UNIVERSITY OF CAPE COAST

KNOWLEDGE AND ATTITUDES OF DIABETES PATIENTS ON SELF-MANAGEMENT PRACTICES IN GOVERNMENT HOSPITALS IN THE UPPER WEST REGION

STEPHEN KPEKURA

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BY

STEPHEN KPEKURA

Thesis submitted to the School of Nursing and Midwifery of the College of Health and Allied Sciences, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Nursing Degree.

MARCH 2017

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature…… Date……..

Name: Stephen Kpekura

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature…… Date……

Name: Dr. Samuel Victor Nuvor.

Co-Supervisor's Signature…… Date…….

Name: Dr. Jerry P. K. Ninnoni

ABSTRACT

The study aimed at assessing the knowledge and attitudes of diabetes clients on self-management practices in public hospitals in the Upper West Region of Ghana. The research was a cross-sectional survey. It adopted stratified sampling technique to select 201 respondents. A questionnaire was used in the study for data collection with a reliability coefficient of 0.8. The data was analysed using the SPSS version 21. The findings of the study revealed that diabetic patients are highly knowledgeable about the disease. Also to a greater extent patient demonstrated a positive attitude toward diabetes. The study also revealed to a significant extent that patients had few barriers regarding self-management practices. The clinics provided several services to diabetic patients. It was also evident that diabetes patients to a greater extent adhere to prescribed self-management practices. There was also significant relationship between knowledge and attitudes of diabetes clients and self-management practices. It further revealed that demographic factors have no effect on self-management practices. Finally, there was a significant difference among the hospitals and their self-management practices

KEY WORDS
Knowledge
Attitude
Diabetes
Clients
Self-management
Practices

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DEDICATION

To my lovely wife Mrs. Lilian Kpekura and my beautiful daughter Miss Eliana Mwinkar Kpekura

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CHAPTER ONE

INTRODUCTION

According to Berhe, Demissie, Kahsay and Gebru (2012), 60% of all deaths globally are as a result of non-communicable diseases including diabetes. It is further stated that 80% of deaths due to diabetes occur within low and middle income countries, of which Ghana is no exception. This study is related to several previous works done by other researchers such as Rodrigues, Zanetti, dos Santos, Martins, Sousa, & Teixeira (2009) on knowledge and attitude: important component in diabetes education and that of Mohammadi, Karim, Talib & Amani (2015) on knowledge, attitude and practices on diabetes among type 2 diabetic patients in Iran.

Background to the Study

According to World Health Organization (WHO) (2014), Diabetes mellitus (DM) is a chronic progressive metabolic disorder characterized by hyperglycaemia mainly due to absolute or relative deficiency of insulin hormone. Because of the hyperglycaemia, diabetes mellitus affects every system of the body especially if maintaining a normal glucose level is not achievable. There are three most common types of diabetes mellitus namely; type 1 diabetes, type 2 diabetes and gestational diabetes (Berhe et al., 2012.). Type 2 diabetes mellitus is mostly associated with resistance to insulin action and inadequate secretion of insulin. It is characterized by hyperglycaemia and also associated with several complications such as vascular, macro vascular and neuropathic complications (Berhe et al., 2012).

A WHO (2011) Global status report on Non-Communicable Diseases (NCDs), postulated that NCDs including type 2 diabetes mellitus (T2DM) will become the leading cause of death on the African continent by 2030. There has been a drastic increase in the prevalence of type 2 diabetes over the past decades due to the perpetual increase in obesity (Kyrou & Kumar, 2010). Adisa, Alutundu and Fakeye (2009) added that there has been a continuous increase in the incidence of type 2 diabetes globally.

Diabetes mellitus seems to be a major emerging clinical and public health problem. According to WHO estimates in 2007, 190 million people suffer from diabetes world-wide and about 330 million are expected to be diabetic by the year 2025 (Lorenzo, Williams & Hunt, 2007). It is the leading cause of blindness, and lower-limb amputations. Concerning mortality, adults with diabetes have rates of stroke and death from heart disease that are about 2 to 4 times higher than adults without diabetes (Soderberg, Zimme, & Tuomilehto, 2005). According to World Health Organization (2006), at least 171 million people worldwide suffer from diabetes and it is more prevalent in developed countries. The American Diabetes Association (2006), reported about 20.8 million people with diabetes in United States alone, while in developing countries, increase in prevalence is expected to occur especially in Africa, where most cases are likely to be found by 2030. This increase in incidence of diabetes in developing countries follows the trend of urbanization and lifestyle changes including perhaps and most importantly a "Western – Style" diet, WHO (2006).

The prevalence of diabetes mellitus is high among populations in the Middle-East countries despite the fact that all researches showed that diabetes remains under diagnosed in this part of the region (Al-Adsani, Moussa, & Al-Jasem, 2009). Egypt had been estimated to be the 9th country in the prevalence of diabetes in the world. Recent changes in physical activity and dietary patterns have promoted the development of diabetes and if different preventive and control activities are not adopted, by the year 2025, more than 9 million Egyptians (13% of the population above 20 years old) will have diabetes (Tan, Yong, Wan, & Wong, 2007). In Nigeria though no estimate of the individuals suffering from diabetes has been made, in a recent screening exercise carried out in Warri and Sapele involving 787 people, 65% were diabetic and hypertensive (Urhobo National Association of North America, 2004). Also at University of Nigeria Teaching Hospital in Enugu the number of patients that attend the Wednesday diabetic clinic is alarming.

According to Berhe et al. (2012), 85-95% of all diabetes cases in high-income countries are Type 2 and that 90% of all diabetes cases in Sub-Saharan Africa including Ghana is also type 2. The 6th edition of the International Diabetes Federation (IDF) Atlas (2013) reported that figures regarding diabetes in Africa are quite startling. It stated that over 21 million people within the ages of 20-79 years had diabetes with a prevalence rate of 5.1% and this figure is projected to double by the year 2035. This means that currently, 1 in 20 adults have diabetes. It was estimated that the cost of total diabetes related health expenditure was 4.5 billion USD and is expected to increase to 6.4 billion USD by the year 2035. The

report adds that 480,900 deaths in Africa were diabetes related and 75.1% of these deaths are diabetes patients under 60 years of age (Berhe et al., 2012).

Evidence of the dramatic costs of treating diabetes and its complications were found in the CODE-2 study (Massi-Benedetti, 2002), which reported the total direct costs of type 2 diabetes (T2D) to be 29 billion Euros in 1998. Ten million people with T2D were noted in eight European Union countries: representing up to 15 % of national health care spending. Nevertheless an European Union audit conducted in 2006 revealed the incompleteness of existing data regarding this problem, and moreover, the lack of specific programs to address it. The rise in diabetes was generally attributed to obesity, sedentary life style and unhealthy diets.

Finding by Shafer, (2000) on diabetes explained that it was characterized by a disorder in metabolism of carbohydrate and subsequent derangement of fat and protein metabolism. Furthermore, disturbance in production and action of insulin, a hormone secreted by the islets of Langerhans in the pancreas was also implicated in the disease (Shafer, 2000). In addition to insulin, aging, over weight and several other hormones affect blood glucose level there-by preventing glucose from entering the cells (Clavell, 2005). This leads to hyperglycemia, which may result in acute and chronic complications such as diabetic keto-acidosis, coronary artery disease, cerebrovascular disease, kidney and eye diseases, disorders of the nerves and others (Iwueze, 2007).

The management of diabetes poses a challenge to the medical and nursing staff as well as to the patients themselves. Since diabetes is a chronic disease,

most diabetic patients need to continue their treatment for the rest of their lives. The emphasis is usually therefore, on the control of the condition through a tight schedule of blood glucose and urine sugar monitoring, medication and adjustment to dietary modification (American Diabetes Association, 2006; Iwueze, 2007). Such a chronic condition requires competent self-care, which can be developed from a thorough understanding of the disease process and the management challenges by the patient and family members. This pre-supposes a need for some form of diabetes education and counseling for the patient and family members. According to Colbert (2007) educating and supporting diabetic patients in managing their daily lives were important goals of diabetic patients care.

Unfortunately, about a third of the people suffering from diabetes may not be aware of it early considering the insidious onset and development (Iwueze, 2007). Regrettably too, many who were diagnosed with the condition demonstrate fears about the future and a general distaste because of the predominant misconceptions about the disease and its management. This is heightened by the superstitious explanation of causation of diseases dominant in Africa where most diseases are caused by “poison” and/or “evil spirits”. Some of these problems highlighted could be taken care of if patients and indeed the general public were exposed to diabetes education (Iwueze, 2007).

The report concerning Ghana by the International Diabetes Federation (IDF) (2013) was much more serious. The report claimed that 440,000 adult populations in Ghana within the ages of 20-79 years had diabetes with a national prevalence of 3.35% (1 in every 30 adults), and that the total cost of diabetes per

person was 148.4 USD. Eight thousand, five hundred and twenty eight deaths in Ghana are diabetes related, of which 72.4% are diabetes patients under 60 years. According to WHO (2014), NCDs were estimated to account for 43% of total deaths in Ghana of which diabetes contributed 2%. Diabetes is also said to be among the top 4 causes of mortality due to non-communicable diseases.

Problem Statement

While the Ghana Health Service (GHS) is highly focused on mitigating infectious diseases, NCDs currently contribute significantly to illness, disability and deaths in the country with diabetes, cardiovascular diseases, cancers, and chronic respiratory diseases on the lead. It is estimated by the National Diabetes Association that not less than 4 million Ghanaians suffer from diabetes, three out of every nine Ghanaian across the county. This has resulted in more than five thousand deaths every year **(**Kubi, & Okertchiri, 2016). Also, a study by Shaw, Sicree and Zimmet (2010) further estimated a substantial increase in diabetic cases by 2030. The burden of diabetes and other NCDs are projected to increase owing to a myriad of factors; unwholesome lifestyles, ageing and rapid urbanization.

It was in response to this that the Ministry of Health (MOH) introduced the Regenerative Health and Nutrition Programme (RHNP) in 2006 and further developed a health policy which clearly prioritizes the promotion of healthy lifestyles and healthy environments.

It is indicated in the Ghana Health Sector 2013 Program of Work that there had been an increase in the incidence of non-communicable diseases in the

country. To avert this and also prevent unwarranted deaths, a call was made to all and sundry to adopt a healthy lifestyle and routine check-ups. The document also provided some core programs that were to be undertaken to achieve the aims of the health sector of which was to scale up and improve management of diabetes and hypertension (MOH, 2013).

Moreover, various researchers had attempted to explore various dimensions of NCDs in the country, for instance whereas Aikins et al. (2012) focused on lay representations of chronic diseases among rural and urban Ghanaians, other such related studies channeled their focus on acceleration of control and prevention of non-communicable diseases in Ghana, spatial distribution of hypertension, pattern of cardiovascular disease mortality in Ghana (Owusu-Sekyere, Bonyah, & Ossei, 2013; Bonsu 2013; Sanuade, Anarfi, Aikins, de-Graft & Koram, 2014) without any targeting the Upper West Region.

Available records in the Upper West Region shows that diabetes cases were 397 in the year 2011, 552 in the year 2012, 681 in the year 2013 and 761 in the year 2014. These demonstrated continuous increase in cases since the year 2011. The record from January to December, 2014 also revealed that cases were widely recorded in almost all the municipal and district hospitals in the region as indicated; Wa regional hospital=169, Lawra district hospital=82, Nadowli district hospital=71, Jirapa district hospital=34, Nandom district hospital=24 and Tumu district hospital=5 (Ghana Health Service (GHS), 2015). Despite the rising records of diabetes within the chosen study area, the inability of diabetes patients to keep their glycaemic levels within the normal range may be due to several

factors including inadequate knowledge and poor attitude regarding self-care management and inappropriate application of already existing strategies to control diabetes by the care provider (World Health Organization and Department of Non-communicable Disease Surveillance, 1999). Nevertheless, not much is known regarding how the knowledge and attitude on diabetes affect self-care management practices of diabetes patients among the citizens of Ghana.

Purpose of the Study

The purpose of this study was to assess the influence of knowledge and attitudes of diabetes patients who received care at selected hospitals in the Upper West Region on their self-management practices.

Objectives of the Study

Main Objective

To assess the Knowledge and Attitudes of Diabetes Patients on Self-Management Practices in Government Hospitals in the Upper West Region

Specific Objectives

The study specifically sought to**;**

1. Investigate the level of knowledge of diabetes patients on diabetes
2. Examine the attitude of diabetes patients towards diabetes
3. Investigate the perceived barriers of diabetes patients towards Self-Management Practices
4. Examine the services provided at the diabetic clinics.
5. Explore the self-management practices of diabetes patients.

6. Investigate whether there is any relationship between diabetes patients knowledge on diabetes and self-management practices.
7. Determine whether there is any relationship between diabetes patients attitudes on diabetes and self-management practices
8. Examine the effect of demographic factors on self-management practices.
9. Determine whether there is any difference among the selected hospitals and self-management practices.

Research Questions

1. What is the level of knowledge of diabetes patients on diabetes?
2. What attitude do diabetes patients have towards diabetes?
3. What are the perceived barriers of diabetes patients towards Self-Management Practices?
4. What are the services provided at the diabetic clinics?
5. What is the extent of self-management practices of diabetes patients?

Research Hypothesis

1. H_0: There is no statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices.

   H_1: There is a statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices.
2. H_0: There is no statistically significant relationship between diabetes patients attitude on diabetes and self-management practices.

H_1: there is a statistically significant relationship between diabetes patients attitude on diabetes and self-management practices

3. H_0: There is no statistically significant effect of demographic factors on self-management practices.

   H_1: There is statistically significant effect of demographic factors on self-management practices.

