not utilize the facility and thus have poor health seeking behaviour.

Figure 2. Diabetes status predictors.

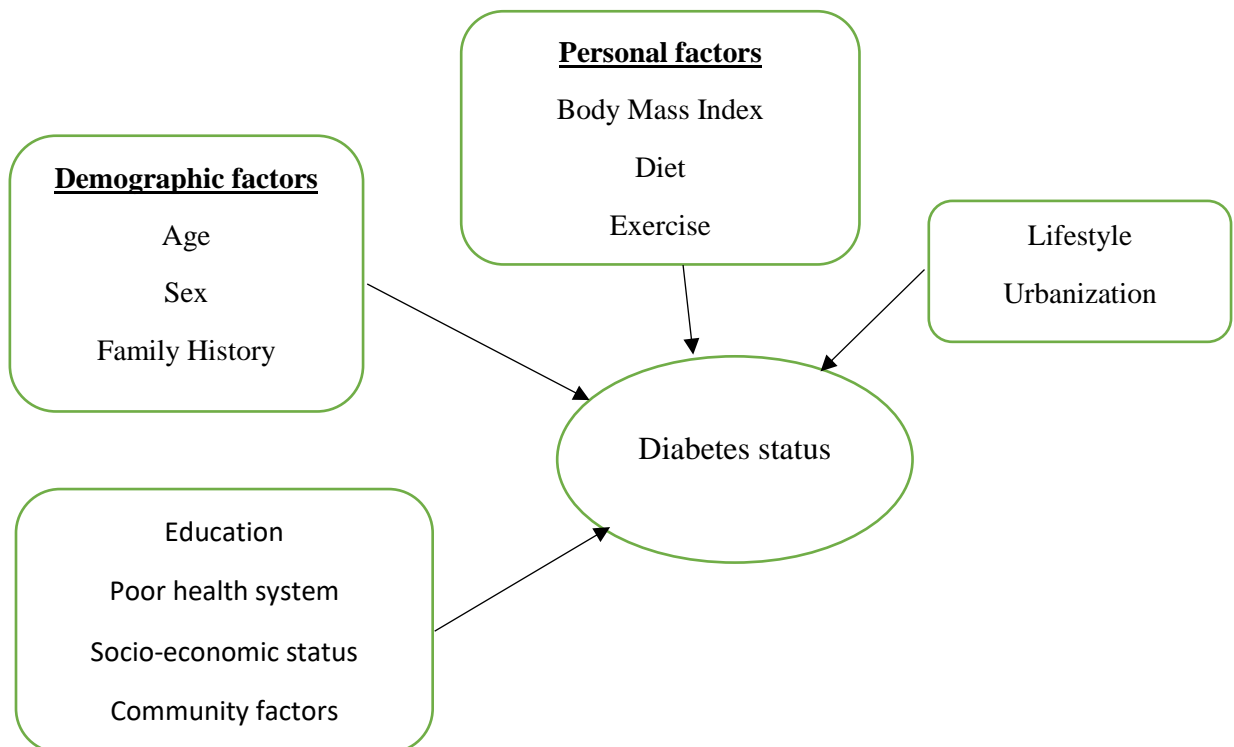


Figure 2 shows the conceptual framework for the major predictors of Type II Diabetes

Age, sex and family history are found to be associated with ones diabetes status. Older people tend to have higher glucose level than younger individuals, therefore making them more susceptible to Type II Diabetes. Persons with family history of diabetes have a higher likelihood of developing diabetes in later life. Also individuals who are overweight and obese stand a higher chance of diabetes compared to those with normal BMI. One of the major predictors of diabetes has to do with diet that is, foods with high carbohydrate and fatty acids as well as saturated fatty acids have been found to influence onset of Type II Diabetes. Lifestyle changes due to urbanization and industrialization have forced people to be less physically active as a result of long working hour, there is also less time dedicated for health checkups. Socio-economic status and other community factors influences ones likelihood of Type II Diabetes.

1.5 Research Questions

1. What proportion of the population within the Ga south municipality have Type II Diabetes and high blood glucose levels?
2. What are the health seeking behaviour of persons in the Ga south municipality?
3. What are the key determinants that influences the health seeking behaviour of residents in the Ga south community?

1.6 Objectives

General objectives

1. To determine the prevalence of diabetes mellitus and the determinants of health seeking behaviour among residents in the Ga South Municipality

Specific objectives.

1. To determine the prevalence of Type II Diabetes among residents in the Ga South Municipality.
2. To identify the health seeking behaviour of persons in the Ga South Municipality.
3. To identify the factors that determine health seeking behaviour among residents in the Ga South Municipality.

CHAPTER TWO

LITERATURE REVIEW

2.1 Health Seeking Behaviour

In Africa it is a known fact that majority visit the hospital mostly when they have developed visible symptoms of a condition. Non-communicable disease have tend to take advantage of this African attitude to impact heavily on their health issues. Unlike infectious diseases that usually show signs few moments or maximum months after the pathogen has arrived in the human system, non-communicable diseases have longer asymptomatic periods lasting up to many years before it erupts. For instance, as reported by IDF (2017) and WHO (2016) as well as several studies on diabetes, posited that many people with diabetes worldwide are undiagnosed with the highest proportion being in developing countries that is half to two-thirds of diabetics in such regions are undiagnosed. Peer, Kengne, Motala, & Mbanya (2014), reported the rate of undiagnosed T2D in Africa to be 50.7 % high in most countries on the continent with the worst scenario being in lower income countries which had a whopping 75.1% undiagnosed rate. These people are unaware of their condition because no visible signs and symptoms have flared up yet. Weak or limited policies and reluctance in utilizing the health systems in our societies appropriately have contributed to a greater extent to this phenomenon with most people being ignorant of the fact that early detection of diseases and effective management is deemed to avert the complications and deterioration of the condition (Bhosale et. al. 2017). HSB takes many forms, it could be from the care givers, health authorities and community leaders. However, the majority of the work lies on the table of

the individual. This is because diseases like diabetes requires a lifestyle adjustment to control it (Bhosale et al 2017), which is the difficult phase that the individual must be responsible for.

Health seeking behaviour looks at how individuals utilizes the health systems either for treatment or screening purposes and how they respond to signs and symptoms of diseases. Health seeking behaviour is essential in our daily life since it's a tool for maintaining good health and detecting emerging health conditions which calls for swift action to impede its progress. According to Inche, Sutan, & Shamsuddin (2014), there is a direct association between occurrence and progression of comorbidity of diseases and health seeking behaviour, in that appropriate health seeking behaviour ensure early detection of the signs and symptoms that may arise and for that matter care would be sort to prevent subsequent complications. Though most people are clearly aware of this, its implementation becomes very difficult due to several factors. Health seeking behaviour is mainly influence by the individual followed by family then the societal and environmental factors or the beliefs of the community the person belongs to and also that of the state. Health seeking behaviour encompasses different stages in the lives of individuals in the community. It spans from the action individuals take with regards to what they eat from the time they are healthy to what they do when there appears to be a sign or symptom of illness and eventually when they are on their sick bed. The current study focuses on individuals who are either diagnosed or undiagnosed and how they seem to use health services through checkups or screening, how early they seek treatment and how conscious they are on what they take into their body and the healthy activities they engage in.

As Africans it is a known fact that most of our perceptions and attitudes are influenced by our cultural lineage and spirituality. These two phenomena are the most essential aspects of the lives of most individuals in Africa. The case is no different from that of Ghana where cultural factors, belief systems and spirituality were found to influence the health seeking behaviours of individuals (Sarfo, 2015). These factors are embedded into the fabrics of society and as a result they are being ingrained into the minds of individuals who belong to the society. The eventual output is realized when almost every situation is first viewed and interpreted through the lens of cultural and spiritual concepts. It is worth knowing that one's decisions to seek care is hugely dependent on the cultural and spiritual definitions of the condition. This means that when the cause of the condition is thought to be spiritual then there is a higher likelihood that the individual will prefer to visit a Pastor, or Imam, or traditional healer depending on the faith they profess rather than going to the hospital for proper diagnoses and subsequent treatment. Others who are more culturally and traditionally inclined tend to prefer the use of local herbs and other herbal medicines with the least sign of illness.

Several factors determine whether a person will access the health services or not. In a typical Ghanaian community there are some factors that are prominent and usually runs through most households. For instance Sarfo (2015), found that a person's health seeking behaviour is dependent on how efficient the health system proves to be. These assessments are done by the individuals in the society usually through the experiences of others. When a person faces challenges in accessing health care on one of their visits they

tend to generalize and spread their displeasure among the community members. This negative experience sinks deep into the minds of other people and as a result hinders them from seeking treatment making reference to the ordeal a friend or relative experienced at the health facility. The efficiency assessment comprise of availability of adequate medical equipment, medicines and the attitude and capabilities of the health professionals. There is a common general perception among most Ghanaians that health professionals especially nurses do not treat patients with much respect when seeking treatment in the hospitals. This perception also impacts on how people use the health systems.