4. H_0: There is no statistically significant difference among the selected hospitals and self-management practices.

   H_1: There is a statistically significant difference among the selected hospitals and self-management practices.

Significance of the Study

The study was to assess the knowledge and attitudes of diabetes patients on self-management practices. This will increase the understanding of the diabetes situation in the country and will ensure adequate resource allocation and also influence the revision of existing policies or the formulation of new policies to guide the management of diabetes. The findings of this study will help identify significant areas to focus for the development of health education policies that will be used for diabetes self-management education to improve diabetes care.

The findings will sharpen clinical practices since it will serve as a basis for the development of protocols and procedures which will focus on the needs of the patients. The results from the study will inform patients on the influence of the level of knowledge and attitudes towards the disease on self-management practices. This will help consumers make amends to achieve better glycemic

control. The study will further provide information worth considering for the development of curricula for the regular health care training and in-service training and finally focus intellectuals on further research works.

Delimitation

The scope of the study is limited to diabetes patients within the selected districts and municipal within the Upper West Region. The study is therefore limited to only patients of diabetes within the study location namely Wa Municipal Hospital, Lawra District Hospital and Nandom District Hospital. These hospitals have been selected because they were the only hospitals in the Upper West Region that had an organized diabetic clinic in placed at the commencement of this study.

Limitations of the Study

One of the limitations of this study was the difficulty in translating some technical terminologies such as pancreas into the different local dialects of the study participants.

Few respondents did not have enough time to complete the questionnaire. Because of this they were asked to take the questionnaire home to complete them. These were brought back the next clinic day.

Definitions of Terms

Diabetes is generally used to refer to a group of metabolic disorders that influence how the body processes and uses glucose for energy.

Diabetes mellitus (DM) is a chronic progressive metabolic disorder characterized by hyperglycaemia mainly due to absolute or relative deficiency of insulin hormone (WHO, 2014),

Knowledge is the understanding of or information about a subject that you get by experience or study, either known by one person or by people generally.

Attitude is a feeling about something or someone, or a way of behaving that is caused by this feeling.

Self-management practices according to the American Association of Diabetes Educators (2008) are behaviors that are exhibited by diabetes patients or people at risk of diabetes so that they can on their own manage the disease successfully.

Organization of the Study

The study is organized in five chapters. The first chapter gives the introduction to the thesis. This is followed by the Literature review. Chapter three delved into the methodology employed in the study. Again, it contains sub-topics like research design, population, sampling technique, and sample size. It also discussed the instruments to be used. Chapter four entails presentation and analysis of data. Also discussed are findings against the evidence presented in the empirical literature. The last chapter looked at the summary, conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

This study sought to assess the influence of knowledge and attitudes of diabetes patients on their self-management practices. It will also compare the services available in the various chosen hospitals. This chapter is exploring the key concepts and theories around which the study is built. The source of literature for the study is through google scholar and available database (CINAHL). The chapter is organized as follows:

- Health Promotion Model
- Knowledge level of diabetes patients on diabetes
- Attitude of diabetes patients towards diabetes
- Self-management practices
- Barriers to self-management practices
- Diabetes services in the hospitals
- Relationship between diabetes knowledge and self-management practices
- Relationship between diabetes attitude and self-management practices
- Influence of demographic factors on self-management practices

Health Promotion Model

The Health Promotion Model by Nola, J. Pender proposed a framework for bringing together behavioural scientific and nursing perspective on issues affecting health behaviours. The health promotion model proposed by Nola J Pender in 1996 was designed to be a “complementary counterpart to models of health protection.” It defines health as "a positive dynamic state not merely the

absence of disease". Health promotion is directed at increasing a client's level of wellbeing. The health promotion model describes the multi-dimensional nature of persons as they interact within their environment to pursue health (Pender, Murdaugh & Parsons, 2006). According to Pender, et al., this offered a guide for people to explore the bio psychosocial processes that motivate individuals to accept and adapt to behaviours aimed at improving health. The initial model of health promotion gingered a number of researchers to come out with the potential of seven cognitive perceptual factors and five modifying factors to explain and predict health behaviours. Cognitive perceptual factors were listed as: Importance of health, perceived control of health, definition of health, perceived health status, perceived self-efficacy, perceived benefits and perceived barriers. Furthermore, the following were the modifying factors:

Demographic and biological characteristics, interpersonal influence and behavioural factors are modifying factors. The health promotion model does not involve fear as a source of motivation for people to practice health behaviours. Though there are instances where immediate threats to health are shown to motivate action, it lacks the same motivation, strength in distance future. Because it does not use threat as it primary source of motivation Health Promotion Model is implacable across the life span.

According to Gonzalo (2011), the model of Pender was not able to define the four most important concepts that a nursing theory should have, namely, man, nursing, environment and health. Also, the conceptual framework contains multiple concepts which may invite confusion to the reader. Irrespective of the

weakness mentioned above, Nola Pender's Health Promotion Model was still chosen for some reasons. Though complex in structure, it is simple to understand, her theory gave much focus on health promotion and disease prevention. This it stand out from other nursing theories and it promotes the independent practice of the nursing profession being the primary source of health promoting interventions and education (Gonzalo, 2011).

Theoretical Basis for the Health Promotion Model

According to Pender et al. (2006), the Health Promotion Model tries to show the multidimensional nature of persons interacting with their interpersonal and physical environment in the quest of perceiving health. The model brings together construct from expectancy values theories and social cognitive theories with nursing perspective of holistic human functioning. The social cognitive theory according to them is made of thoughts, behaviour and environmental interactions. Furthermore, one must change his way of thinking to enable change in his way of behaviour. Pender explained the expectancy value theory as people involved in actions aimed at achieving goals that are perceived as possible and result in beneficial outcome.

According to Black, Hawks, and Keene (2006), the expectancy value, model behaviour is rational and economical; a person engages in a giving action and persists in it:

1. To the extent that the outcome of taken action is of positive personal values,

2. To the degree that based on available information taking the course of action is likely to bring about the desirable change. Thus people will not put their efforts and resources in working towards goals that are of little or no values or that are perceive to be impossible to achieve,

According to Pender et al. (2006), personal change is best understood within this theoretical frame work by considering the subjective values of the change and the subjective expectancy of achieving it. The motivational significance of the subjective values of change is based on the supposition that the more a person is dissatisfied with his or her present situation in a particular domain the greater the reward or benefits associated with favourable change. This subjective values of change is viewed as comparable to the perceived benefits of engaging in a given health behaviour.

Assumptions of the Health Promotion Model

The Health Promotion Model makes four assumptions according to Petiprin (2016). It is as follows:

1. Individuals seek to actively regulate their own behaviour.
2. Individuals, in all their bio psychosocial complexity, interact with the environment, progressively transforming the environment as well as being transformed over time.
3. Health professionals, such as nurses, constitute a part of the interpersonal environment, which exerts influence on people through their life span.
4. Self-initiated reconfiguration of the person-environment interactive patterns is essential to changing behaviour

Theoretical Statements of the Health Promotion Model

According to Petiprin (2016) there are thirteen theoretical statements that come from the Health Promotion Model of Nola Pender. They provide a basis for investigative work on health behaviours. The statements are:

1. Prior behaviour and inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behaviour.
2. Persons commit to engaging in behaviours from which they anticipate deriving personally valued benefits.
3. Perceived barriers can constrain commitment to action, a mediator of behaviour as well as actual behaviour.
4. Perceived competence or self-efficacy to execute a given behaviour increases the likelihood of commitment to action and actual performance of the behaviour.
5. Greater perceived self-efficacy results in fewer perceived barriers to specific health behaviour.
6. Positive affect toward a behaviour results in greater perceived self-efficacy, which can in turn, result in increased positive affect.
7. When positive emotions or affect are associated with behaviour, the probability of commitment and action is increased.
8. Persons are more likely to commit to and engage in health-promoting behaviours when significant others model the behaviour, expect the behaviour to occur, and provide assistance and support to enable the behaviour.

9. Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behaviour.
10. Situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behaviour.
11. The greater the commitments to a specific plan of action, the more likely health-promoting behaviours are to be maintained over time.
12. Commitment to a plan of action is less likely to result in the desired behaviour when competing demands over which persons have little control require immediate attention.
13. Persons can modify cognitions, affect, and the interpersonal and physical environment to create incentives for health actions.

The Health Promotion Model was reviewed with three new variables: activity related affect, commitment to a plan of action and immediate competing demands and preference. Petiprin (2016) said that the focus of Pender's Health Promotion Model is on three thematic areas: individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. The components of the revised Health Promotion Model are explained as follows:

The Individual Characteristics and Experiences

Mariner and Raile (2005) explained that the Health Promotion Model recognizes the fact that no two persons are the same and for that matter each person has a unique personal characteristics and experience that have effect on other later behavior. The set of variables for behavior specific knowledge and

affect have important motivational significance. Furthermore, the relevant of the effects of individual characteristics and experiences depend largely at the target behaviours being perceived. This component of the Health Promotion Model provides flexibility to capture variables that may be relevant to particular health behaviour but not to all or in a certain target population but not all. This component of the individual characteristics and experiences has two other sub components as prior related behaviour and personal factors. They are explained as follows:

Prior related behaviour: Seventy five percent of the studies reviewed support the importance of prior related behaviour in determining subsequent behaviour. Researches have also proved that the best predictor of behaviour is the frequency of the same or similar behaviour in fine post (Mariner & Raile, 2005). Prior behaviour has both direct and indirect influence on the likelihood of engaging in health promotion behaviours. The direct effect of past behaviour on current health promotion behaviour may be due to habit formation, exposing an individual to engage in the behaviour automatically with little attention to the specific details of its execution. The habit strength increases with increase in the frequency of the behaviour and augmented by concentrated, repetitive practice, of the behaviour (Pender, et al. 2006). Furthermore, in line with social cognitive theory, prior behaviour is proposed to indirectly affect the health promotion behaviour through perceptions of self-efficacy, benefits, barriers and activity related affect.

Personal factors: in the revised Health Promotion Model of Nola Pender, personal factors are categorised as biological, psychological, and socio cultural.

Biological factors included are; age, body mass index, pubertal status, menopausal status, aerobic capacity, strength, eligibility or balance. Psychological factors include, self-esteem, self-motivation and perceived health status. Sociocultural factors include; race, ethnicity, acculturation, education and socio-economic status. Personal factors should be limited to those that are theoretically relevant to explain or predict a given target behaviour. Although personal factors may influence cognition, affect and health behaviour, some cannot be changed thus nursing interventions cannot modify them (Mariner & Raile, 2005).

One of the research objectives of this study is to verify the influence of demographic factors on diabetes patients regarding self-management practices. This objective tested this component of Nola Pender's Health Promotion Model and the result discussed. It verified the explanations by Petiprin (2016) that the personal factors of individuals are predictive of their given behaviour.

Behaviour Specific Cognition and Affect

Behaviour specific cognition and affect variables within the Health Promotion Model according to Mariner and Raile (2005) are considered to be having major motivational significance. They constitute a critical care for intervention, because they are subject to motivation through nursing activities. Nursing measures in this variable is essential to ascertain if such changes actually result from the interventions and in turn influence changes in commitment or in the occurrence of health promotion behaviours.

The revised health promotion model by Nola Pender has six sub components under the construct of behavioural specific cognition and affect. They

are; perceived benefits of action, perceived barriers of action, perceived self-efficacy, activity related affect, interpersonal influence, and situational influence. For the purpose of this research, three of the sub components are discussed below.

Perceived barriers of action: anticipated barriers have been consistently found to affect a person's interventions to engage and execute a particular behaviour. Seventy nine percent (79%) of studies carried out to test this variable provided support for barriers as a determinant of health promoting behaviour (Mariner & Raile, 2005*)* Barriers which may be imagined or real consist of perceptions concerning the unavailability, inconvenient, expense, difficulty, or time consuming nature of a particular action. Barriers are often viewed as mental blocks, hurdles and personal cost of understanding a given behaviour. People who do not attain satisfaction from giving up behaviours such as smoking or eating high fat food to adopt a healthier life style may perceive this as barrier. Barriers arouse motives of avoidance in relation to a given behaviour.

When a person's readiness to act is low and barriers are high, action is unlikely to occur and vice versa. Perceived barriers to actions in the revised Health Promotion Model affect health promoting behaviour directly by serving as blocks to action as well as indirectly through decreasing commitment to a plan of action (Mariner & Raile, 2005*).*

One of the specific objectives of this research is to ascertain whether there are barriers to self-management practices among diabetes patients. Knowing from Nola Pender's Health Promotion Model that perceived barriers to a specific action affect the ability of a person to adhere and commit to a health promoting

behaviour directly or indirectly, this research has ascertained the barriers to diabetes patients of the Upper West Region adhering to proper self-management practices. This is serving as a baseline for further studies to address the barriers in order to enhance easy commitment to proper self-management practices.

Perceived self-efficacy: According to Petiprin (2016) and Pender, et al. (2006), self-efficacy is the judgement of personal capability to organize and carry out a particular course or action or the judgement of what one can do with whatever skills one possesses. In further explaining self-efficacy Petiprin (2016) and Pender, et al. (2006) added that judgement of personal efficacy are distinguished from outcome expectation in the sense that perceived self-efficacy was a judgement of one's ability to accomplish a certain level of performance whereas an outcome expectation was a judgement of likely consequences such as will produce. A person`s perception of skills and competence in a particular domain motivates him or her to engage in those behaviours in which he/she excels. A person engages in a particular behaviour more frequently if the person feels efficacious and skilled. Eighty percent of all studies reviewed have provided support for the relevance of self-efficacy as a determinant of health promoting behaviour

According to Mariner and Raile (2005), a person`s knowledge on self-efficacy is based on four types of information as follows:

1. Performance attainment from actually engaging in the behaviour and evaluating performance in relation to some self-standard or external feedback given by others.

2. Vicarious experience of observing the performance of others and their related self-evaluation and feedback
3. Verbal persuasion on the part of others that one does possess the ability to carry out a particular course of action
4. Physiological state such as anxiety, fear, calm, tranquility from which people judge their competence

In the Health Promotion Model perceived self-efficacy is proposed to be influenced by activity related affect. The group explained that the more positive the affect, the greater the perception of self-efficacy, and the vice versa. Self-efficacy influences perceived barriers to action with higher efficacy resulting in lowered perception of barriers. It also motivates health promoting behaviour directly by efficacy expectations and indirectly by affecting perceived barriers and level of commitment of persistence in pursuing a plan of action. (Pender, et al. 2006)

By considering the self-efficacy as a determinant of practicing health promoting behaviours, this research assessed the level of knowledge of its participants to determine how efficacious they were. It further explored the relationship between the knowledge of the participants and their self-management practise.

Interpersonal influence: According to the Health Promotion Model, interpersonal influence are cognitions concerning the behaviours, believes or attitudes of others. It may or may not be real. The primary sources of this variable on health promoting behaviour are family (parents or siblings), peers and health

care providers. Interpersonal influence includes norms (expectations of significant others), social support (instrumental and emotional encouragement) and modeling (vicarious learning through observing others engaged in a particular behaviour). These three interpersonal processes affect individuals' predisposition to engage in health promotion behaviours (Pender, et al. 2006, & Petiprin, 2016).

Social norms serve as standard for performance that people may adopt or reject. People in the society offer resources for other people who have social support in their behaviour to tap. Modelling shows sequence of the component of a health behaviour and is an important strategy for behavioural change in social cognitive theory. Interpersonal interaction affects health promoting behaviour directly and indirectly through social pressure or encouragement to commit to a plan of action. Individuals vary in their sensitivity to wishes and praises; however, people will be willing above all things to behave in a way consistent with interpersonal influence. In order for an interpersonal influence to have an effect one has to attend to the behaviour, wishes, and inputs of others, understand and assimilate them into cognitive representations related to given behaviours. Susceptibility to the influence of others varies with development and become manifest during adolescence. Emphasis on interpersonal influence may also vary from one culture to the other. Fifty seven percent of studies provided support for interpersonal influence as determinants for health promotion behaviour (Mariner & Raile, 2005*).*

One of the objectives of this research is to identify the attitude of diabetic patients towards self-management practices knowing that the attitude of people

influence their adherence to a health promotion behaviour. A hypothesis was set to ascertain whether there is any relationship between the attitude of diabetic patients and their self-management practices. The research tested the construct of the health promotion model of Nola Pender that indicates that interpersonal influence is a determinant of a health promoting behaviour. It is expected that people with positive attitude practice proper self-management activities as compare with those of negative attitude. The research also compared the practices of the health care providers at the chosen hospitals.

Commitment to a Plan of Action

Commitment to a plan of action initiates a behavioural event. This commitment that the individual makes motivates him or her into and through a chosen behaviour, unless the individual encounter competing behaviour that cannot be overcome. People engage in an organized behaviour rather than an unorganized behaviour. Commitment to a plan of action implies the following underlying processes'

1. Commitment to carry out a plan of action of a given time and place and with specified persons or alone irrespective of preference that are competing
2. Identifying specified strategies that are to be used at different point in the behavioural sequence. It goes beyond a person`s intentions to ensuring the likelihood of the plan of action being a success in its implementation.

(Pender, et al. 2006)

Commitment to a plan of action according to Petiprin (2016) is the concept of a person's intentions and identification of a planned strategy that will eventually end in the implementation of health behavior. Strategies are carefully selected by a person to facilitate and reinforce health behaviours according to his or her preference and level of change. Commitment without strategies remains good intentions and failures to perform valued health behaviour.

Health Promoting Behaviour

The end point of the Health Promotion Model is the health promotion behaviour. Health promotion behaviour is alternatively directed toward attaining positive health outcome for the person. Health promotion behaviour that is integrated into a healthy life style in all aspect of living lead to an improved health, enhance functional abilities and hence better quality of life at all stages of development. The health promoting behaviour is the action-outcome that is aimed at attaining a positive health outcome such as optimal well-being, personal fulfilment and productive living. The final behavioral demand is also influenced by the immediate competing demand and preferences, which can derail intended actions for promoting health (Petiprin, 2016: Pender, et al., 2006).

The adapted constructs of the health promotion model by Nola Pender is shown in figure 1 below.

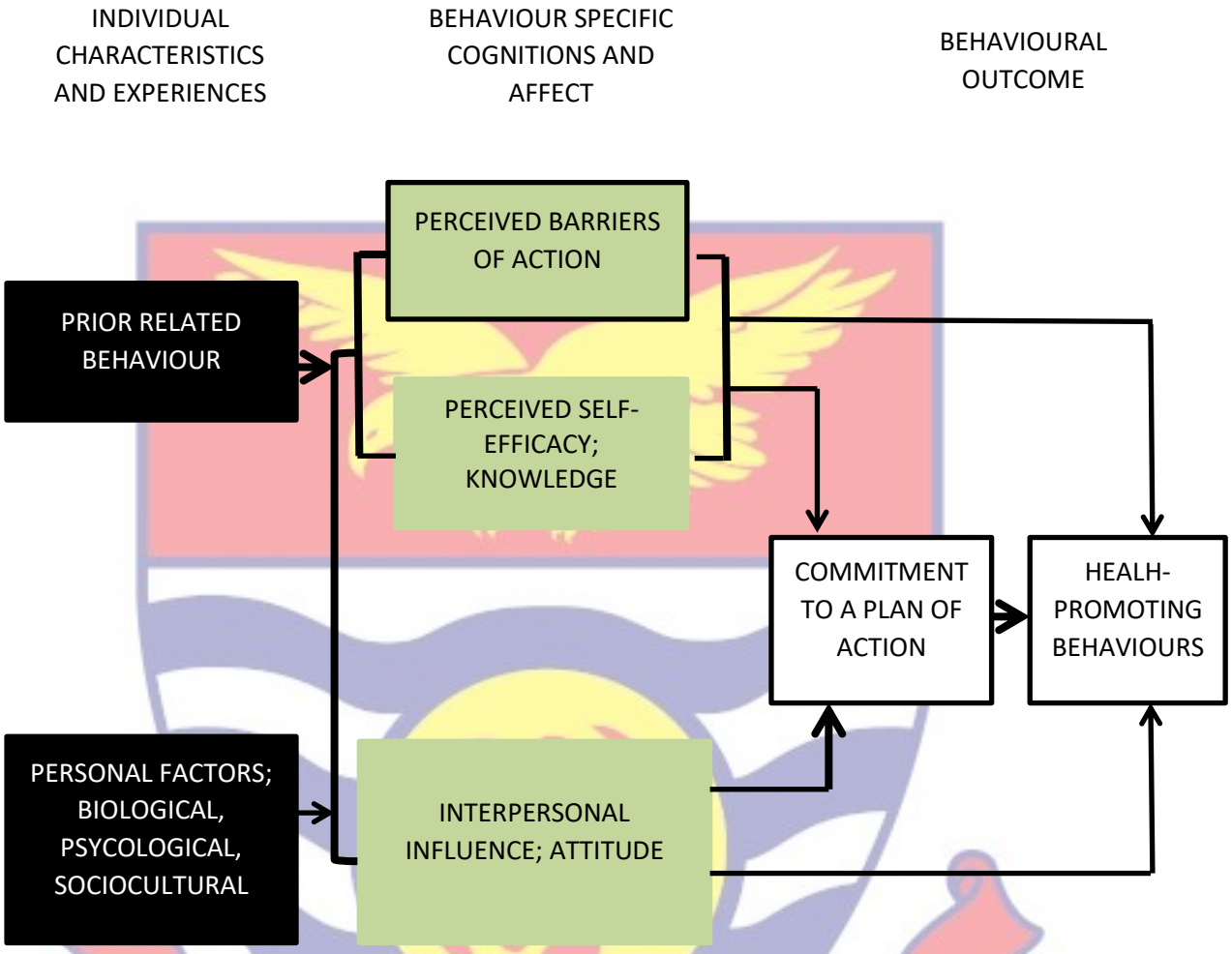

Figure 1: health promotion model by Nola, J. Pender.

Knowledge Level of Diabetes Patients

According to Yun, Hassan, Abd. Aziz, Awaisu and Ghazali (2007) a research was conducted on comparison of knowledge of diabetes mellitus between patients with diabetes and healthy adults at north Malaysia. On their assessment of knowledge of diabetic on general pathology, it was realized that 89.2% of the study participants knew that diabetes is a condition of high blood sugar, 46.7% that diabetes is a lack of insulin, 27.5% also said that insulin is a

protein hormone which is produced in the pancreas, 60.8% said insulin regulate blood sugar, 90% agreed that diabetes is non-contagious and none of the study participants was aware that there are types of diabetes. The following was the finding of Phillips, Mashigeb and Clarke-Farrc (2012) when they conducted a study on Knowledge of diabetes mellitus in privately-funded diabetic patients attending a rural optometric practice in Malmesbury, South Africa. It was revealed that 14% of the study participants reported there were more than two types of diabetes.

According to Yun et al., (2007), the following percentages were scored when their knowledge on screening risk factors of diabetes was assessed; 88.3% for family history of diabetes mellitus, 88.3% for age more than or equals to 35 years, 85.8% for obesity and 74.2% for pregnancy. A research conducted by Garcia, Rocha, Lopez, Baerd, Dressler and Weller (2007) on life style and self-management among good and poor control Mexicans diabetic patients indicated that 71% of the study participants were not aware that diabetes can be hereditary. In another study by Phillips et al., (2012) a lower percentage was recorded when 61% of the study participants conceived that Diabetes Mellitus was a hereditary condition.

When their knowledge was also assessed on symptoms and chronic diabetes mellitus complications, the following percentages were the various responses by participants who were aware of the existence of these symptoms and complications; 97.5% for thirst, 95.8% for frequent urination, 96.7% for both blurred vision and slow healing of wounds, 98.3% for tiredness and weakness,

95.8% diabetic foot, and 92.5% for high blood pressure (Yun et al., 2007). The following were the findings of Phillips et al. (2012) when they conducted a study on Knowledge of diabetes mellitus in privately-funded diabetic patients attending a rural optometric practice in Malmesbury, South Africa. The study which is in conformity with Yun et al., (2007) revealed that 99% of participants agreed that diabetes could affect wound healing. Also the findings of Phillips et al., (2012) indicated that majority (97%) of the respondents asserted that Diabetes Mellitus could affect vision. Furthermore, most of the study participants (73%) felt that it was very important for diabetes patients to have an eye examination even if they could still see clearly, 18% felt it was slightly important whilst 9% of them said it was not important.

Their knowledge of treatment and self-management of diabetes also reveals that 85% of the diabetic patients indicated that insulin injection is used for treatment, 100% of them agreed that there are also oral tablets, 45% agreed that diabetes patients should carry sweets when they are going out, 95.8% asserted that exercise play a role in control of diabetes and that good weight control is necessary in managing diabetes, 96.7% did indicate that regular eye check-up is necessary, 100% also stated that diabetes patients should not take alcohol and smoke, 78.3% of them also were of the view that diabetes patients should not donate blood and 60% said that diabetes patients should not skip meals even when busy. Seventy nine point seven percent (79.7%) of a study participants agreed that persons with diabetes should not smoke with the reason that smoking reduces blood flow to the foot (Abu-Qamar, 2014). In addition, it was revealed that 94%

of study participants were aware that cigarette smoking is a risk factor of diabetes and those diabetes patients who were engaged in smoking could worsen their disease. (Jackson, Adibe, Okonta, & Ukwe, 2014) A research conducted at Nigeria on knowledge of self-care among diabetes patients by Jackson, Adibe, Okonta, and Ukwe, (2014) revealed that 44% agreed that when a diabetic is engaged in a regular exercise, it reduces the need for insulin or other diabetic medications. Furthermore, 79.5% of the respondents had a higher overall knowledge on self-care as compared to 20.5% that had low level of knowledge. According to Arden, Paz-Pacheco, Jimeno, Lantion-Ang, Paterno and Juban (2010), the score of the mean percentage on knowledge on treatment was 61%.

On the knowledge of monitoring by diabetes patients, a research conducted by Garcia et al. (2007) on life style and self-management among good and poor control Mexicans diabetic patients indicated that 40% know the desirable level of blood sugar which is at or below 120mg/dl. Hundred percent (100%) of participants of a study did agree that diabetes patients should do blood glucose and BP monitoring and 81.7% of them agreed diabetes patients should do urine test for protein (Yun et al., 2007). The findings of Phillips et al., (2012) shows that just a little above half of the respondents (53%) thought that daily blood glucose testing was very important whiles 47% were unsure. Furthermore, 95% noted that at the initiation of insulin therapy for a person with diabetes who may require it, appropriate advice on Self Blood Glucose Monitoring (SBGM) is very important and should be given to the person (Jackson et al., 2014). Monitoring of blood glucose level appropriately is very important and assists in

the proper control of blood glucose level. The importance of controlling blood glucose level was equally emphasized when 98% of the study participants in demonstrating their knowledge on diabetes said that controlling the glucose levels of the diabetes patients may help to minimize or delay the onset of diabetic complications (Phillips et al., 2012). Furthermore, the score of the mean percentage of knowledge on self-monitoring was 24% (Arden et al., 2010).

The mean percentage score on general knowledge of diabetes was 43% of the study participants of a research conducted to determine the knowledge and attitudes of the community residents of San Juan, Batangas with type 2 diabetes (Arden et al. 2010).