Other people also view health services to be time consuming due to the long queue they must go through before being attended to. Financial constrains has a heavy impact on health seeking behaviour (Basity & Irvani, 2014). Most people do not go for regular check-ups due to the supposed cost they might incur from the screening tests. Another important aspect of health seeking behaviour is the fear of the unknown. People are of the belief and agree to the popular phrase “What you do not know won’t hurt you”. There is the idea that when you are ignorant about something it gives you the luxury of not worrying about that particular thing. This is very typical in the case of deadly conditions such as HIV/AIDS, where people prefer not to go for HIV screening because they believe that when they are found to have the virus the thoughts of it alone is enough to kill them faster than the disease itself. Individuals hide behind this assumption to refuse screening and checkup in order to escape being diagnosed of any unwanted condition.

It is interesting to note that several studies around the world have shown that men have poor health seeking behaviour and are less likely to seek treatment than women

(Nagaddya Lubega, Musinguzi, Omiel, & Tumuhe, 2015). This means sex could be a major determinant of health seeking behaviour.

2.2 Prevalence of diabetes

Type II Diabetes is increasing rapidly over the past 3 decades like any of the other non-communicable diseases. The prevalence of diabetes in the world grew from 4.7% in 1980 to recent prevalence of 8.5% in 2014 (WHO, 2016). This is almost double the prevalence with the upsurge being associated to urbanization and industrialization which has led to tremendous lifestyle changes. These changes have resulted in the increase exposure to major risk factors such as obesity, overweight and physical inactivity. Prevalence rate in Africa stands at 3.3%, however this rate was thought to be affected by the high proportion of undiagnosed diabetes estimated to be 69.2% (IDF, 2018). The first recorded prevalence study on diabetes in Ghana was conducted in the Volta regional capital, Ho, among men in the 1950s (Dodu & de Heer, 1964). The prevalence then was found to be 0.2%. About two decades later in 1970s another recorded prevalence by Pobee et al. (1970) found the prevalence of diabetes in Accra to be 0.5% for males and 0.4% among females. Diabetes was still thought to be a rare disease at that time. Fast forward in 1990 the Ghana Diabetes Association reported the prevalence to be 2% after they had organized a screening exercise in some urban areas in Accra (Bosu, 2007).

The highest prevalence was then recorded in 1998 by Amoah, Owusu, & Adjei, (2002), with rate of 6.4%. Another increase in prevalence was reported in 2003 to be 8.3%

according to Hill et al (2007). Though the prevalence got increasing over the years, no much attention was still given to the condition and people had less knowledge of its causes, prevention and treatment. The highest prevalence was then recorded in 2006 as 9.1% by Addo, Smeeth & Leon (2009). Cook-Huynh et al. then recorded 8% prevalence among 326 subjects in 2012. There seems to be a steady increase in prevalence since the 1950s to the 2000s. This increase is associated with the aging population, urbanization, increased consumption of fatty foods and sweetened beverages (Hills et al., (2018): WHO,(2016)). Although the most current finding shows prevalence to be 3.6% (IDF, 2018) among the adult population in Ghana, a vast proportion of diabetics are estimated to be undiagnosed with the rate being around 50%. Proper health systems and policies coupled with structural developments will ensure a proper way of handling this epidemic. According to Mbanya et al (2010), research studies tend to provide initial hint for Type II Diabetes diagnoses for most people who are unaware of their condition. They reported that most studies from the sub region usually finds about 50% of the participants having T2D or those at higher risk of T2D. Surveys in Tanzania and Guinea tend to lead with about 79% of respondents in the surveys being diagnosed of T2D eventually though they were initially not aware of the existence of the condition in their body.

THEORIES

2.3 The Theory of Reasoned Action

Martin Fisbein and Icek Ajzen developed the theory of Reasoned Action in 1980 as an advancement on their previous theory of Information Integration theory. Reasoned action has to do with the solely behaviour of persons. This theory postulates that there are

factors or circumstances that impede the influence of attitude on human behaviours. According to Fishbein and Ajzen, reasoned action serves as a compromise between stopping a behaviour and actually undertaking the behaviour. It does so by regulating the intentions we have towards a behaviour. Reasoned action consists of two elements that include attitudes and norms. Where norms is defined as the expectations of other people. Both attitudes and norms according to Fishbein and Ajzen are the predictors of behavioural intents.

They explained further that when human attitudes predict a particular behaviour, the relevant norms may also suggest other things. For instance, when a person intends to visit the hospital because they are having a headache, friends of this person may argue that it's just because the sun is scorching that is why he/she is having the headache which is a normal phenomenon. Therefore the person is torn between following his attitude or intent and heeding to the norms of his/her friends. The theory of Reasoned Action concluded that if one element (attitude or norm) supports a persuasive intention more than the other element then there is a need to make that element more important than the other.

2.4 The Theory of Care-Seeking Behaviour (CSB)

The theory of Care-Seeking Behaviour (CSB) was developed by Lauver (1992) with inspiration from Trandis theory of behaviour (1977,1980,1982). According to CSB, there are four (4) psychosocial elements that determine the likelihood of a person employing a health behaviour. These elements are Affect, Habit, Norm and Expectations and values

about outcome. Lauver (1992), explained “Affect” as the emotions that surrounds utilization of health care services. These emotions maybe in diverse forms either optimistic or pessimistic depending on the circumstances. However, people tend to be much anxious when going for screening or checkup due to the fear of a possible serious diagnosis. This is very essential in depicting whether a person will have a good health seeking behaviour or not. In simple plain terms it is the fear of the unknown that affects health behaviour.

The Expectation element has to do with the probable outcome of the behaviour while the Values looks at how pertinent and important are those outcomes. The Norm element has to do with the societal and subjective customs surrounding care seeking behaviour. Human behaviours are intertwined with the beliefs of the societies that they grow up in. Therefore, their personal or subjective norms are derivatives of the norms of their society. However there are always differences between the two due to individual differences that are innate. Care seeking behaviours are depicted by the moral standards of the society as well as how morally appropriate individuals perceive the behaviour to be. The final element which is Habit looks at the actions that individuals take in the presence of signs and symptoms of a condition. It also deals with the durations at which one seeks help after he/she becomes aware of the symptom. Past experiences with care seeking are very essential in this aspect since it wields the power to decide whether health care will be sought or not.

2.5 The Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) was also developed from the theory of Reasoned Action and therefore has some added components that are absent in the earlier theory of reasoned action. It was developed by Ajzen in 1985 and its focus as well is on behavioural intent where it is postulated to be influenced by the expected outcomes of the behaviour and the subjective assessment of the risk and benefits of that outcome. According to the theory, behaviour is dependent on motivation and the ability of control an individual has on the situation. Ajzen (1985), developed six (6) components of TPB that depicts the control one has over a behaviour. The first is Attitude which is the assessment of how favourable and unfavourable the outcome of a behaviour will be. The second is Behavioural intentions which envisage the motivational factors associated with a behaviour, such that the stronger the intentions associated with a particular behaviour the more likely the behaviour is to be performed.

The third is subjective norms; this refers to the views that other people have over a behaviour and whether they tend to accept or not accept it. It is usually based on how the people around the person think it's right or wrong. These close people can be family members, friends or work colleagues. The fourth is the Social norms; this comprises of the beliefs and culture of the society in which a person belongs to. People belonging to the society are expected to have standard norms and attitudes towards a particular behaviour. The fifth component is Perceived Power; this consist of existing factors that are perceived to either limit or enhance the performance of a behaviour. The sixth and final component is the perceived behavioural control; this talks about the perception of how difficult or easy the performance of a task or behaviour will be. People have

different behavioural controls depending on the situation at hand. It means that how much control a person has over the behaviour is very influential in whether the person will undertake the behaviour or not. Ajzen then concluded that when a person's attitude towards a behaviour is favourable combined with subjective norms and better behavioural control then the person's intention of performing the behaviour becomes very stronger.

2.6 Review of Related Studies

In a study by Muriithi (2013), to explore the determinants of health seeking behaviours in Nairobi slums in Kenya, a sample size of 483 participants were used in the study. Data was then collected on the respondents' use of health facility in the locality. Factors such as age, education, occupation, distance to the health facility, cost of health care, etc. were matched with ones likelihood of utilizing the health facility. The results showed that distance had a significant relation with the utilization of health system but with a negative impact. This means that the farther the distance to the health facility, the more likely a person will decide on self-treatment. Sex (Gender) was found to be statistically significant to a person's likelihood of visiting the health facility. Females were found to be more likely to visit health facilities than the males. Which implies that females are more sensitive to their health matters than males. Education was statistically significant associated with positive health seeking behaviours. Respondents who were educated were likely to seek professional health care as against self-treatment. The results of the study also showed that age was associated with health seeking behaviour such that an increase

in age was linked to increase utilization of health care services. However occupation had no statistical significance with health care use in this study.