Attitude of Diabetes Patients

Chen, Huang, Wan, Deng, Wu, Li, Cai,, Xiao and Li (2012) in their research conducted in China during the base line survey reported that 78.5% of the remission group who had positive attitude had asserted diabetes does not affect their life at all whilst 39.6% of the non-remission group made the same assertion at the same survey. Twelve point three percent (12.3%) of the remission patient at the base line survey felt that they were not as good as others because of their condition whereas the corresponding percentage for the non-remission group was 52.8.

Abu-Qamar (2014), in a recent study, did indicate that 34.3% of the study participants had the attitude that their blood glucose levels were well controlled. On the other hand, there was a low score on the attitude scale when a research was conducted on knowledge, attitudes and practices of persons with type 2

diabetes in San Juan, Philippines. The findings revealed that 38% of the study participants believed that they should be the core decision makers regarding their self-management practices. Furthermore, only 10% justified the benefits of tight control of blood glucose. In extension 1% of them strongly agreed that type 2 diabetes was a serious disease (Arden et al., 2010).

A recent study by Shultz, Corbett, and Allen (2009) on Slavic Women's Understanding of Diabetes Dietary Self-Management and Reported Dietary Behaviors to assess their beliefs about diet to manage diabetes shown that 30% of the participants believe diabetes patients need to control what they eat and have to say no to a lot of foods because one cannot eat certain things. Furthermore, 20% believe that white bread is bad food and not supposed to be eaten. Also, all participants believed that diabetes patients need to follow doctor's advice about what to eat, and that diabetes patients should eat more vegetables, salads, and less fattening foods. They all believe that buckwheat is good for diabetes patients and finally, 20% of them also believe that diabetes patients should eat less sugar and not to eat sweets.

Garcia et al., (2007) in their study on life style and self-management among good and poor control Mexicans diabetic patients indicated that 6% of them noted life was the same with diabetes whilst 8% are saying life is rather better with diabetes citing changes such as losing weight, leaning how to eat and more tranquility in their lives,

Self-Management Practices

Self-care in diabetes is explained to be a process whereby the individual willingly develop knowledge or awareness through learning in order to survive the complex nature of the disease in a social context. Hence there is a very crucial need for reliable and valid measurements of self-care of diabetes patients. Healthy eating, physical activity, monitoring of blood sugar, adherence to medication, good problem solving, healthy coping skills and risk reduction behavior are the seven significant self-care characters among diabetes patients (Shrivastava, Shrivastava, & Ramasamy, 2013). According to the American Association of Diabetes Educators (2008) Diabetes self-care activities are behaviors that are exhibited by diabetes patients or people at risk of diabetes so that they can on their own manage the disease successfully.

According to Wroe, (2006) report from the 3rd International DAWN Summit reveals a good number of diabetic patents-59% in the UK have a good control over their self-management practices as opposed to 41% who did not have good control.

Different practices of self-management on medication have been revealed by various researchers. A study conducted at the Korle-bu Teaching Hospital on adherence to oral anti diabetic drugs shows that 38.5% of respondents adhere to their medications correctly (Bruce, Acheampong & Kretchy, 2015). According to Raithatha, Shankar, and Dinesh (2014), 82% of the participants who took part in a research on self-care practices among diabetes patients always took their medicines regularly and 68% of them did not miss a single dose of medicine in

the past week. A study on knowledge and practice of foot self-care among Jordanians with diabetes revealed greater majority of the study participants (85.7%) claimed that they always take their medications regularly (Abu-Qamar, 2014).

Dunning, and Manias (2005) on taking of medication, said that 20% of the study participants reported they regularly forget, the reason being old age and wanting to have rest from pills and sometimes been too busy to remember. Jackson, et al (2014) in their research on self-management practices found that 68% of the study participants were taking their diabetic drugs for life since they are aware that the disease is not curable. Eighty six percent (86%) asserted following instructions concerning drugs and other self-care practices strictly.

On assessing the understanding of Slavic women on diabetes dietary self-management and behaviors, it was revealed by Shultz, Corbett and Allen (2009) that 40% of the women eat less bread including white bread, 50% of them eat less fatty food and use less fat, 30% of them reduce their sweets and sugar intake, all of them eat more frequently but smaller portion on schedule, all of them eat more fruits and vegetables and also more soup.

On dietary maters, all participants made mention that diabetes patients need to take in more fruits in an attempt to control diabetes. Thirty seven percent (37%) of them take fish or chicken as their source of protein, 48% took beef or milk as source of protein. This choice was explained as high in overall calories. 40% of the participants eat two meals plus snacks in a day and 26% use coffee or tea. They explained that patients with good glycemic control were more likely to

report eating twice a day with snacks. Eighty one percent (81%) of the participants admit they had never eaten forbidden food. Ten percent (10%) admitted the usage of alcoholic beverages and 3.2% of their study participants mentioned they had the glucometer which was often used to measure and control their blood sugar levels (Garcia et al, 2007)

Regarding self-management practices Chen et al., (2012) explained from a research that 78.8% of diabetic patient practiced self-monitoring of blood glucose in a remission group as compared to 45.3% in a non-remission group. They added that lower frequency of self-monitoring of blood glucose was associated with higher Hb1c.

Forty six percent (46%) of the study participants of a research on Knowledge, attitudes and practices of persons with type 2 diabetes in a rural community in San Juan, Batangas, Philippines consulted their doctors on a regular basis which was at least every three months, whilst 11% of them owned a glucose meter and 34% of the participants regularly examine their feet for any abnormalities (Arden et al., 2010).

Majority of the respondents (83%) of a research conducted by Dunning, and Manias (2005) on Medication Knowledge and Self-Management by People with Type 2 Diabetes in Australia reported that they monitored their blood glucose at home with their glucose meter. Eighty percent (80%) of the participants who monitor their blood glucose at home do not perform control test on their glucose meter to ensure they were reading accurately, but only calibrate the meter with each new batch of strips. Thirty three percent (33%) of them

discard used sharps and needles directly into the rubbish; this mode of disposal was inappropriate and possess a major concern although the extent to which it represents a health risk to other people was not known. According to Phillips et al., (2012) most of their study participants (82%) had their own glucometer. However, they added that the frequency of monitoring the sugar level varied among the study participants. Phillips et al., (2012) found out that 29% of the respondents measured their blood sugar daily, 27% did it alternatively, 29% less than weekly and 16% did it only when they went to the doctor.

Regarding monitoring, 64% of the respondents are using FBS test to monitor 2 to 3 months blood sugar control. This mode of monitoring was incorrect. In addition, 40% of the patients involved in the study measure their blood glucose level before and after every planned activity. Furthermore, 90% of the respondents do exercise for 20-30 minutes per session at least 3 days within the week (Jackson, et al., 2014).

More than half the study participants (50.5%) inspected their feet daily. Fifty seven point four percent (57.4%) also stated they dry their feet thoroughly following washing, 45% also add detergent to the water used to wash their feet, 51.1% lubricated their feet following washing, 85.7% of the participants use blunt instruments to clean under their nails, and 79.9% of the participants cut their nails themselves which was not advisable. Furthermore, 36.4% of them put on foot wear that was closed, 76.7% of the study participants do not walk bare footed, 51.2% of them also use socks that do not have rubber and 71.3% of them change their socks every day (Abu-Qamar, 2014).

According to Garcia et al., (2007) 45% of study participants on Mexicans diabetes patients prefered walking as their exercise, 31% exercised daily, whilst 10% exercised twice a week. Phillips et al., (2012) asserted that most of the study participants did not prioritize exercise as a mode of managing their diabetes. With this 61% of the respondents asserted they did not participate in any regular exercise.

Barriers to Self-Management Practices

According to Wroe (2006), who reported on the highlights from the 3rd International DAWN Summit, Florence, the barriers to a good diabetes care in India included multiplicity of languages and varieties of cultures and also lack of resources. Nam, Chesla, Stotts, Kroon, and Janson (2011) in their study came out with the findings that 64% of people asserted that diabetes drugs with polytherapy regiment serve as barrier to drug adherence. Insulin therapy was a barrier to most people (27%) than oral hypoglycemic agents (14%). On extension the inability for the patient to speak English was a primary barrier to self-management practices among many ethnic minorities in the United State.

Nam, et al. (2011) explained that cost of diabetes treatment serve as a relevant barrier to self-management practices especially among people in the class of low socio-economic status and not registered by any Health Insurance Scheme. In explaining, they asserted that 60% of newly diagnosed patients who were not insured failed to obtain care as compared to 6% of those who are insured.

Irrespective of the above findings, most other research had proven that cost of treatment for diabetes patients does not serve as barrier to their self-

management practices. Garcia et al. (2007) in their study came out with the findings that just 45% of the study participants experience more economic problems following their diet and of surviving their illness. On a similar view, the findings of a study conducted by Phillips et al., (2012) on the topic 'Knowledge of diabetes mellitus in privately-funded diabetic patients attending a rural optometric practice in Malmesbury, South Africa' revealed that majority of their study participants did not view cost of treatment as a barrier to their self-management practices. This was brought to light when 72% of the respondents stated that cost of an eye test was not a barrier for eye examination and 68% also stated that cost of checking their blood glucose level was not a barrier at all. A few of the study participants (22%), however, stated cost was a barrier to eye examination and 32% to checking their blood glucose.

The issue of how social support contribute to perceived barriers to self-management practices was brought to light when a study was conducted on weight reduction and was realized that spousal involvement in weight reduction regiment for diabetes patients had yielded a negative impact for obese men and positive impact for obese women (Nam, et al., 2011).

Concerning barriers to self-management practices of the diabetic, Nam, et al. (2011) added that clinicians inadequate knowledge on managing diabetes was a significant barrier to better self-management practices. In addition, they explained that a friendly provider-patient relationship was a good predictor of better diabetes self-management practices. Unfortunately, they added, lack of

effective provider-patient communication has been a barrier among patients with diabetes to better self-management practices.

Diabetes Services in the Hospitals

In an attempt to enhance patient's knowledge in the management of diabetes, a research conducted at the Konfo-Anokye Teaching Hospital (KATH) indicated that diabetes patients were given health talk, educational handouts and individualized counseling based on their needs during the hospital's diabetic clinic days (Doherty et al, 2014). They were also interviewed by the health worker in order to identify any hidden challenges and address them appropriately. The researchers were also advocating for proper education for the public to increase consumption of the traditional leafy vegetables because of their nutritional and economic value. Though health talk at the KATH focus on the reduction of the intake of plantain with the reason to dispel the notion that it cures diabetes and also due to its carbohydrate content, recently, a number of studies have attested to the fact that the intake of plantain when green and or roasted has a healthy effect on diabetes (Doherty et al, 2014)

Kyrou and Kumar (2010) had it that modification of lifestyle such as to improve upon dietary habits and physical activity must always be included and should be the first step in the management of diabetes.

According to Arden et al., (2010) a research conducted at San Juan in the Philippines revealed that diabetic patients consult their health workers within a range of 1 month to 6 month.

According to Nam et al., (2011), among the total number of diabetes patient that receive care exclusively from primary care providers, only one third of them correctly followed instructions concerning their self-management practices. Within 10-15 minutes, the primary care provider provided preventive care, handled chief complaints of patients, and wrote prescriptions and referral. All these activities were making it difficult for the health care provider to devote ample time for the personal needs of patients with type 2 diabetes. Research had suggested that long appointment period, provision of automated reminder services, feedback and provision of flow charts or check list can lead to better diabetes management (Nam et al, 2011),

Abu-Qamar, (2014) came out that 75.4% of his study participants reported of not receiving education at their clinics on foot self-care.

Eighty three percent (83%) of the respondents reported they were given specific education about their medicines when they were prescribed. (Dunning & Manias, 2005).

According to Phillip et al. (2012), most of the diabetes patients felt they were provided with adequate information on the effect of diabetes on their body and how to prevent complications, this was made bare when they found out that 60% of respondents of a research felt that they were provided with enough information about the possible effect of diabetes on the eyes. However, 40% of the respondents felt the provided information was inadequate.

Relationship between Diabetes patients Knowledge on Diabetes and Self-Management Practices

When it comes to the participation of one's own care, Shrivastava et al. (2013) asserted that it could only be successful if those with the disease and their health care workers are well informed of taking effective care of the disease. It was expected that those with the greatest knowledge will have a better understanding of the disease and its management leading to a better outcome. According to the American Diabetes Association (2006), in their review of the standards of diabetes self-management education discovered that there was a fourfold increase in diabetic complications for diabetes patients who have not received formal education on self-care practices.

One of the contributing factors for poor adherence to medications by diabetes patients was suboptimal health literacy. This was because their study conducted realized that there was a significant correlation between level at which diabetes patients adhere to medication and level of education, and that diabetes patients who were educated by their health care providers on their medications were more adherent than those who were not because they did not have the knowledge. (Bruce et al., 2015)

According to Jackson et al. (2014) diabetes patients with knowledge on medication adheres positively with medication practices. It implied that patients who were more knowledgeable in diabetes management were more likely to practice what they knew.

Chen et al, (2012) asserted that diabetes patients who have higher level of knowledge of their condition had positive attitude and are more likely to be better off in their self-management practices than those with low level of knowledge.

On the other hand Nam et al. (2011) asserted that knowledge did not necessarily result in healthy behavior though knowledgeable patients were more likely to perform self-management practices. Furthermore, on testing the knowledge of study participants on the importance of eye examination for the diabetes patients by Phillips et al., (2012), it was revealed that although many respondents knew that Diabetes Mellitus could damage the eyes (97%), and that regular eye examination were very important (63%), only 24% reported having eye examination in the previous year.

Relationship between Diabetes patients Attitude on Diabetes and Self-Management Practices

According to Shrivastava, et al., (2013) studies conducted in India shows very poor adherence to treatment regimens as a result of poor attitude to diseases and health literacy among the public.