Another study by Srinivas, Suresh, Jagadeesan, Emalraj and Datta (2002), was conducted in south India to examine the treatment seeking behaviour and compliance of diabetic patients in the area. A total of 112 patients who were diagnosed with diabetes were selected to partake in the study. Data for the study was collected from the respondents through interview method and drug utilization charts. Blood analysis was also carried out to verify the diabetes status of patients. Among the respondents 72% of them were diagnosed of diabetes after they had developed some symptoms while the remaining 28% were diagnosed only during routine screening, meaning they were unaware of the existence of diabetes prior to the screening. Srinivas et al (2002) found the factors that contribute to poor treatment seeking behaviour and non-compliance include lack of motivation and ignorance of comorbidities on the part of patients which formed 66% of the individuals, followed by inadequate health facilities which was 34% while financial constraint, unavailability of drugs and lack of support from family had 22%, 13% and 13% respectively.

As portrayed by most studies it was also confirmed by this paper where they found more males (66%) to have poor treatment-seeking behaviour and non-compliance than their female counterparts (50%). With regards to education, patients with uneducated family had poor treatment seeking behaviour than patients from educated family. It was thus concluded that most of the patients were diagnosed with diabetes only after they had

developed couple of other conditions and thus this could have been averted if diagnoses were done earlier through proper routine screening.

Chauhan, Manikandan, Purty, Samuel & Singh (2015), examined the determinants of healthcare seeking behaviour among the population of coastal area of Tamil Nadu in the district of Villupuram, India. It was a descriptive study which was based in the community to assess the factors that influence decision making with regards to the health seeking behaviour of individuals. A structured questionnaire was administered through house to house visit to collect data on demographics, education, employment status, existence of any health condition, the health care seeking behaviour of a person and the reason for not using a health facility.

A chi-square test was used to identify the relation between characteristic of a respondent and their health care seeking behaviour. A total sample size of 559 participants were enrolled into the study. The results showed that 56.4 % of the respondents utilized the health facility when they had develop various conditions. About 11.6% of them preferred the pharmacies ones a symptom sets in. Factors such as sex, education, occupation, morbidity and age were found to have no significant association with the health seeking behaviour of individuals with p values of 0.104, 0.077, 0.405, 0.667 and 0.061 respectively. However, income of a participant was found to have significant association with healthcare seeking behaviour with a p value <0.05 . Chauhan et al (2015), reported that ease of access to health facility, free cost of service delivery and quality of service

delivery by the health professionals were the determinants of health care seeking behaviour.

In a study to determine the prevalence and determinants of appropriate health seeking behaviour among known diabetics in Malaysia, Abidin, Sutan and Shamsuddin (2014), conducted this cross-sectional community based survey in Tanjong Karang using samples from 17 communities. 460 participants were randomly selected for the research. A face to face interview was employed to collect data using a structured standardized questionnaire which has 59 items on knowledge of diabetes and health seeking behaviour in order to assess whether a participant has appropriate health seeking behaviour. The results reported by Abidin, Sutan and Shamsuddin (2014), showed that majority of the respondents (61.5%) had developed comorbidities of diabetes on the first day of their visit. Another 27% of the participants were diagnosed at the health facility while they were there for a different purpose. However, 26.5% were diagnosed when they willfully went to the health facility purposely for diabetes screening. The study showed that 14.6% of participants with diabetes had appropriate health seeking behaviour. 89.8% of the respondents were found to utilize the health facilities after they were diagnosed with diabetes. 1.5% resort to pharmacy only for treatment, 6.5% resort to self-treatment whilst 1.7% of the respondents do not seek for treatment at all. With regards to health seeking behaviour 85.9% of diabetics had appropriate health seeking behaviour while 14.1% were found to have inappropriate health seeking behaviour.

The study found factors such as age, employment status and educational level of persons with diabetes to be the determinants of the appropriate health seeking behaviour. Moreover, family history of diabetes, family support, income and existence of comorbidities are also some of the determinants. However, there was no significant association between sex and health seeking behaviour (p value of 0.595). Similarly, distance to health facility had no influence on health seeking behaviour (p value of 0.280).

CHAPTER THREE

METHOD

3.1 Study Area

The Ga South Municipality is one of the 26 local authorities in the Greater Accra Region of Ghana. The Ga South Municipal Assembly is located at the western part of the Accra Metropolitan Assembly which is the outskirts of the Greater Accra Region and shares border with the Central Region. The municipality is bordered to the north by Weija and to the East by McCarthy Hill and Mallam Junction, to the south is the Gulf of Guinea and to the west is Kasoa (which is part of the Central Region). The Accra – Cape Coast road runs through the municipality and thus divides the municipality which aids in demarcating several vicinities as a result. A section of the Dansu Lake is found at the western part of the locality. The municipality comprise of several communities, with a population of 296,552 people from which 71.2% living in urban areas and over 70% are in the upper and middle working class (Ga South municipal assembly records, 2018). The

municipality was carved out from the original Ga south municipality (i.e. Weija) on 5th March 2018. The Ga South Municipal Hospital and the Nghleshie Amanfrom Polyclinic are some of the government health facilities serving the health needs of the residents and it is situated about 10 kilometers apart. Additionally, there are four (4) private hospitals operating in the area. Major parts of the communities consist of urban residential areas with several corporate institutions, banks, schools, factories and business centers (such as offices, shops, pubs, restaurants and several fast food centers). It is home to the biggest shopping mall in Ghana which is the West Hills mall. Most of the residents are professional or white colour job workers who leave to work in the central Accra business districts and other surrounding firms. The municipality is very busy during the night hours where the restaurants, pubs and fast food joint are filled heavily with people. The population consist of predominantly educated individuals with major languages being English and Twi with few being Ga and other local language speakers (GSMA, 2018).

3.2 Study Population

The Ga South Municipality had a heterogeneous population in terms of occupation, religion, ethnicity, age, employment and socioeconomic status. The study took into consideration individuals from the age of 18 years and above. This was to capture the active year groups of the young, middle and older adulthood since these people have their own diverse lifestyles and personal decisions are not determined by others but by themselves. Also these age bracket are those at the higher risk of DM. It involved persons from both sexes (male and female) and any occupation who were willing to take part in the study.

3.3 Study Design

An analytic cross-sectional study was conducted in six (6) randomly selected communities in the Ga South Municipality with the data collection exercise taking place over a period of two (2) weeks. Data collection from randomly selected participants was in two parts. The first part was the blood glucose level test to determine whether the participant was a diabetic, prediabetic or normal. The Fasting Blood Glucose (FBG) was employed using the blood glucose kits. The test was carried out early in the morning between the hours of 6:00am to 10:00am. Anthropometric data collection included weight and height and was used to determine the Body Mass Index (BMI) of participants. In the second part, the health seeking behaviour questionnaire was administered to each participant. The questionnaire collected information on demographic data and items on how one utilizes health facilities and the factors or determinants of their health service utilization. Other information on family history and knowledge about diabetes and its causes were also taken from the respondents. The study was carried out within the 6 communities.

3.4 Fasting blood glucose level test procedure (FBG)

After the consent of the participant was sought, the left or right index finger of the participant was wiped and cleaned with an alcohol pad. A test strip was inserted into the glucose device with the name “Gold-Accu Blood Glucose Monitoring System” manufactured by Changsha Sinocare Incorporated, China. The sterile lancet needle was used to prick the fingertip to get a drop of blood. The strip in the glucose monitoring

device was used to collect the drop of blood at the fingertip. After 5 seconds the results that is the blood glucose level of the participant appear on the display screen of the device and the value recorded. This particular procedure was executed by two Registered Nurses (RN) who were recruited as research assistants. Persons with fasting blood glucose level below 5.5mmol/L were classified as having normal blood glucose level while persons with fasting blood glucose level between 5.5mmol/L and 6.9 mmol/L were classified as prediabetes group and those with blood glucose level equal or more than 7.0 mmol/L were classified as being diabetic.

3.5 Sampling and sample size

A multistage sampling technique was used in this study. First, the Ga South Municipality was divided into 15 communities or strata from which six (6) strata were randomly selected using balloting. In the second stage another balloting is done to select four (4) vicinities within each of the six strata. A simple random sampling technique was then employed in the third stage by using computer random number generator to select 16 households from each of the four vicinities in each strata to make up for the sample size. For each house hold that was visited the heads there were included in the study provided they meet the inclusion criteria. In instances where the heads were unavailable paper ballots were put in a bowl and shaken and any adult that picks “1” from the set of numbers was made to participate.

A proportion of 25% (Keel et al., 2017) was used as an estimate of hospital utilization in the community. Sample size was calculated with 25% (0.25) proportion with error margin

of 5% and confidence level of 95%. The formula developed by Cochran (1977) for sample size calculation was used. An 8% non-response and dropout rate was applied. The formula is stated as:

$$n_0 = \frac{z^2 pq}{e^2}$$

Where n_0 is sample size,

Z= critical value of the desired confidence level

P= estimated proportion of population that has the attribute

q= 1-p

e= desired level of precision i.e. error margin

Therefore the sample size is calculated as:

$$n_0 = \frac{(Z_{\alpha/2})^2 p(1-p)}{e^2} \quad n_0 = \frac{(1.96)^2 0.25(1-0.25)}{(0.05)^2} = 288 + 8\% = 311$$

3.6 Data collection and analysis

Anthropometric data such as weight in kilogram (kg) and height in meters of respondents were collected using standardized weighing scale and meter rule equipment respectively. The Body Mass Index (BMI) was generated in STATA version IC15. The outputs were then categorized into 0-18.5kg/m² as underweight, 18.5- 25kg/m² normal weight, 25-29.9kg/m² over weight and obese being >30kg/m². Health seeking behaviour questionnaire was used to collect data on how respondents utilize health facilities and other health services as well as knowledge on Type II Diabetes. Factors that influence their health seeking behaviours were also collected. The questionnaire was adapted from the health seeking behaviour questionnaire developed by Danso-Appiah et al.,(2010) and partly from the WHO STEPS instrument.

3.7 Data Analysis

Data collected with the questionnaires were first entered into Microsoft Excel and then transferred to Stata version IC 15 for analysis to generate frequency distribution, chi square, logistic regression and multiple linear regression and percentages to enhance analysis of the descriptive quantitative data. The study used a confidence interval of 95% with alpha value of 0.05 as the error margin.

3.8 Quality control

Competent research assistants were recruited and properly trained on the appropriate methods in data collection for this particular study. The researcher took the research assistants through the study protocol and the data collection tools. The sampling method for recruitment of participants were also taught. All questions raised were answered to their understanding. Data entered were checked for errors and omissions and all entered data was cross-checked with the original copy of the questionnaire for consistency.

3.9 Operational definition

- Health seeking behaviour: seeking early treatment and utilization of health facilities when sick or for screening /checkup.
- Comorbidity : complications and other diseases that arise from Type II Diabetes
- Early treatment : seeking treatment within 3days of illness
- Blood glucose level: same as blood sugar level that is the amount of glucose in the blood stream as measured by the glucose device

3.10 Variables

- Dependent variable
 - Health seeking behaviours that is utilizing of health facility or services and seeking early treatment.
 - Blood glucose level
- Independent variables
 - Age, sex, marital status,
 - Religion, educational level & occupation
 - Body mass index, physical activity
 - Distance to health facility

3.11 Inclusion criteria

All subjects who met the following criteria and thus deemed eligible for this study

- Subjects must be at least 18 years and over
- Must be a resident at least 5 years in any other community in the Ga South Municipality
- Must agree to participate in the study by signing the informed consent form

3.12 Exclusion criteria

Subjects who meet the under listed exclusion criteria were deemed ineligible to participate in the study and hence excluded.

- Persons who were very sick or have chronic and terminal conditions
- If subject is a health worker that is nurses and medical doctors
- Pregnant women

3.13 Ethical issues

Ethical clearance was sought from the Ethical Review Committee of the Ghana Health Service with reference number **GHS-ERC 051/04/19**, through the School of Public Health of the University of Ghana. Permission was also obtained from the Ga South Municipal Assembly. The purpose of the study was explained to the participants and their questions answered properly and also the processes involved in participation was explained and interpreted in details to them. Those who agreed were given the informed consent form to sign and a copy of it given to them while those who do not wish to take part were allowed to drop out. The study did not pose more than minimal risk to participants. The possible potential risk were the discomfort on the finger from the needle prick during the blood glucose test. There may also be possible emotional discomfort in answering some items in the questionnaire. There was no direct benefit to participants except their opportunity to know their current blood glucose level. The majority of the benefit goes to the entire community where results from the study are to be used to effect health policies. Privacy of respondents with regards to their background information were treated with utmost confidentiality. Participants were made to understand that participation in this study was solely voluntary and that they have the right and freedom to withdraw from the study at any point in time without any penalty. No compensations were paid to respondents for their participation. All information and results collected from the study were kept under lock and key and softcopies kept under password lock. Data from the study was used for master's thesis project and a possible future journal publication. The data from the study is the sole property of the principal investigator and

all funds and expenses on the study were provided by the investigator himself. There was no conflict of interest issues and all procedures were carried out devoid of any bias.

CHAPTER FOUR

RESULTS

A total of 311 respondents were visited and included in the FPG test, taking of weight and height and answering of the questionnaires. Below are the statistical analysis generated from the data collected during the study.

The table 1 gives the details of the demographic characteristics of respondents in the study. There were a total of 311 individuals that participated in the study. Out of which 55.95% (174) were females and 44.05 % (137) were males. The mean age \pm SD of the subjects was found to be 41.6 \pm 15.4 years with majority (23.47%) of the respondents being in the 25-34 age group followed by the 35-44 , 45-54, 55-64, 18-24 and 65+ age groups with percentage of 22.19%, 18.33%, 14.79%, 13.83% and 7.4% respectively. Also 40.5% of the respondents were 45 years and above and 59.5% were below the age of 45years. The minimum age was 18years and the maximum age being 87years.

Regarding education, a higher proportion of respondents (42.9%) have had at least college or university education while 27.1% had finished Senior High School (SHS) and a small proportion (9.3%) having no formal education. Hence majority (over 90%) of the participants can be said to be literate. With respect to employment, 32.68% were self-employed that is they run their own businesses. Government workers were 14.71%, private cooperate workers were 27.45%, student being 9.45%, pensioners 7.19% and unemployed being 8.5%.

4.1. Table1: Demographics distribution of respondents

Characteristics	Frequency (n=311)	Percentage (%)
Sex Female	174	55.95
Male	137	44.05
Age (years)		
18-24	43	13.83
25-34	73	23.47
35-44	69	22.19
45-54	57	18.33
55-64	46	14.79
65+	23	7.40
Educational level		
College/university	133	42.90
Junior high	30	9.68
No formal education	29	9.35
Postgraduate degree	17	5.48
Primary	17	5.48
Senior High	84	27.10
Marital Status		
Divorced	28	9.00

Living together	19	6.11
Married	96	30.87
Separated	21	6.75
Single	128	41.16
Widowed	19	6.11
Employment Status		
Government worker	45	14.71
Retired	22	7.19
Student	29	9.48
Private worker	84	27.45
Self-employed	100	32.68
Unemployed	26	8.50

4.2 Table 2. Distribution of Age, BMI and blood glucose level

Characteristic	Male (mean)	Female (mean)	Total mean	95%conf. interval
n	137	174	311	
Age (years)	39.7 ± 13.5	43.2 ± 16.6	41.6 ± 15.4	39.91 - 43.35
BMI (kg/m²)	24.8 ± 4.6	25.5 ± 4.9	25.1 ± 4.8	24.61 - 25.68
FPG (mmol/l)	5.2 ± 1.5	5.7 ± 1.8	5.5 ± 1.7	5.34 – 5.71

From table 2 the mean age for males was 39.7 ± 13.5 years and that of females was 43.2 ± 16.6 years. The female mean body mass index of 25.5 ± 4.9 kg/m² was also slightly higher than that of the males which was 24.8 ± 4.6 kg/m². However the overall mean of the subjects was 25.1 ± 4.8 kg/m². The mean fasting blood glucose level of the participant was 5.5 ± 1.7 mmol/l. The mean Blood Glucose level for males was 5.2 ± 1.5 mmol/l and females was 5.7 ± 1.8 mmol/l.