A research conducted in China by Chen et al, (2012) on the effect of attitudes towards diabetes on maintenance of drug-free remission in patients with newly diagnosed type 2 diabetes after short-term continuous subcutaneous insulin infusion treatment revealed that the remission group had greater points for positive attitude whilst the non-remission group had few points for positive attitude. According to them higher scores for positive attitudes correlated to positive self-care adherence.

Influence of Demographic Factors on Self-Management Practices

Age and self-management practices

Abrahim (2011) in his literature review on factors contributing to self-care among Type 2 Diabetes Mellitus patients revealed that there was a correlation between age and regular self-care. The older the patients, the more they took care of themselves and that patients who were younger in years were less likely to exercise self-care.

On the other hand, in his comments and responses regarding National Standards for Diabetes self-Management Education, Shiu (2007) did indicate that a regression model identified younger age as a predictor for diabetes empowerment for self-management practices.

According to a study conducted by Abu-Qamar (2014), there was no statistically significant association between the age of the study participants and their practice of foot self-care.

Sex and Self-Management Practices

Abu-Qamar (2014) found out from his study on knowledge and practice of foot self-care among Jordanians with diabetes that there was no statistically significant association between the sex of the study participants and the abilities of their foot self-care practices

Marital Status and Self-Management Practices

The outcome of Abrahim (2011) literature review showed that there was positive relationship between married couple and self-management practices. This

was so because, married couple had high social support and satisfaction and positive support behavior.

Education and Self-Management Practices

Diabetic patients who had attained higher level of education were more likely to maintain long term remission than those with lower level of education (Chen et al, 2012). A study conducted by Abu-Qamar (2014) on Knowledge and practice of foot self-care among Jordanians with diabetes made known that there was a statistically significant association between the level of education and foot self-care. The higher the level of education of the diabetic, the better the ability of self-management practices. In additions the review findings of Abrahim (2011) revealed that there was a positive correlation between high level of education and high diabetes self-care activities.

Occupation and Self-Management Practices

Akotey (2012) conducted a research on the topic 'Barriers to Glycaemic Control among Diabetes Patients at the Korle-bu Teaching Hospital'. Using a case control study with 230 participants he came out with the findings that patients who were working had a higher risk of poor glycaemic control as compared to the non-working/retired group. He also revealed that patients who are retired but still working had a lower risk as compared to those retired and not working. It meant that the status of a patient regarding work did have effect on the glycaemic level.

Religion and Self-Management Practices

The findings of a literature review by Abrahim (2011), showed that there was a correlation between less religiosity or spirituality and better self-management practices. It meant that those who did not pray much had good coping ability and adhered to the health care provider's advice and recommendation.

Duration of Diabetes and Self-Management Practices

A literature review revealed that long duration of Type 2 Diabetes Mellitus diagnosis and treatment had positive correlation on the improved self-care activities which was developed through experience (Abrahim, 2011)

Income and Self-Management Practices

According to the review findings of Abrahim (2011), there was a positive correlation between income and self-management practices. This means that the higher ones income, the better the ability to take care of one self. Furthermore, a research conducted among diabetes patients revealed that just 30% adhered to drug regimens and that non-compliance was higher among the low socioeconomic groups (Shrivastava et al., 2013)

Summary of Literature Review

In summary, the literature identified the Health promotion Model propounded by Nola, J. Pender which served as the theoretical model for the study. Some constructs of the model relevant to the study were adopted. Such were; individual characteristics and experiences which talks about the

demographic factors, perceived barriers of action, which explains barriers diabetes patients have regarding self-management practices, perceived self-efficacy, which also deals with the knowledge part of the study, and finally interpersonal influence, which deals with the attitude of diabetes patients and services in the hospital that influence self-management practices. The theoretical basis for the model such as the social cognitive theory and expectancy values theory and assumptions were explored.

Empirical review was also done to explore various research findings on knowledge level of diabetes on five domains such as pathology, screening risk factors, symptoms and complications, treatment and self-management, and finally monitoring. The review revealed that most of the research findings indicated excellent knowledge among participants. This was a good finding because knowledge in most cases aid in practice and was related to this research which sought to investigate the level of knowledge of diabetes patients on diabetes.

Further empirical review of literature on attitude of diabetes patients towards diabetes indicated that most of the study participants of the researches reviewed demonstrated poor attitude. This was not a good finding because in most cases poor attitude had led to poor adherence to self-management practices. The review was also related to the study in a sense that the study sought to examine the attitude of diabetes patients toward diabetes.

Literature was also reviewed to explore self-management practices of diabetes patients. This was done in the following areas; medication, nutrition, monitoring of blood sugar, foot care and exercise. The review showed that most

diabetes patients of the studies reviewed adhered correctly to their self-management practices. This study in line with the reviewed literature seeks to explore the self-management practices of diabetes.

Type of services provided at some diabetic clinics was explored. It was evident in literature that various services such as health education on relevant topics, prescription, and provision of check list to patients were provided. The findings of the review was relevant in a sense that it aid in this study in addressing one of the research questions which sought to examine the services provided at the diabetic clinic.

The review also explored literature on relationship between diabetes patients' knowledge and attitude on diabetes and self-management practices. Most of the literature revealed that there was a relationship between knowledge and self-management practices whilst a few refuted that point. On the relationship between attitude and self-management practices, all the literature reviewed indicated a relationship. In that case it was most likely that people with good attitude will adhere to good self-management practices. This study was in line with the review because it investigated the relationship between knowledge and attitude and that of self-management practices.

Literature was also reviewed on the effect of demographic factors such as age, sex, occupation, income, duration of diabetes, marital status, level of education, and religious affiliation. All the literature reviewed indicated that demographic factors as indicated above have effect on the self-management practices of the client. However, according to a study conducted by Abu-Qamar

(2014), there was no statistically significant association between the age of the study participants and their practice of foot self-care. The review was in line with one of the research objectives which sought to examine the effect of demographic factors on self-management practices.

CHAPTER THREE

METHODOLOGY

This chapter presents information regarding the procedures that were used in conducting the study. The methodology of the study was organized in the following sections: research design, population, sample and sampling procedure, instrument, pretesting of instrument, reliability of instrument, data collection procedure, ethical issues and data analysis.

Research Design

`The study design was the overall plan for obtaining answers to questions being `` (Polit & Beck, 2010). The study primarily looked at Diabetic Patients Self-Management Practices in Government Hospitals in the Upper West Region. A cross-sectional survey was employed to find out from a cross section of diabetes patients in the selected hospitals their knowledge and attitudes on their self-management practices. A cross-sectional design according to Kumekpor, (2002), is a survey design in which data on sample or "cross section" of respondent are chosen to represent a particular target population at essentially one point in time. According to Polit and Beck (2010) all phenomena under study are captured during one data collection period.

This study aims at describing the status of the phenomena knowledge, attitudes and self-management practices among diabetes patients. It also seeks to examine the relationship between knowledge, attitudes and self-management practices among diabetes patients. The cross-sectional study design was more

appropriate for this study because according to Polit and Beck (2010) it describes the status of phenomena and/or the relationship among these phenomena.

The main advantage of this study design was that it was economical and easily managed. However, cross sectional design has a major disadvantage in inferring changes and trends over time. In explaining further, because of the influence of society and technology on people's character, it was questionable to assume that differences in the attitudes and behaviors of people were the characteristics of different age groups and due to time rather than generational differences (Polit & Beck, 2010). It is difficult to make causal inference when using a cross sectional study; it was also only a snapshot: that is, the situation may provide a different result if another time-frame is chosen. Even so, a cross sectional design will be chosen because it is relatively inexpensive and takes up little time to conduct. It is also suitable for a descriptive study such as the current one.

Study Setting

This study was conducted in the Upper West Region; at the Wa Regional Hospital, Lawra District Hospital and Nandom District Hospital. These institutions were selected because they were the hospitals that run diabetic clinics at the time of commencement of the research.

The Wa regional hospital is the main referral point in the Upper West Region of Ghana. According to the specialist diabetic clinic register, there were 302 attendants in the month of March 2016. The diabetic clinic is managed by a medical officer, a staff nurse and two ward aids. The hospital has a laboratory that

patients are referred to undergo laboratory investigations. The hospital also has a nutritionist who from time to time comes to the clinic to deliver health talk on their diet. They have average attendants of 38 per clinic day. The clinic days are Tuesdays and Thursdays of every week.

The Lawra diabetic clinic is managed by a medical officer, two nurses and a ward aid. They do have a nutritionist who gives monthly health talk to the patients. The hospital has a laboratory that the patients are referred to undergo some laboratory investigations. They possess a glucometer in the clinic which is used to check the Fasting Blood Sugar (FBS) of each client every clinic day. The Lawra District Hospital also serves as a referral point for all cases coming from the health centers within the district. According to the specialist diabetic clinic register, the Lawra district hospital has recorded 45 attendances by the end of March 2016. The diabetic clinic was organized ones every month on Thursdays.

The St. Theresa's hospital at Nandom which also serves as the Nandom district hospital has a diabetic clinic which is managed by physician assistants, nurses and a nutritionist. The hospital also serves as a referral center for the other health facilities within the district. The clinic is organized every Thursday in every week within the month. Each client is supposed to attend the clinic once in a month. There is a laboratory in the hospital where the patients are refered to for FBS and other laboratory investigations. They have a total attendance of 57 per the clinic's register at the end of March 2016 and an average attendance of 14 per week.

Population

Polit and Beck (2010) stated that, population was the entire collection of phenomena or elements the researcher had interest in and that these elements have similar characteristics. Accordingly, population can be defined to cover a wide collection of cases or may be narrowly defined to include only few things. Researchers, especially quantitative researchers sample from accessible population and generalize the findings of the research to a target population after the study. The entire elements that the researcher is interested in become the target population whilst the elements of the target population that are available or accessible to the researcher as study respondents are called the accessible population.

The target population for the study was Diabetes Patients who attend diabetic clinics in the various hospitals in the Upper West Region. The accessible population comprised diabetes patients who visit three (3) selected hospitals namely Wa Municipal Hospital, Lawra District Hospital, and Nandom District Hospital in the Upper West Region

Sample and Sampling Procedure

This study included people with type 2 diabetes in the three selected government hospitals in the region. The total number of diabetic type 2 patients who attend clinic in the three chosen hospitals in the region was estimated to be 404 by the end of March 2016. The sample size for the research study was calculated from the formula $n = \frac{N}{1 + N(e)^2}$. Where n is the sample size, N is the size of the population from which the sample will be drawn from and e is the level

of precision. A 95% confidence level and P=0.5 were assumed for the equation. Applying this formula according to Israel (2013) to the accessible population, the following was obtained;

$$n = \frac{404}{1 + 404(0.05)^2} = 201$$

Proportionate Sample Allocation

Using stratified random sampling technique a proportional allocation was used to select study participants. To determine the sample figure for each of the hospitals, the sample fraction was calculated using the formula:

$Sample\ fraction\ (f) = \frac{sample\ size\ (n)}{targeted\ population\ (N)}$ (Mupepi *et al.*, 2011). Putting in the figures in the formula translated to $f = \frac{201}{404} = 0.5$.

The sample fraction (f) which was 0.5 was then used to multiply by the population of diabetes cases at each of the three chosen hospitals to get their respective sample figure. This calculation was translated into sample size of Wa Municipal Hospital to be 151, that of Lawra District Hospital to be 22 and finally 28 for Nandom District Hospital.

Selection of Participants

The stratified random sampling was employed in the selection of participants for the study. According to Polit and Beck (2010) stratified random sampling design subdivides the assessible population into strata based on demographic characteristics from which study participants are randomly selected. Polit and Beck (2010) stated that in using stratified random sampling, the

researcher sharpens the representativeness of the samples. Accordingly, it is not subject to researcher biases and does guarantee that selection of the sample is fully by chance. However, Polit and Beck (2010) added that using the stratified random sampling may be impossible if information on the stratified elements are not available and also demands that sampling be done from multiple enumerated listing. They said that stratified random sampling is laborious and time consuming in a sense that one needs to put the population in strata, design a sampling frame, enumerate all the cases in the various strata and select the sample elements by random. This is more impossible with a larger population and unavailability of complete listing of the composition of the population.

The study population for this study is divided into three strata based on the location of the hospitals the participants receive diabetic care.

Wa regional hospital runs their diabetes patients clinics eight times in the month, that is, Tuesdays and Thursdays with each client attending the clinic once in a month. They had an average of 38 attendants per clinic day. Lawra district hospital runs its diabetic clinic once every month on Tuesdays and has an average attendance of 45 patients. Nandom hospital runs their diabetic clinic four times every month, thus, every Thursday with each client attending the clinic once in every month. The patients in all the clinics in the various hospitals maintained a particular day every month. Hence, each of the clinics in the hospitals has a register composed of the list of the patients that attend clinics on each of the clinic days.

The registers of the various diabetic clinics were used as the sampling frame for this study. A simple random sampling was employed at each stratum to arrive at the respective sample size. To do this, the serial numbers and the corresponding names of participants in the clinic register in each hospital was used as sampling frame and the lottery method used to draw at random a sample of the desired size for each clinic day for a period of one month to attain the total sample size for each of the stratum.