4.3 Table 3: Prevalence of diabetes and distribution of Blood Glucose level

Diabetes status	freq. (n=311)	Percent (%)	95% CI
Non diabetic	280	90.1	
Known diabetic	31	9.9	6.9– 13.9
Normal blood glucose level (≤ 5.5mmol/l)	(n=156)	(50.2)	
Females	74	47.4	
Males	82	52.6	
Prediabetes (5.6-6.9mmol/l)	(n=86)	(27.6)	22.8–32.9
Females	54	62.8	
Males	32	37.2	
Diabetes (high FPG) (≥ 7.0mmol/l)	(n=69)	(22.2)	17.7 – 27.2
Females	46	66.7	
Males	23	33.3	

$X^2 = 9.4365$ P value = 0.009

Table 3 contains prevalence of diabetes and blood glucose level distribution with regards to the respondents. Prevalence of Type II Diabetes among the respondents was 9.9% with 95% confidence interval of 6.9% to 13.9%, these are known diabetics and the non-diabetics were 90.1%. However using the fasting blood glucose test, 69 respondents (22.2%, 95%CI 17.7%-27.2%) were found to be in the diabetes range of having high blood glucose level greater than 7.0mmol/l which is the diagnostic criteria for Type II Diabetes. Out of the 69 participants falling in the diabetes range 31 of them were known diabetics and under medication. The remaining 38 representing 55.1 % were undiagnosed and unaware of their high glucose level.

As many as 86 of the respondents representing 27.5% (95%CI 22.8 – 32.9) were found to be in the prediabetes range that is having FPG from 5.6-6.9mol/l. This group is believed to be at a higher risk of Type II Diabetes later in life if the FPG level continues to increase. With regards to sex, females had the higher proportion in both the prediabetes and diabetes range of 62.8% and 66.7% respectively. The chi-square statistic was used to test the association between sex and blood glucose level categories. The test showed a significant association with a chi-square value of 9.4365 and p value = 0.009.

4.4 Table 4. Health seeking behaviour/Utilization of health systems and services

Characteristic	frequency (n)	percent (%)
How early do you seek treatment when symptoms appear?		
24hours -3days	160	51.4
After 3days-week	151	48.6
Utilizing different health services		
Hospital/clinic	116	37.4
Pharmacy/drug store	92	29.7
No treatment	35	11.3
Spiritual healer	6	1.9
Self-medication/use of local herbs	62	19.7
Regular exercise		
Yes	95	30.5
No	216	69.5

Health seeking behaviour

Appropriate	153	49.2
Inappropriate	158	50.8

In table 4, Appropriate health seeking behaviour was classified as seeking treatment within 3days and utilizing hospital. Out of the 311 participants 160 (51.4%) respondents sought treatment within the first 3 days when signs and symptoms appear while 151 (48.6%) respondents prefer seeking treatment from 4th day to one week of presence of symptoms. Regular exercise was performed by 95 participants representing 30.5% while 216(69.5%) do not engage in regular exercise. Appropriate health seeking behaviour was observed by 153 (49.2%) respondents and 50.8% (158) respondents had inappropriate health seeking behaviour.

4.5 Table 5. Chi square statistic on Health seeking behaviours and its determinants

Characteristics	freq(n=311)	%
Reasons for not/delay in seeking health care		
Financial constraints	76	24.4
No time (works schedule)	53	17.1
Distance to health center	41	13.2
Self-medication/use of herbs	48	15.4
Symptom not serious	45	14.5
Poor service & Attitude of health workers	48	15.4

$X^2 = 24.4326$ Pr < 0.001

4.6. Table 6 Logistic regression of predictors of appropriate health seeking behaviours

Utilizing Hosp.	Odds Ratio	Std. Err.	z	P> z 	[95% Conf. Interval]	
Age	.3738	.1584	-2.32	0.020	.1629	.8576
Sex	.6939	.2501	-1.01	0.311	.3424	1.4064
Education	.9705	.0628	-0.46	0.643	.8548	1.1018
Employment	.8483	.0993	-1.41	0.160	.6743	1.0669
NHIS card	2.5006	.9488	2.42	0.016	1.1887	5.2606
Symp. worsen	2.9387	1.4615	2.17	0.030	1.1088	7.7888
Closeness	2.7351	1.0473	2.63	0.009	1.2914	5.7928
_cons	6.9049	4.2423	3.15	0.002	2.0710	23.0211

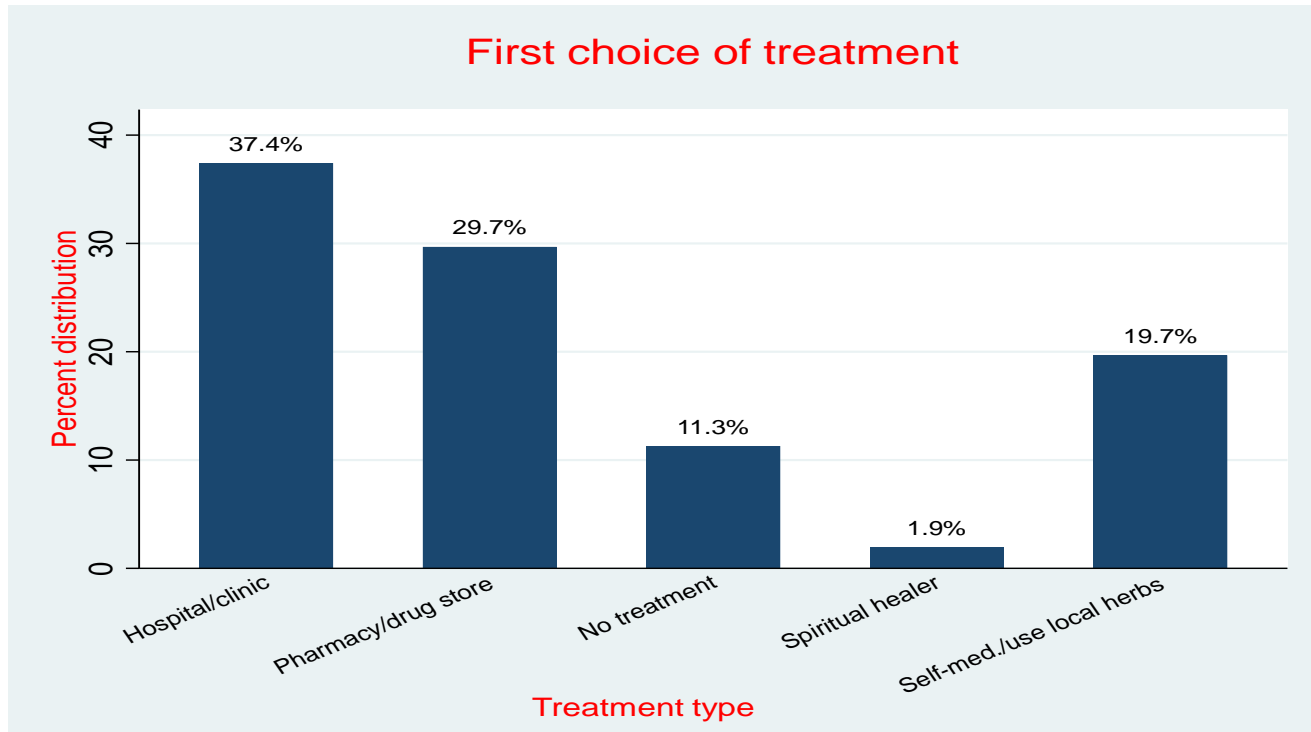
LR $X^2(15) = 100.5$ Prob <0.001 Pseudo R²= 0.2404

Table 5/6 contains characteristics that describe the determinants of both appropriate and inappropriate health seeking behaviours of the participants in the study. In table 5, the determinants of health seeking behaviour showed financial constraints was posited to be the biggest reason for the underutilization of health services which entails hospital charges and drug expenses. Financial constraints grossed 24.4% followed by time constraints (17.1%) which was usually due to tight work schedules. Self-medication and poor service and attitude of health workers were both tied at 15.4% while 14.5% of

respondents delayed or did not seek treatment because the symptoms were deemed not serious enough. Also 13.2% of respondents felt that the distance to the health center was a factor that impedes their health seeking behaviour. These factors were confirmed when the logistic regression of those who attend hospital was predicted by age, sex, employment status, education, possession of NHIS card, closeness to health facility, worsening symptoms, routine doctor's appointments and fear of unknown diagnosis.

The results in table 6 shows that the odds of attending hospital decreases for respondent below 50years compared to those more than 50years (OR=0.37, $p=0.020$ CI 0.16- 0.86). Possession of NHIS card was found to be a significant predictor (OR= 2.5, $p=0.016$ CI 1.2- 5.3), as well as worsen symptom (OR=2.9, $p=0.03$ CI 1.1 -7.8). The odds of attending hospital is 2.7 times for those who have their residence closer to the hospital than those who are far (OR=2.7, $p=0.009$ CI 1.3-5.8). However sex, education and employment status were not significant with OR=0.6939, $p=0.311$, 95%CI .3424-1.4064; OR=0.9705, $p=0.0628$, 95%CI .8548-1.1018 and OR=0.8483, $p=0.160$, 95%CI .6743-1.0669 respectively.

4.7 Figure 2. Distribution of the mode of treatment most preferred by participants.



From figure 2, Hospital was the most preferred place for treatment of illnesses according to the respondents with percentage of 37.4%. These persons used the hospital as their first point of call when ill. This was followed by the pharmacy with 29.7%, showing that the pharmacy has a large share with regards to seeking treatment. Self-medication/local herbs was used by 19.7% of the respondents. Other respondents prefer not taking any action that is the no treatment group believing that the illness will go by itself also accounted for 11.3% of the participants.

4.8 Table 7. Multiple linear regression of Blood glucose level

Blood glucose level	Coef.	Std. Err.	t	P> t	[95% CI]
constant	2.5715	.60996	4.22	0.000	1.3710- 3.7720
Family history	.3116	.1984	1.57	0.117	-.0789-.7021
BMI	.1148	.0189	6.06	0.000	.0775 - .1521
Sex	-.1305	.1615	-0.81	0.420	-.4483 - .1874
Age	.0592	.0075	7.87	0.000	.0444 - .0739
Regular exercise	-.8641	.3629	-2.38	0.018	-1.5782 -.1499

*Note: $F(9, 291) = 20.03$ $P < 0.001$ $R^2 = 0.3825$ Adjusted $R^2 = 0.3634$

A Multiple linear regression was performed to predict Blood Glucose level based on the sex, age, family history, regular exercise and body mass index of respondents. The results of the regression in table 5 above showed that the five predictors (age, sex, family history, BMI and regular exercise) explained 36.34% of the variance in blood glucose level (Adjusted $R^2=0.3634$, $R^2=0.3825$). The overall regression model was found to be significant ($F(9, 291) = 20.03$, $P < 0.001$). The results indicate that 36.34% of the changes seen in blood glucose level could be explained by the joint effect of age, BMI, sex, family history of diabetes and performance of regular exercise.

Among the respondents, sex and family history of diabetes were not significant predictors of blood glucose level, (sex coefficient =-0.13, $p=0.42$) (family history

coefficient =0.31, $p=0.12$). On the other hand, BMI, age and regular exercises were found to be statistically significant predictors of blood glucose level with coef=0.11, $p<0.001$, coef=0.06, $p<0.001$ and coef=-0.86, $p=0.02$ respectively. This means that for a unit increase in body mass index (BMI), blood glucose level increases by 0.11mmol/L. For a unit increase in age blood glucose level increases by 0.06mmol/L. And finally, for a unit increase in the number of days for regular exercise in a week blood glucose level reduces by 0.86mmol/L.

CHAPTER FIVE

DISCUSSION

5.1 Discussion

The current study used data from 311 participants out of which 174 that is 55.95% were females and 137 representing 44.05% were males. Prevalence of Type II Diabetes was found to be 9.9% with 95% confidence interval of 6.9% to 13.9%. This current prevalence rate is similar to other studies in Ghana such as Addo et al. (2009) who found prevalence of DM to be 9.1% in Accra among civil servants in 2006, another study at the outskirts of Kumasi by Cook-Huynh et al. (2012) found diabetes prevalence to be 8% among the adult population. This high prevalence in the current study shows how great the burden of DM exist in the Municipality. And the possible impact of the exposure factors such as the presence of high fatty foods and low rate of physical activities among others. Among the known diabetics, 74.2% of them were females and 25.8% being males ($X^2 = 4.479$, $Pr = 0.034$). This also supports the study by Gatimu et al., (2016) that found prevalence of diabetes to be higher in female than males in the adult Ghanaian population. However this is in contrast to the findings by Amoah, Owusu & Adjei (2002), who found males to have a higher prevalence of diabetes than females. The reason for the prevalence being high in females than males could be the fact that most males tend to be physically active than the females.

This is evident in the high number of males found to be working out at gyms, going for morning run and engaging in the sporting activities (such as football) on daily bases within the communities. Since overweight and obesity are major risk factors of DM, and 60% of those respondents in the overweight and obese categories were females, it could then contribute to the higher prevalence of DM being in females than males in the community. However there was no significant association between educational level and DM status in this current study which is consistent with report by Amoah, Owusu & Adjei (2002). This is contrary to the findings by Srinivas, Suresh, Jagadeesan, Amalraj, & Datta, (2006) and Muriithi, (2013) who all report a significant association between educational level and diabetes status.

Though the current prevalence rate (9.9%) is higher than the national prevalence estimated to be around 6% (WHO, 2018), the total number of persons with higher blood glucose level was 69 out of the 311 respondents. This represent 22.2% [CI: 17.7% - 27.2%]. With 31 of the 69 being already diagnosed of DM, this means that 55.1% of diabetics in the study population were unaware of their diabetes status. Therefore more than half (55.1%) of respondents that fall within the diabetes diagnostic criteria of having blood glucose greater than 7.0mmol/L are undiagnosed. In order words only 44.9% of those with high glucose level are known diabetics and receiving regular treatment at the Ga South Diabetes Clinic. This indicates that the low national prevalence may be due to the high unreported and undiagnosed rate. This is in line with the study by Mbanya et al (2010) and reports by the WHO (2014) and IDF (2017) that found that about half to two-thirds of people with DM are undiagnosed. Peer et al., (2014), also reported that about

50% of persons living with DM are undiagnosed in the African Region. The high undiagnosed rate is due to the poor attention that individuals devote to issues of their personal health, lack of awareness on the diabetes condition and inaccessible screening opportunities in the various Ghanaian communities. Also a hike in the undiagnosed rate is associated with the weak health systems, economic difficulties and limited investment in the health sector that results in costly healthcare and low patronage of appropriate health services (Peer et al., 2014). The major issue with high prevalence of undiagnosed diabetes is that by the time most persons become aware of their condition, other complications may have already set in such as blurred vision, heart attack, stroke, kidney failure, etc.

Age and BMI were associated with blood glucose level and for that matter diabetes status. Increasing age and BMI related to increase in the blood glucose level of respondents. With regards to age, 76.8% of respondents in the diabetes criteria were persons above 45 years [$X^2(10) = 96.82$, $Pr < 0.001$]. This result was also affirmed by the multiple linear regression that revealed increases in BMI and age to be associated with increase in blood glucose level [$t=6.06$ $p < 0.001$ & $t=7.87$ $p= 0.001$] respectively. This corresponds to WHO, (2018) and Peer et al., (2014) report that ageing population is one of the most important risk factors in the diabetes incidence. This report is similar to that of Peer et al. (2014) findings that 43.2% of diabetics to be within the ages of 40-59 years. This current study further proves that type II diabetes usually increases with an increase in age. Hence the risk is that as the population lives longer it opens itself up for rise in

diabetes and other chronic non-communicable diseases (Hilawe, Yatsuya, Kawaguchi, & Aoyama, 2013).

As published by GBD (2013), overweight and obesity with physical inactivity are found to cause the largest proportion of the burden of diabetes in the world. This study was in consonance with these findings where respondents who were obese contributed to 42% of the diabetes prevalence whereas those who are overweight formed 23% of the diabetes burden in the Ga South Municipality. A similar study by Tamayo et al., (2014), also found long-term exposure to obesity contributes to a considerable increase in the incidence of diabetes. With regards to exercise, 58% of diabetics were physically inactive which could lead to future onset of other comorbidities. According to Abubakari et al., (2009), physical activity is important for diabetics or prediabetes as it improves their insulin sensitivity and glucose metabolism which thereby delays the progression to diabetes and incidence of other complications. The current study then revealed that regular exercise contributes to significant decrease in blood glucose level [coef. -0.86mmol/l $t=-2.38$ $p=0.018$]. This confirms earlier report by Harreiter & Kautzky-Willer, (2018), that found physical exercise as a tool for reducing the risk of incidence of Diabetes Mellitus in both males and females. Another study by Harreiter & Kautzky-Willer, (2018), reported 54% lower risk of T2D incidence for person who engaged in more than 12 Metabolic Equivalent (METs) hence higher fitness was found to be associated with reduced risk of T2D.

The proportion of overweight among respondents was 45.7%, this huge proportion result from the high patronage of fatty foods, high consumption of foods that contain saturated fatty acids usually found in wayside food vendors and fast food “joints” overlapping the streets (FAO, 2010). All of which are known to breed excess body fat leading to a higher risk of Diabetes Mellitus (WHO, 2003). Another reason is the increased consumption of highly sweetened beverages that are outspread in the municipality which is found to contain significant amount of free sugars which also contribute to obesity and overweight (WHO, 1999).

The study also showed a high proportion of respondents with high blood glucose level (22.2%) and prediabetes (27.7%) that is those in the intermediate range and have a high likelihood of developing type II diabetes in the future. These considerable proportions are as a result of the ageing population represented in the survey with their mean age being 41.6 ± 15.4 years. The increased numbers of physically inactive respondents also contributed to the large number of people with increased blood glucose level. The amount of physically inactive respondents were 216 out of the 311 overall participants. That is 69.5% do not perform exercise regularly which has probably led to the increase in body weight and subsequent increase in blood glucose level.