Research Instrument

A self-developed questionnaire was used as the research instrument for the study. A questionnaire is a form of data collection instrument for collecting standardized data from a large number of people (Ackroyd & Hughes, 1981). The following were elaborated by Ackroyd and Hughes (1981) as the disadvantages of questionnaire; People reading differently into each question and therefore replying based on their own interpretation of the question and an increase level of researcher imposition

Notwithstanding, Ackroyd and Hughes, (1981) did mention the following as the advantages of questionnaire; it allows large amount of information to be collected from a large number of people in a short period of time and in a relatively cost effective way most especially if the sample is geographically dispersed. Results of the questionnaires can usually be quickly and easily quantified by either a researcher or through the use of a software package. Result of the questionnaires can also be analyzed more 'scientifically' and objectively than other forms of research and when data has been quantified, it can be used to

compare and contrast other research and may be used to measure change. The following advantages of questionnaires were added to the above by Polit and Beck (2010). Questionnaire enhances greater perceived privacy which is very important in obtaining information about unconventional behaviors and the absence of the interviewer in the use of a questionnaire avoids bias responses which may be due to the presence of the interviewer. Considering the dispersed nature of the study setting, size of the study population and time available for the study, the questionnaire was considered suitable for the study.

The study instrument was a self-developed questionnaire that the research constructed through thorough literature review.

The instrument contained closed and opened ended questions. The questionnaire was made up of six sections "A", "B", "C", "D", "E", and "F" respectively. Sections "A" contained background characteristics (gender, age among others.) of respondents, section "B" entailed questions testing the knowledge of diabetic patients, section "C" was made up of the questions on attitudes of diabetic patients, section "D" was made up of questions on self-management practices of the diabetic client, section "E" contained questions on perceived barriers to self-management practices and finally section "F" made up of questions about practices of the various clinics.

Questions on demographic characteristics (section 'A'') were answered by choosing out of the multiple choices provided except that of the age and district which was written. Questions on knowledge of the diabetes patients (section 'B''), and that of the attitude of diabetes patients (section 'C'') made use of five

points likert scaled responses, (strongly agree, agree, neutral, disagree and strongly disagree). Questions on self-management practices (section 'D') were also answered making use of four points likert scaled responses, (does not apply to me, applies to me to some degree, applies to me to a considerable degree and applies to me very much). Questions on perceived barriers (section 'E') were also answered making use of a four point likert scale, (strongly agree, agree, disagree and strongly disagree). Finally, questions on practices in the hospitals were answered using a dichotomous responses (yes or no and no idea)

Data Collection Procedures

Pretesting of Instrument

Pretesting of the research instruments (questionnaire) was carried out in one of the district hospitals in the Region namely St. Joseph Hospital-Jirapa with twenty (20) respondents to validate the instrument before it was actually implemented in the study area. The pretesting helped the researcher to modify language of some of the questions and also added up components to the responses. The pretests led to the modification of the instrument which was used for the final research.

Reliability of Instrument

The pretest result was used to determine the reliability of the instrument with the Cronbach's coefficient alpha measure of internal consistency. The Statistical Products for Service Solution (version 21) was used for the computations. The reliability statistic Cronbach's coefficient alpha value was 0.8

which was an indication that the instrument was reliable in measuring what it intended to.

Ethical Consideration

In order to abide by the ethics of successful research, the researcher sought approval from the Institutional Review Board of the University of Cape Coast.

The researcher further sought approval from the Regional Director of Health Services-Wa, asking for permission to conduct a research at the four concerned hospitals in the region. The regional director wrote to the respective hospitals asking them to assist the researcher in the research.

Each participant was given an information sheet to read and it was read to those who could not read. The information sheet composed of introducing the researcher as a student of the University of Cape Coast. The title of the research, the benefits of the findings of this research, the responsibility of the participants, and the ability to withdraw were explained.

The participants were given a consent form which explained their understanding of the research and signed or thump printed to indicate their acceptance to participate in the study. A witness and the lead researcher counter signed to confirm the respondent's consent to participate in the research.

Inclusion Criteria

The study participants met the following criteria to be eligible to be part of the study

1. Male or female with T2DM
2. Patient aged ≥ 20 years
3. Patient undergoing treatment with oral anti diabetic drugs and or insulin, to achieve specific glycaemic goals;
4. Patient diagnosed of T2DM for at least one month
5. Patients who give consent to be part of the study

Exclusion Criteria

The following participants were excluded from the study

1. Patient aged < 20 years
2. Pregnant and lactating women
3. Patient on admission
4. Male or female with type 1 diabetes
5. Patient diagnosed of T2DM for less than one month
6. Patient who decide not to be part of the study

Training of Research Assistants

Five people were recruited and trained to serve as research assistants for the data collection process. These five research assistants were added to the principal researcher to be six in number. Two of them were assigned to each of the three chosen hospitals for the data collection process.

Methods of Data Collection

Data was collected by using a questionnaire. The researcher and his assistants personally administered the questionnaires to the respondents and ample time given to the respondents to study the pattern of the instruments and to answer appropriately without being rushed (Sarantakos, 2005). In a situation where patients could not read and write, the researcher read out to respondents in a dialect that they understood and their responses were ticked as given. This approach was adopted because it was the most suitable since not all the respondents could read and write.

Data Processing and Analysis

The process for the data analysis included; data preparation (coding, editing and checks for errors and biases), counting (registering research items and frequency of occurrences), grouping of collected data, analyzing and discussing of data. The collected data was analyzed by using the Statistical Package for the Social Sciences (SPSS) Version 21 software. A descriptive statistics technique was employed in the study by using frequency distribution. ANOVA, regression and correlations were also used in the analysis.

All the five research questions were analyzed by simple frequency counts and percentages. Research hypothesis one and two were analyzed using Pearson Product Movement Correlation because the researcher sought to find out the relationship between knowledge and attitude of diabetes patients on diabetes and the self-management practices of the diabetes patients. Research hypothesis three was analyzed using regression. This is because the researcher established the

effect of demographic factors of diabetes patients on self-management practices. Finally research hypothesis four was also analyzed by using ANOVA to establish the differences in self-management practices of diabetes patients receiving care at the various hospitals.

CHAPTER FOUR

RESULT AND DISCUSSION

This chapter presents analysis of results obtained from the field. The results are presented in tabular form based on the demographic characteristics, four research questions of the study and four hypothesis of the study. Research question one seeks to assess the knowledge of diabetes patients on diabetes. The sub components of knowledge discussed in this chapter were; general knowledge on pathology of diabetes, knowledge of screening risk factors of diabetes, knowledge on symptoms and chronic diabetes mellitus complications, knowledge of treatment and self-management of diabetes and knowledge on monitoring. Research question two sought to find out the attitudes of diabetes patients towards diabetes. Research question three sought to find out the perceived barriers of diabetes patients towards self-management practices. Research question four assessed the services provided at the diabetic clinics. Discussions of these findings were in line with the reviewed literature and theoretical frameworks guiding the study. Thorough logical deductions were also made in this same chapter.

Results

Demographic Characteristics

Age of Respondents

Table 1 represented the distribution of age of respondents involved in the study. From Table 1, the majority, 103 (51.2%) of the respondents were between the ages 40 and 59, 77 (38.3%) were above 59 years of age while 21 (10.5%) were also between 20 and 39 years of age. The study, therefore, revealed that majority of the respondents were between 40 and 59 years.

Table 1- *Age of Respondents*

Age Range	Frequency	Percent (%)
20-39 years	21	10.5
40-59 Years	103	51.2
Above 59 years	77	38.3
Total	201	100.0

Source: Field survey

Sex of Respondents

Table 2 represented the sex distribution of respondents involved in the study. From Table 2, the majority, 138 (69.7%) of the respondents are females while 63 (31.3%) are males.

Table 2- *Sex of Respondents*

Sex	Frequency	Percent (%)
Male	63	31.3
Female	138	69.7
Total	201	100.0

Source: Field survey

Marital Status of Respondents

Table 3 represented distribution of marital status of respondents involved in the study. From Table 3, the majority, 153 (76.1%) of the respondents were married, 29 (14.4%) were widowed, 8 (4.0%) were never married, 6 (3.0%) were divorced, 4 (2.0%) were separated and lastly, 1 (.5%) was cohabitating. It is worth noting that majority of the respondents involved in the study were married.

Table 3- *Marital Status of Respondents*

Marital Status	Frequency	Percent (%)
Never married	8	4.0
Married	153	76.1
Divorced	6	3.0
Separated	4	2.0
Widowed	29	14.4
Cohabitating	1	.5
Total	201	100.0

Source: Field survey

District of Respondents

Table 4 showed distribution of districts of respondents involved in the study. From Table 4, the majority, 151 (75.2%) of the respondents were from Wa district, 28 (13.9%) were from Nandom district and lastly, 22 (10.0%) were from Lawra district respectively

Table 4- *District of Respondents*

District	Frequency	Percent (%)
Wa	151	75.2
Lawra	22	10.9
Nandom	28	13.9
Total	201	100.0

Source: Field survey

Level of Education

Table 5, showed the distribution of educational level of respondents involved in the study. From Table 5, the majority, 75 (37.3%) of the respondents had no formal education, 43 (21.4%) had primary school education, 41 (20.4%) had secondary school education, 25 (12.4%) had university education and lastly, 17 (8.5%) had college of education/polytechnic education. The study, therefore, revealed that 62.7% of the respondents had at least primary education which apparently would mean that; they would have more knowledge about diabetes.

Table 5- *Level of Education*

Education level	Frequency	Percent (%)
No formal education	75	37.3
Primary school	43	21.4
Secondary school	41	20.4
Training college/Poly	17	8.5
University	25	12.4
Total	201	100.0

Source: Field survey

Occupation of Respondents

Table 6, represented occupational distribution of respondents involved in the study. From Table 6, the greater proportion, 107 (53.2%) of the respondents were self-employed, 63 (31.3%) were government employees, 25 (12.4%) were unemployed, 6 (3.1%) were private sector workers. The dominant respondents 107 (53.2%) in the study were self-employed. Most of the respondents were not found in the government sector probably because they did not pursue higher education.

Table 6-*Occupation of Respondents*

Occupation	Frequency	Percent (%)
Government employee	63	31.3
Self – employed	107	53.2
Private sector workers	6	3.1
Unemployed	25	12.4
Total	201	100.0

Source: Field survey

Religious Affiliation of Respondents

Table 7 showed distribution of religious affiliation of respondents involved in the study. From Table 7, the majority, 110 (54.7%) of the respondents were Islam, 75 (37.3%) were Christians and lastly, 16 (8.0%) were Traditionalist. It is worth noting that greater proportion of the respondents involved in the study followed the Islam faith.

Table 7- Religious Affiliation of Respondents

Religion	Frequency	Percent (%)
Christian	75	37.3
Islam	110	54.7
Traditional	16	8.0
Total	201	100.0

Source: Field survey

Duration of Diabetes

Table 8, showed the distribution of duration of diabetes of respondents in the study. From Table 8, the majority, 65 (32.3%) of the respondents indicated that the duration of their diabetes was more than five years, followed by 37 (18.4%) who indicated that they contracted the diabetes two years ago, 24 (11.9%) contracted diabetes three years ago, 22 (10.9%) contracted it a year ago, 20 (10.0%) also contracted diabetes less than a year, 17 (8.5%) contracted diabetes five years ago and lastly, 16 (8.0%) contracted it four years ago. It can be seen that the dominant proportion (50.8%) of the respondents contracted diabetes five or more years ago.

Table 8- *Duration of Diabetes*

Duration	Frequency	Percent (%)
Less than one year	20	10.0
One year ago	22	10.9
Two years ago	37	18.4
Three years ago	24	11.9
Four years ago	16	8.0
Five years ago	17	18.5
More than five years ago	65	32.3
Total	201	100.0

Source: Field survey

Level of Monthly income of Respondents

Table 9, showed the distribution of level of monthly income of respondents involved in the study. From Table 9, the majority, 49 (24.4%) of the respondents indicated that they were not earning any money. Considering the employment status where 25 respondents were not employed, it indicated that 24 respondents were part of the employed group but yet to receive salary. 44 (21.9%) of the respondents indicated that their monthly income was less than Gh₵200, 34 (16.9%) of the respondents indicated that their monthly income was between Gh₵200-400, 31 (15.4%) indicated that their monthly income was between Gh₵800-1000, 27 (13.4%) of the respondents indicated that theirs was between Gh₵1000-3000 and lastly 16 (8.0%) indicated that theirs was between Gh₵500-700. The study, therefore, revealed 21.9% of the respondents involved in the study had monthly income level less than Gh₵200 while only a handful (13.4%) had monthly income level between Gh₵1000-3000.

Table 9- *Level of Monthly Income of Respondents*

Income level	Frequency	Percent (%)
Less than GH₵200	44	21.9
GH₵200-400	34	16.9
GH₵500-700	16	8.0
GH₵800-1000	31	15.4
GH₵1000-3000	27	13.4
Not applicable	49	24.4
Total	201	100.0

Source: Field survey

Research Question One: What is the level of knowledge of diabetes patients on diabetes?

Research Question one sought to find out from respondents their knowledge on diabetes. The question was assessed on a 5-point Likert scale (ranging from 1-5). For the interpretation of the means, the following cut-off-points were used (1-1.5 = strongly disagree, 1.5-2.5 = disagree, 2.5–3.5 = neutral, 3.5–4.5 = agree and 4.5–5 = strongly agree). The knowledge of diabetes patients on diabetes was assessed on the following sub scale: pathology of diseases, screening risk factors of diabetes, symptoms and complications of diabetes, treatment and self-management of diabetes and monitoring of diabetes. Table 10 showed the level of knowledge of diabetes patients on diabetes disease.

From Table 10, more than half the study participants knew the following about the general pathology of diabetes; diabetes been a condition of high blood sugar, insulin regulating blood sugar, and diabetes been non contagious. However, less than half the study participants were aware of the following; diabetes been a condition of lack of insulin and insulin been a hormone produced in the pancreas. The mean percentage of the study participants who had knowledge on the general pathology of the disease was 61.6% and 38.4% was recorded for the participants who did not have in-depth knowledge on the general pathology of diabetes.