The health seeking behaviour of the respondents were fairly good. Appropriate health seeking behaviour was found in 49.2% of respondents with the other 50.8% respondents

having inappropriate health seeking behaviours. This finding is similar to other study by Chauhan, Kandan, Purty, Samuel, & Singh, (2015), which found the rate of appropriate HSB to be 56.4% among study participants in a coastal area in India. The proportion of appropriate health seeking behaviour of 49.2% represents 153 participants out of 311 engaging in healthy behavioural and acceptable treatment seeking preferences. There is a wide difference in proportion with findings by Inche, Sutan, & Shamsuddin (2014), who found appropriate HSB in Malaysian communities to be 89.8%. The wide difference observed is as a result of the good economic prowess of Malaysia with well-developed health care systems as well as the societal and personal consciousness of the need to enhance good health. The current study found that most of these individuals use the facility when they are sick usually after the condition has worsen. This was proven in the logistic regression where individuals with worsening symptoms had 2.9 times the odds of visiting the hospital compared to those with no signs of illness [OR:2.9, 95%CI: 1.1- 7.8, $p=0.03$]. The study also showed only 13.2% of subjects were found to access the hospital for routine checkup. The perception that only the sick needs a doctor still seems to be relevant in the mental fabrics of most Ghanaians. Since there are little or no visible signs of illnesses most individuals interpret that as they being strong and healthy, forgetting that numerous non-communicable conditions have a longer latency period hence one can have the disease and yet show no signs and symptoms due to their asymptomatic nature. Hospital preference and utilization alone was by 37.4% of the respondents in the study.

The pharmacy was the second most preferred and was utilized by 29.7% of respondents. The pharmacy was usually preferred since it offers some sort of convenience because it is

usually located in the vicinity and easily accessible. Another reason also being that as symptoms of disease starts off gradually the pharmacy becomes the place to access first aid until the disease deteriorate before individuals resort to the hospital for further diagnosis and laboratory tests. Also, a considerable number of participants (19.7%) turn to self –medication and use of local herbs. These persons prefer to use left-over drugs they previously bought or consult their friend and family members when they fall ill. Self-medication is very common but does not negate the serious dangers, complications and potential risk that sometimes come with it. According to Ruiz, (2010), self-medication leads to incorrect self-diagnosis, dangerous drug interaction, incorrect dosage, masking of severe disease and delays in seeking proper medical help. These were found to lead to escalation of the conditions and possible development of resistant strains of bacteria and other pathogens.

Self-medication among most Ghanaians involve the use of local herbs in their backyard garden or herbal medicines in the open markets. It is unsurprising that a high number of people in the current study access herbal medicines since it affirms the WHO report (2013), that 80% of Africans depend on herbal medicines for their constant health needs. Hjelm & Atwine (2011), found the reason for most patronage of herbal medicines and other traditional medicines to be its easy access and affordability and lack of faith in orthodox medicines. Usage of herbal medicines are dependent on the type of condition present, with patronage most common to conditions such as sexual weakness, skin diseases, malaria and chronic conditions. The potential risk in these herbal medicines and local herbs is that some products are not properly tested and calibrated which may end up

with complications. There are other groups of respondents who preferred not to take any action with the belief that the sickness will go by itself. These people usually use time as their excuse because they see their work schedules to be more important. It is also as a result of the symptoms being mild and the condition being a familiar one.

As Ghanaians health seeking has never being the priority of most people, this is partly due to the cultural lineage that we belong and our upbringing. The more spiritually inclined ones prefer to offer prayers for their ill health even at times that there are medications available. A considerable number of adults (48.6%) in the study did not seek treatment within the first 3 days when signs and symptoms had appeared. This is as a result of individuals seeing certain symptoms to be mild and thus no need to waste time and resources on it. Although majority of respondents tend to seek treatment when ill the number of those who wait till after 3 days to 1 week to seek help was very alarming. Early treatment seeking was preferred by 51.4% of respondents. Early recognition and treatment ensures immediate resolution and reduction in morbidity and subsequent mortality (Hausmann-Mueala, Muela-Ribera, & Nyamongo, 2003). There are several reasons that are associated with late treatment seeking or no treatment at all. Most people were found to be held back by the perceived high cost of treatment at the initial onset, but ironically the delay results in worsening of the condition that even comes at a higher cost. Others also consider the initial symptom to be less serious as well as issue of time constraint.

Health seeking behaviour revolves around several factors that are common in our communities and are peculiar to each individual depending on his/her current circumstances. Health seeking behaviour is found to be predicted by personal factors, type and severity of disease present, the accessibility and availability of the health services, family and community interactions (Cummings, Becker & Maile, 1980). The key determinant of the health seeking behaviour of respondents in this study was found to be financial constraints (24.4%). This is consistent with study by Inche, Sutan, & Shamsuddin (2014) and Srinivas et al., (2006), who found health seeking behaviour to be influenced by financial issues. However, this study was not in consonant with other factors they found to be associated with, such as age, marital status, education and employment. High cost in financing healthcare is a universal phenomenon both in developed and developing countries. Nonetheless, it is those in the developing countries that feel the most writhe. Possession of National Health Insurance Scheme (NHIS) card was seen to increase the odds of hospital attendance [OR: 2.5, 95%CI 1.2-5.3, $p=0.016$]. Having the NHIS card reduces the cost of treatment and medication provided in most hospital in the municipality. Financial constraints impeding people from utilizing health services is due to low SES or income, and perceived fear of high cost that one may incur at the health facility. High cost in accessing health care is as a result of services such as laboratory test, medical scans and other services offered at the hospital which tend to be too expensive for most people to afford. One major factor is the strained economy of the country which does not offer people the luxury to spend much money on health services. All these together discourages people from seeking early treatment and using the hospital and other health services whether their condition is severe or not.

Another factor that influences health seeking behaviour is the time factor hugely predicted by work schedules with 17.5% of respondents stating time constraints as the reason for their late treatment and underutilization of health services. This can be attributed to the increased industrialization and urbanization that results in changes in lifestyle among adult population in sub-Saharan Africa (Maher, Smeeth & Sekajugo, 2010). The increased urbanization and industrialization means that most people spend majority of the day and time in their businesses and their work places. Some tend to work throughout the week with the exception of Sunday which in itself is dedicated to worship and religious activities. Hence most people do not have much time to go to the hospital either for treatment or checkup. As a result of this most people resort to self-medication instead when they fall sick or do not seek treatment at all until it deteriorate. Another reason maybe that those who own their businesses are also reluctant to leave their job and go to sit long hours in the hospital to seek treatment. Most people are of the notion that visiting the hospital will take several hours of your day for which they are not ready to sacrifice.

Another determinant found to lead to poor health seeking behaviour is distance to the health facility (13.2%). This corresponds to Muriithi (2013), study where distance to the health facility predicted health seeking behaviour in a community in Nairobi. This was the major determinants for older people. Respondents in their old ages of 65years and above thought the distance to the health facility was far for them to access. This was also confirmed in the logistic regression where those closer to health facilities were more likely to utilize the healthcare [OR: 2.7, 95%CI: 1.3-5.8, p=0.009]. Most communities in

Ghana do not have their own health facility so the usual concept is to cross borders to other communities to access healthcare. Due to this difficulty those who deem their illness to be less serious will refuse to go through the distance frustration and thus rely on other mode of treatment instead.

Self-medication was opted by 15.4% of respondents as the determinant of their health seeking behaviour. This is due to self-medication seen to be convenient, cheap and requires no match time. Most people use self-medication as first aid option hence once the symptom disappear after taking the treatment it is deemed successful and then repeated at other times. This may be due to the knowledge that a person may have about the symptoms. Those who see themselves to be more educationally inclined will resort more to diagnosing and treating themselves. Most people who are working may rely more on self-medication partly to avoid spending much time in the hospital or clinic. At par in proportion to self-medication was poor service delivery and attitude of health workers (15.4%). The mention of poor attitude of health workers is nothing new in the ears of Ghanaians when it comes to accessing healthcare from the hospital. This has become a major impediment in accessing healthcare at health facilities for most people. The attitude posed by health workers especially nurses tend to affect the health seeking behaviour of 15.4% of respondents in the current study. Every business in the world thrives on excellent customer service thus when a customer is not treated to their satisfaction they become reluctant to patronize that particular service. It is the same in healthcare, patients who come for treatment are more of customers and the way they are treated will determine their future decisions.