On the knowledge of screening risk factors of diabetes, the study revealed that more than 60% of respondents were aware of the risk factors of diabetes such as family history, obesity, pregnancy and age more than 35 years. The mean percentage of the participants who had knowledge on the risk factors was

recorded to be 63.9 and for the participants who did not have in-depth knowledge to be 36.1.

From table 10, the study revealed that more than half of the respondents had knowledge on symptoms and complications of diabetes such as retinopathy, slow wound healing, neuropathy, high blood pressure, erectile dysfunction, thirst and diabetic foot. The mean percentage of the participants who had knowledge was recorded as 83.8 and that of those who did not have in-depth knowledge to be 13.3.

Higher percentages were scored on all the sub scales measuring the knowledge of diabetes patients on treatment and self-management practices. For instance, 89.0% agreed with the statement that oral tablets were used for the treatment of diabetes and also that good weight control was necessary in controlling diabetes. The greatest percentage score was 93.6% and it stated that diabetes patients should not consume alcohol and also not smoke. The mean percentage score of the participants who had knowledge on the treatment of diabetes was recorded as 83.2% and that of those who did not have in-depth knowledge to be 16.8%.

Last but not least, table 10 revealed that respondents had very good knowledge on monitoring of diabetes. This is because higher percentages were scored on all the sub-scales. The highest score (80.1%) was on the fact that diabetes patients should undergo glucose and BP monitoring. However, 75.2% of the study participants agreed that it is important for diabetes patients to do daily blood glucose level testing. The mean percentage score of study participants who

had in-depth knowledge on all the sub-scales on monitoring was recorded to be 71.6%.

Table 10- *Knowledge of Diabetes patients on Diabetes*

General knowledge on pathology of diabetes	Agree		Neutral		Disagree	
	Freq	(%)	Freq	(%)	Freq	(%)
Diabetes is a condition of high blood sugar.	166	82.6	23	11.4	12	6.0
Diabetes is a condition of lack of insulin.	100	49.8	89	44.3	12	6.0
Insulin is a hormone which is produced in pancreas.	97	48.3	96	47.8	8	4.0
Insulin regulates blood sugar.	112	55.7	82	40.8	7	3.5
Diabetes is non-contagious.	144	71.6	35	17.4	22	11.0
Mean percentage		61.6		32.3		6.1
Knowledge of screening risk factors of diabetes						
Family history of diabetes mellitus	137	68.2	35	17.4	29	14.5
Age35 years	124	61.7	47	23.4	29	14.4
Obesity	129	64.2	43	21.4	29	14.5
Pregnancy	124	61.7	59	29.4	18	9.0
Mean percentage		**63.9**		**22.9**		**13.2**
Knowledge on symptoms and chronic DM complications						
Thirst	184	91.5	14	7.0	3	1.5
Kidney problems e.g. Frequent urination	192	95.5	3	1.5	6	3.0
Retinopathy e.g. Blurred vision leading to blindness	190	94.5	9	4.5	2	1.0
Slow healing of cuts and wounds	170	84.6	22	10.9	9	4.5
Neuropathy	169	84.1	26	12.9	6	3.0

Table 10 continued

Diabetic foot (e.g. decaying limbs requiring surgical removal)	150	74.6	45	22.4	6	3.0
High blood pressure or peripheral vascular disease	162	79.1	29	14	13	6.5
Erectile dysfunction	134	66.7	65	32.3	2	1.0
Mean percentage		**83.8**		**13.3**		**2.9**
Knowledge of treatment and self-management of diabetes						
Insulin injections is used for treatment	151	75.1	41	20.4	9	4.5
Oral tablets are also available for treatment	179	89.0	13	6.5	9	4.5
Diabetes patients should carry sweets when they are out	156	77.6	23	11.4	22	11.0
Good weight control is necessary in diabetes control	179	89.0	18	9.0	4	2.0
Regular eye check-up is necessary	165	82.1	32	15.9	4	2.0
Diabetes patients should not consume alcohol and not smoke	188	93.6	13	6.5	0	0.0
Diabetes patients should not donate blood	152	75.6	41	20.4	8	4.0
Diabetes patients should not skip meals even when busy	178	88.6	20	10.0	3	1.5
Regular exercise reduces the need for diabetic medications	157	78.1	28	13	16	8.0
Mean percentage		**83.2**		**12.6**		**4.2**
Knowledge of monitoring						
The desirable level of blood sugar for diabetes patients is at or below 6.6 mmol/L.	146	72.7	47	23.4	8	4.0
Diabetes patients should do blood glucose and BP monitoring.	161	80.1	32	15.9	8	4.0

Table 10 continued

Diabetes patients should do urine test for protein	117	58.2	71	35.3	13	6.5
Daily blood glucose level testing is very important.	151	75.2	24	11.9	26	13.0
Mean percentage		**71.6**		**21.6**		**6.8**
Overall mean percentage		**72.8**		**20.5**		**6.7**

Source: Field survey

Research Question Two: What attitude do diabetes patients have towards diabetes?

Research question two sought to find out from respondents their attitude towards diabetes. The question was assessed on a 5-point Likert scale (ranging from 1-5). For the interpretation of the means, the following cut-off-points were used (1-1.5 = strongly disagree, 1.5+-2.5 = disagree, 2.5+–3.5 = neutral, 3.5+–4.5 = agree and 4.5+–5 = strongly agree). Table 11 showed the attitude of diabetes patients on diabetes.

The participants' attitude was tested on sub-scales. The average score (84.4%) indicated they had positive attitude. The sub-scale that scored the highest (93.0%) was the one that tested patients believe on following doctor's advice on what to eat. It was followed by 92.6% which was on controlling what to eat. Ninety two percent (92%) also asserted the importance of not eating sugar and 90.6% believed they needed to eat more vegetables. The lowers score on the attitude scale was 63.7% which tested participants believe on how diabetes affected their life.

Table 11- *Attitudes of Diabetes patients on Diabetes*

Attitude	Agree		Neutral		Disagree	
	Freq	(%)	Freq	(%)	Freq	(%)
…diabetes does not affect my life at all	128	63.7	9	4.5	64	31.8
…I am good as others despite my diabetes	155	77.0	15	7.5	31	15.5
…I need to have a tight control of glucose monitoring	179	89.0	8	4.0	14	7.0
…I need to be the core decision maker concerning diabetes self-management practices	174	86.6	17	8.5	10	5.0
…type 2 diabetes is a serious disease	144	71.6	49	24.4	8	4.0
…i need to control what I eat; have to say no to a lot of foods; can't eat certain things	186	92.6	10	5.0	5	2.5
…I should eat less sugar; important not to eat sweets	185	92.0	9	4.5	7	3.5
…Am Not supposed to eat white bread (ordinary bread); ''bad foods''	176	87.4	15	7.5	10	5.0
…I should follow doctors' advice about what to eat	187	93.0	8	4.0	6	3.0
…I need to eat more vegetables, salads, less fattening foods	182	90.6	12	6.0	7	3.4
Mean percentage		**84.4**		**7.6**		**8.0**

Source: Field survey

Research Question Three: What are the perceived barriers of diabetes patients towards Self-Management Practices?

Research question three sought to find out from respondents the perceived barriers towards self-management practices. To answer research question three, the respondents were made to answer a 10 item questionnaire constructed on four point Likert scale ranging from "Strongly Agree (1), Agree (2) Disagree (3) and Strongly Disagree (4)''. The responses were then categorized into two main divisions: ''Agree'' and ''Disagree''. The analysis of the responses was then presented in a frequency and percentage table. The data of responses on research question 3 is presented in Table 12.

Four out of the ten subscales testing the perceived barriers of diabetes patients toward diabetes management scored slightly above average. They were multiplicity of cultures (53.3%); Lack of human and material resources (54.2%), insulin treatment (53.2%), and finally inability to afford treatment (51.2%). Scores indicating agreed to the rest of the six subscales as barriers were below average. They were multi dosage of drugs (48%), lack of English proficiency (44.8%), lack of family support (46.2%), insufficient knowledge of health care providers (37.8%), and finally expensive diabetic diet (38.3%).

Table 12- *Perceived Barriers towards Diabetes Management*

Barriers	Agree		Disagree	
	Freq	(%)	Freq	(%)
Multiplicity of cultures	107	53.3	94	46.7
Lack of resources .e.g. human and material	109	54.2	92	45.8
Drugs taken more than once in a day	98	48	103	51.3
Insulin treatment	107	53.2	94	46.8
Lack of English proficiency	90	44.8	111	55.2
Inability to afford treatment for diabetes	103	51.2	98	48.8
No support in the management of diabetes	93	46.2	108	53.8
Insufficient knowledge of health care providers on diabetes.	87	43.3	114	56.7
Unfriendly health care providers	76	37.8	125	62.2
Expensive diabetic diet	77	38.3	124	61.7
Mean percentage		**47.1**		**52.9**

Source: Field survey

Research Question Four: What are the services provided at the diabetic clinics?

Research question four sought to find out from respondents the services provided at the diabetes patients clinics. The responses were scored dichotomously as Yes = 1, No = 2 and 3 = No idea. The analyses of the responses were then presented in a frequency and percentage Table. The data of responses on research question four was presented in Table 13.

Most of the study participants agreed to some services that were provided at the various diabetic clinics. They were education on how to prevent complications of diabetes (93.5%) and health care providers giving patients prescriptions (90.5%). The next highest score was on giving of feedback to

patients on their performance (83.1%). However, less than average number of the participants (41.8%) agreed they were given check list on diabetes self-care management. Averagely, 74% agreed that the services listed were provided at their various diabetes clinics. On the whole, the study revealed that diabetic's clinics provide a lot of services to their patients or diabetic patients.

Table 13- Services provided at Diabetes patients Clinic

Services	Yes		No		No idea	
	Freq	(%)	Freq	(%)	Freq	(%)
Am given education on how to prevent the complications of diabetes	188	93.5	10	5.0	3	1.5
I am given prescription by my health care provider	182	90.5	17	8.5	2	1.0
I spend at most 10 -15 minutes with my health care provider	152	75.6	45	22.4	4	2.0
The clinic provides me with a reminder system on my self-management practices	133	66.2	66	32.8	2	1.0
I am provided with a check list on my self-care	84	41.8	100	49.8	17	8.5
The clinic gives me feedback on my performance on diabetes management	167	83.1	31	15.4	3	1.5
The clinic gives education on foot care	137	68.2	58	29.9	6	3.0
Mean percentage		**74.0**		**23.4**		**2.6**

Source: Field survey

Research Question Five: What is the extent of self-management practices of diabetes patients?

Research Question five sought to find out from respondents their self-management practices of diabetes. The self-management of diabetes is assessed on the following sub scale: medication, nutrition, monitoring of blood sugar, foot care and exercise. Respondents were to indicate 'does not apply to me' or 'it applies to me' to show how they practice their self-management activities. Table 14 shows the self-management practices among the diabetes patients.

From table 14, the highest score on medication subscales was 94% which indicated that participants adhered correctly to their medication regimen. Eighty nine percent of the participants indicated they never missed their medications, they followed their drugs instructions correctly and that they were taking their drugs for life. Eighty eight percent ot the participants asserted they do not stop taking their medications even when they felt better. Averagely, 89.8% of the respondents adhered correctly to their medications.

Scores on nutrition subscales indicated that 87% of the participants indicated the following; reduced intake of sugar, ate smaller quantities at frequent intervals and ate more fruits and vegetables. Eighty five ate less fatty foods and 81% took more soup. Comparatively, the lowest score (70%) indicated they did not drink alcoholic beverages. On the average, 80% of the study participants adhered correctly to nutrition practices.

On the monitoring of blood sugar level, lower scores were obtained. Thirty one percent of the participants monitored their blood glucose level on their

own. Twenty nine percent possessed a glucose meter. Twenty five percent monitored their blood glucose level more than ones weekly whiles 36% monitored before and after every planned activity. Averagely, 30% of the participants adhered to correct practices of blood glucose monitoring.

On foot care, 64% of the study participants which represented the highest score indicated that participants dried their feet after washing. Sixty one percent examined their feet regularly for abnormalities. The scores on some of the sub scales were below average. For instance, 37% of the participants cutting their nails by the help of others, 39% wearing closed foot wear, 43% using socks without rubber material and 44% wearing clean socks. On the whole, barley above average (51.8%) of the participants adhered to correct foot care practices.

On exercise subscales, participants scored higher percentages. Seventy four percent said exercise was a priority, 78% preferred walking as exercise, 69% exercised every day, 70% exercised at least twice weekly and finally 67% exercised 20-30 minutes per day for at least three days in a week.

Table 14-*Self-management practices*

Medication	Does not apply to me		Applies to me	
	Freq	(%)	freq	(%)
I adhere correctly to my medication regimen	13	6	188	94
I never missed a single dose of medication in the past week	22	11	179	89
I am taking my diabetic drugs for life	22	11	139	89
Instructions about my drugs are followed strictly	23	11	178	89
I don't stop taking my medication when I feel better	24	12	177	88
Mean percentage		**10.2**		**89.8**
Nutrition				
I eat less/no white bread (ordinary bread)	42	21	159	79
I eat less fatty foods, including bacon, ''meat''; use less fat	30	15	170	85
I reduce intake of sugar and sweets (cookies, cakes)	27	13	174	87
I eat more frequently, but smaller portions	47	13	154	87
I eat more fruits and vegetables	27	13	174	87
Drink more soup	39	19	162	81
I eat on a schedule	53	26	148	74
I have never eaten food forbidden by diabetes patients	60	30	141	70
I do not drink alcoholic beverages	60	30	141	70
Mean percentage		**20**		**80**
Monitoring of blood sugar				
I monitor my own blood glucose level	137	69	62	31
I have a glucose meter myself	143	71	58	29
I monitor my blood sugar level more than once every week	151	75	50	25

Table 14 continued

I do measure my blood glucose level before and after every planned activity	129	64	72	36
Mean percentage		**69.8**		**30.2**
Foot care				
I regularly examine my feet for abnormalities	78	39	123	61
I do not add detergent to the water I use to wash my feet	81	40	120	60
I dry my feet thoroughly following washing	73	36	128	64
I lubricate my feet following washing	92	46	109	54
I use blunt instrument to clean under my nail	87	43	114	57
I cut my nails by the help of others	126	63	75	37
I wear a foot wear that is closed to protect my feet	122	61	79	39
I make sure I do not walk barefooted	82	41	119	59
The socks I use do not have rubber material in them	115	57	86	43
I change my socks every day/wear clean socks every day	112	56	89	44
Mean percentage		**48.2**		**51.8**
Exercise				
Exercise is a priority to me	52	26	149	74
Walking is my preferred exercise	44	22	157	78
I exercise every day	63	31	138	69
I exercise at least twice a week	60	30	141	70
I exercise 20-30 minutes per day for at least three days in a week	67	33	134	67
Mean percentage		**28.4**		**71.6**
Over all mean percentage		**35.3**		**64.7**

Source: Field survey

Hypothesis One

H_0: There is no statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices.