From the study most health workers in government health facilities are perceived to exhibit unpleasant attitudes and since the government hospitals are the most common, people tend to decline its utilization. Another form of the poor service delivery has to do with the longer queues that patients have to join when they visit the hospitals or clinics. Respondents in the study feared visiting the hospital for a minor issue will take their whole day due to the long queues that they would be made to join before seeing the doctor.

The final factor that determines the health seeking behaviour of respondents in the current study has to do with participants seeing their symptoms as not serious enough to warrant a visit to the hospital. Proportion of 14.5% of the respondents do not use the health facility and also delay in seeking treatment because they see their condition to be less serious. It was found that individuals usually assess their symptoms to determine whether it is serious or not. When they feel it's not serious they then self-diagnose themselves and proceed to self-medication. Once the self-medication succeeds they then repeat the behaviour once similar symptoms appear later. As a result they refuse to utilize the hospital and delay in seeking treatment.

5.2 Limitations of the study

The main limitations of the study was the reluctance of some respondents to participate fully in the study. This resulted in some recorded missing values in the data collected.

The inclusion of blood sugar testing made it difficult in getting participants who would cooperate to the end. Others were discouraged because they thought the blood would be used for rituals. This made the work much difficult because other people must be sampled to replace them which came with its own challenges.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This current study found the prevalence of Type II Diabetes in the Ga South Municipality to be 9.9% with 55.1% having Type II Diabetes but undiagnosed. This study confirmed the reports by WHO and IDF and other many papers that found that more than half of people with diabetes are undiagnosed.

The study also showed association between age, BMI, exercise and raised blood glucose level such that an increase in age and Body Mass Index results in an increase in blood glucose level. On the other hand an increase in days of regular physical exercise was found to decrease blood glucose level.

From the study only 30.5% of respondents were found to be engaged in vigorous physical activities. On the other hand overweight and obesity combined was found in 48.8% of the respondents which is due to the high number of physical inactivity and lifestyle changes. Individuals in the study who engaged in regular exercises were found to have reduced level of blood glucose and thus reducing their risk of Type II Diabetes.

Appropriate health seeking behaviour was found among 49.2% participants and the inappropriate health seeking behaviour present for 50.8% of participants. The determinants of health seeking behaviour in this study was found to be financial constraints, time constraints, faith in Self-medication, poor service and attitude of health workers, symptoms seen as not serious and far distance to health facility.

In conclusion the determinants of health seeking behaviour was found to differ for each person and it is a combination of personal, socioeconomic and community factors. However it was strongly influenced by the individual's views, current circumstance and what they deemed right for themselves.

6.2 Recommendations

From the findings gathered in the current study the following recommendations have been drawn.

The municipal health directorate in collaboration with the ministry of health must ensure intensive awareness creation on the risk factors of Diabetes Mellitus, preventive measures and the need to have occasional mass screening to help people to be conscious of their blood glucose level. Also a policy or program that facilitates early detection of Diabetes Mellitus must be put in place. The health directorate must also ensure easy accessibility to DM screening in the communities. For instance a day or two can be set aside every quarter or half year to organize free screening of Diabetes Mellitus in the Ga south municipality. This will help to drastically reduce the number of undiagnosed diabetes in the municipality. There should also be a national awareness program to educate people on

the Type II diabetes and the importance of having an appropriate health seeking behaviour in order to enhance early detection of diseases and then reduce disease burden.

Since considerable number of people are dependent on pharmacies and herbal drugs, proper and regular surveillance by authorities i.e. Food and Drugs Authority must focus on pharmacies and herbal shops in the open markets to ensure that products sold to individuals are licensed, efficacious and of the right contents but not rather causing harm or worsening the present condition.

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APPENDICES

Appendices 1. Informed Consent Form

PREVALENCE OF TYPE II DIABETES AND DETERMINANTS OF HEALTH SEEKING BEHAVIOUR IN THE GA SOUTH MUNICIPALITY

CONSENT FORM FOR ADULTS 18YEARS AND ABOVE IN THE GA SOUTH MUNICIPALITY

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand Akan English . I fully understand the contents and any potential implications as well as my right to change my mind (ie withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant..... ID Code
.....

Participants' Signatureor Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in the Akan language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter.....OR Thumbprint.....

Date:.....

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language he/she understood Akan.

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print

Date.....

INVESTIGATOR STATEMENT AND SIGNATURE

I hereby certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature

Date.....

Appendices 2: Questionnaire

ID.....

QUESTIONNAIRE ON HEALTH SEEKING BEHAVIOUR.

The purpose of this study is to examine determinants of health seeking behaviour and prevalence of type II diabetes in the Ga South Municipality. These questions are about your background, knowledge of diabetes and your attitude towards accessing health services (i.e health seeking behaviour). Please do not write your name. Your response will be anonymous and your participation is entirely voluntary.

Demographic data

- i. Sex: Male Female Age:
- ii. Religion: Christian Islam Traditional African Belief Others
- iii. Marital status:
Married Divorced living together Single Widow
Separated
- iv. Educational level
No formal education Primary JHS SHS
College/university post graduate degree
- v. Employment status. Student Government worker private corporate worker
Unemployed Self-employed (trader, driver, tailor, etc.) Retired

vi. Area or sub-community of residence

Anthropometric data

- i. Weight _____ Kilograms Blood Glucose level Mmol/L
- ii. Height _____ meters

Knowledge about diabetes.

1. Have you ever had your blood sugar measured by a doctor or other health worker?
Yes No
2. Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes? Yes No
3. If yes, since when? In the last 12 months 2 to 5years 6 to 10 years
11 to 20years more than 20years
4. Are you currently taking medication for diabetes prescribed by a doctor or other health worker? Yes No
5. Have you ever seen a traditional healer for diabetes or raised blood sugar? Yes No
6. Have you ever seen a spiritual leader for diabetes or raised blood sugar? Yes No
7. Are you currently taking any herbal, traditional or spiritual remedy for your diabetes?
Yes No
8. Do any of your parent or siblings have Diabetes? Yes No
9. Do you have any other family member who has diabetes or had diabetes before?
Yes No
10. What do you think causes Type II diabetes? Food Family history
excess sugar Spiritual (curse, witches, evil spirit) others

11. Do you think type 2 diabetes can be prevented? Yes No
12. Have you willingly been to the hospital or any health facility to check your diabetes status? Yes No
13. How often do you check or visit the hospital for blood glucose level/diabetes screening?
Daily weekly Once a month Quarterly Once in the last year
Not at all

Health seeking behaviour

14. During the past 12 months, have you visited a doctor or other health worker? Yes No
15. Do you seek treatment when you see or feel signs of illness? Yes No
16. Where do you seek treatment first usually when sick?
Hospital Pharmacy spiritual/Traditional healers Local herbs
Self-medication No treatment
17. What did you do the last time you fell sick? Went to:
Hospital/Clinic Pharmacy/Drug store Traditional healer
Used Local herbs Did nothing
18. How early do you seek treatment when symptoms appear?
Within 24 hours to 3 days 4th day to a week /after

19. Which of the following are a reason for not seeking treatment from health facility.

(can tick more than one option).

Distance from health facility

Cost of treatment

Poor quality of service

Longer delays in queues at the hospital

Self-medication worked

Symptoms do not seem to be serious

Attitude of health professionals'

Don't have time

20. In case you don't visit health facility or hospital early enough what is the main reason for

the delay? Symptoms were not serious financial issues distance issues

self-med./Used local herbs sought spiritual guidance No time

21. How often do you visit the hospital for checkup? At least:

Once a week Once a month Once a quarter Once a year

Not at all

22. Will you willingly go to the hospital for checkup even when you are not experiencing

visible signs and symptoms? Yes No

23. Have you ever gone to hospital voluntary before?

Yes No

24. If yes, what influences your decision?

Routine checkup

When symptoms of the condition worsens

Quality of service

Closeness to the health facility

friend or family member insisted

Cheap cost/ possession of NHIS card

Only when I am sick

If no to Que25 Why don't you go?

Don't have time (work schedule) feel I am strong & healthy It is a waste of time

Poor service delivery at health facility symptom was mild fear of high cost

Fear of being diagnosed with a serious disease

25. What are the barriers in utilizing the health facility?

High cost of services Shyness Marital status poor quality of service

Distance to the health facility No time/Delays at the health facility

Religious factors Poor attitude of health workers

Lifestyle

26. How often do you eat fast food?

Daily 5-6 days per week 3-4days per week 1-2days per week
occasionally Never

27. How many days do you eat fruits in a week?

Daily 5-6 days per week 3-4days per week 1-2days per week
occasionally Never

28. How often did you check your body weight in the last 12months?

Once a week once a month once a quarter once in the last year
Never

29. How often do you take sugary beverages (such as sobolo, soft drinks etc.)?

Daily 5-6 days per week 3-4days per week 1-2days per week
occasionally Never in the last 1 -2months