H_1: There is a statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices.

Research hypothesis one sought to find out whether there is a statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices. The Pearson Product Moment Correlation was used to test the relationship as presented in Table 15 below.

From Table 15, the result showed that there was a significant relationship between diabetes patients knowledge on Diabetes and Self-Management Practices, $r = .279$, p (2-tailed) $< .05$. Therefore, we reject the null hypothesis. This means that diabetes patients' knowledge on Diabetes has a relationship with Self-Management Practices.

Hypothesis Two

H_0: There is no statistically significant relationship between diabetes patients' attitude on diabetes and self-management practices.

H_1: there is a statistically significant relationship between diabetes patients' attitude on diabetes and self-management practices.

Research hypothesis two sought to find out whether there was a statistically significant relationship between diabetes patients' attitudes on diabetes and self-management practices. The Pearson Product Moment Correlation was used to test the relationship as presented in Table 15 below.

From Table 15, the result showed that there was a significant relationship between diabetes patients attitudes to Diabetes and Self-Management Practices, *r* =.304, *p* (2-tailed) < 05. Therefore, we reject the null hypothesis. This means that diabetes patients' attitude to Diabetes has relation with Self-Management Practices.

Table 15- *Pearson Product Movement Correlation of Diabetes patients' knowledge and attitudes on Diabetes and Self-Management Practices*

		Knowledge	Management
Knowledge	Pearson Correlation	1	.279
	Sig. (2-tailed)		.000
	N	201	201
Management	Pearson Correlation	279	1
	Sig. (2-tailed)	.000	
	N	201	201
		Attitudes	**Management**
Attitudes	Pearson Correlation	1	.304
	Sig. (2-tailed)		.000
	N	201	201
Management	Pearson Correlation	.304	1
	Sig. (2-tailed)	.000	
	N	201	201

*Significant (P<0.05)

Hypothesis Three

H_0: There is no statistically significant effect of demographic factors on self-management practices.

H_1: There is statistically significant effect of demographic factors on self-management practices.

Hypothesis three sought to find out from respondents whether demographic factors affected self-management practices. The regression analysis was used to test the effect.

From Table 16, It is therefore, worth noting that there is no significant effect of demographic factors on self-management practices since the p values for all the demographic factors were greater than 0.05. Hence, one fails to reject the null hypothesis.

Table 16- *Effects of Demographic factors on Self-Management Practices*

Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	89.506	7.483		11.960	.000
	Age	1.163	1.510	.056	.771	.442
	Sex	2.988	2.133	.104	1.401	.163
	Marital Status	.777	.867	.065	.897	.371
	Education	-.292	.801	-.030	-.364	.716
	Occupation	-1.334	.956	-.119	-1.396	.164
	Religious aff.	.751	1.319	.043	.569	.570
	Duration of Diabetes	.257	.457	.041	.563	.574
	Monthly income	-.531	.466	-.089	-1.140	.256

Dependent Variable: Self-Management Practices

Hypothesis Four

H_0: There is no statistically significant difference between the selected hospitals and self-management practices.

H_1: There is a statistically significant difference between the selected hospitals and self-management practices.

From the one-way ANOVA Table 17, the Sig. value of .014 is less than the p. value of 0.05 therefore; there are significant differences between means of the District Hospitals in terms of Self-Management Practices. Hence, a Post Hoc tests would be conducted to find out which pairs of means are statistically different. From table 17, the mean difference between the management of diabetes patients receiving care at Wa regional hospital and those receiving care at Lawra district hospital was 8.86635 as indicated on table 21. This implied those diabetes patients who received care at the Wa regional hospital managed themselves better than diabetes patient who receive care at Lawra district hospital. This could be as a result of patients at Wa regional hospital receiving proper education as compared to those at Lawra district hospital.

Table 17- ANOVA and multiple comparison

Group	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1512.206	2	.756.103	4.344	.014
Within Groups	34466.550	198	174.073		
Total	**35978.756**	**200**			

	(I) District	**(J)District**	**Mean Difference (I-J)**	**Std. Error**	**Sig**
Tuckey HSD	Wa	Lawra	8.86635	3.01085	.010
		Nandom	1.46050	2.71472	.853
	Lawra	Wa	-8.86635	3.01085	.010
		Nandom	-7.40584	3.75890	.122
	Nandom	Wa	-1.46050	2.71472	.853
		Lawra	7.40584	3.75890	.122
Games-Howell	Wa	Lawra	8.86635	3.18545	.026
		Nandom	1.46050	2.53019	.833
	Lawra	Wa	-8.86635	3.18545	.026
		Nandom	-7.40584	3.77117	.134
	Nandom	Wa	-1.46050	2.53019	.833
		Lawra	7.40584	3.77117	.134

The mean difference is significant at the 0.05 level.

Discussion of Research Findings

The purpose of this study was to assess the relationship between knowledge and attitudes of diabetes patients who received care at the government hospitals in the Upper West Region and their self-management practices. The discussion of this study was done based on the research questions and hypothesis.

Research question one sought to investigate the level of knowledge of diabetes patients on diabetes. The assessment was done on five major domains, namely; pathology of diseases, screening risk factors, symptoms and chronic DM complications, treatment and self-management, and monitoring. For the sake of better discussion and understanding, the following ratings were used by the researcher in articulating the findings of this research and comparing them to the findings of other researches. A score of 80%-100% (4.0) is interpreted excellent, 75%-79% (3.5) very good, 70%-74% (3.0) good, 65%-69% (2.5) very satisfactory, 60%-64% (2.0) satisfactory, 55%-59% (1.5) very fair, 50%-54% (1.0) fair and finally 0-49% (0.0 unsatisfactory. The findings are discussed below;

It is worth noting on the general knowledge on pathology of diabetes that respondents had satisfactory knowledge considering the mean percentage of 61.6%. The findings of this research that majority (82.6%) of the participants knew that diabetes is a condition of high blood sugar, and another majority (49.8%) asserting that diabetes was a condition of lack of insulin is in conformity with Yun et al., (2007) who also found out that majority of their study participants agreed with that same point.

Comparatively the study participants have a higher knowledge (48.3%) as compared to that of Yun et al., (2007) which is 27.5% on the item that insulin is a protein hormone which is produced in the pancreas. The group found out that 60.8% of their study participants had the knowledge that insulin regulates blood sugar as compared to 55.7% of the participants of this research who agreed to the same point. A greater percentage (71.6%) of the study participants agreed that diabetes was non-contagious as compared to 90% of participants by Yun et al., (2007).

In general, a mean percentage for knowledge on pathology was 61.6% which was satisfactory. However, participants still need to be educated on this domain of pathology of the disease. Much attention was needed in the areas of diabetes being a condition of lack of insulin and insulin being a protein hormone which is produced in the pancreas where participant's knowledge level was unsatisfactory. The same is required also in the area of insulin regulating blood sugar where they have just a fair knowledge. The level of knowledge in the above areas may have had to do with improper translation of insulin into local dialect since majority of the study participants (37.3%) had no formal education and 21.4% had just primary education. It also indicated that less than half (41.3%) of the study participants attended secondary school and beyond.

The next domain on the knowledge scale was screening risk factors. According to the findings, majority of the participants (68.2%) agreed to the fact that family history of diabetes mellitus is a risk factor as compared to 88.3% of study participants conducted at North Malaysia by Yun et al., (2007). The group

also asserted that 88.3% of their study participants had knowledge on age greater than 35 years as a risk factor and 85.8% on obesity as a risk factor. Comparing to this study, 61.7% of the respondents also have knowledge on age greater than 35 years as a risk factor and 64.2% of participants agreed with obesity also been a risk factor respectively. Finally 61.7% of participants agreed to the statement that pregnancy is a risk factor as against 74.2% of Yun et al., (2007). The mean percentage score for knowledge on screening risk factor is 64.0 which indicated satisfactory knowledge. However the knowledge level of the participants is low compared to the findings of Yun et al., (2007). It presupposed that participants needed more education to increase their level on screening risk factors.

The third domain on the scale is investigating their knowledge level on symptoms and chronic complications of Diabetes. According to Yun et al.,(2007) 77.5% of the participants knew that thirst is a symptom of diabetes, 95.8% had knowledge on kidney problems and frequent urination, and 96.7% had knowledge on blurred vision as a symptom of diabetes. Similar findings were revealed in this study where 91.5% of the study participants agreed with thirst as a symptom, 95.5% agreed on kidney problems and frequent urination and 94.5% on blurred vision. The study revealed 84.6% of participants asserted diabetes causing slow healing of wounds. It was revealed that 84.1% of the participants knew that neuropathy such as tiredness and weakness were symptom of diabetes, and 74.6% of the study participants agreed that diabetic foot is a complication of diabetes. Comparing these findings to that of Yun et al., (2007), 96.7% asserted that diabetes could cause slow wound healing, 98.3% neuropathy and 95.8% diabetic

foot respectively. The group also found out that 92.5% of their study participants agreed on high blood pressure as a complication of diabetes as compared to 79.1% of the study participants who agreed on the same point. Sixty six point seven percent (66.7%) of the study participants agreed that erectile dysfunction is a complication of diabetes.

The respondents in this research have a mean percentage of 83.8 indicating excellent knowledge on the symptoms and complications of diabetes. This high level of knowledge may be due to the fact that most of the participants experience one or more of the symptoms or complications. Once respondents have excellent knowledge, it is expected that they will exhibit good self-care practices to minimize or prevent the occurrence of these symptoms and complications.

The fourth domain on investigating the knowledge was on treatment and self-management. Seventy five point one percent (75.1%) of the study participants had the knowledge that insulin injection was used for treatment and 89% of the respondents agreed that oral tablets are also available for treating diabetes. The percentage on insulin injection was low as compared to the findings of Yun et al., (2007) which indicated 85% for the same item. The group's finding does not conform to that of this study because they did not agree to oral tablets been available for treatment; they explained that they have been on insulin injection since the diagnosis. Furthermore, 77.6% of the participants of this study agreed to the fact that diabetes patients should carry sweets when they are going out of their houses as compared to 45% of the study participants of Yun et al., (2007). They

also recorded a similar percentage (95.8%) as compared to 89% of the study participants who agreed that good weight control was necessary in controlling diabetes. The group further added that exercise plays an important role in controlling weight. Participants demonstrated an excellent knowledge when 82% indicated that regular eye checkup was necessary for diabetes. This confirmed the score (94.5%) participants had, demonstrating that they knew that blurred vision could be a complication of diabetes. An excellent knowledge was equally demonstrated among the study participants by Yun et al., (2007) where 96.7% affirms the necessity of regular eye examination. When it comes to alcoholism and smoking, participants of this study and those of Yun et al., (2007) have showed excellent knowledge. Ninety three point six percent (93.6%) and 100% respectively agreed that diabetes patients should not take in alcohol and neither should they smoke.

However the study participants by Abu-Qamar, (2014) had a lower knowledge score as compared to the findings of this study when 79.7% of them agreed that diabetes patients should not smoke. He further explained that smoking could reduce blood supply to the foot. Ninety four percent (94%) of participants in another study said smoking was a risk factor of diabetes and that diabetes patients who were engaged in smoking could worsen their disease (Jackson et al, 2014). A very similar level of knowledge was demonstrated by the findings of this study (75.6%) and 78.3% for that of Yun et al., (2007) on blood donation. It was agreed that diabetes patients should not donate blood. Eighty eight point six percent (88.6%) of the study participants scored excellent knowledge level when

they agreed that diabetes patients should not skip meals even when busy. Comparatively, the findings of this study on the level of knowledge was graded lower since 60% of them agreed that diabetes patients should not skip meals even when busy which could be due to inadequate education on eating habits. The level of knowledge of the participants of this study (78.1%) on regular exercise reducing the need for diabetic medication was high compared to the study findings of Jackson et al., (2014). The group observed that, 44% of participants of a research study conducted in Nigeria indicated engaging in regular exercise reduced the need for insulin and other medications.

In general, the study participants of this study had an excellent knowledge on treatment and self-management practices of diabetes. They scored a mean percentage of 83.8%. This knowledge level of the study participants need to be maintained or improved to enhance adherence to proper self-management practices. The overall mean percentage of this domain is higher than the overall score of 79.5% knowledge on self-management practices of a research conducted at Nigeria (Adibe et al., 2014). This could be due to persistent education at the various diabetes clinics in the region.

The fifth domain seeks to investigate knowledge on monitoring. The study participants of this research have shown that their knowledge level on monitoring is very good. This research revealed that 72.7% of the respondents agreed that the desirable level of blood sugar for diabetes patients is at or below 6.6mmol/L. Comparatively Yun et al., (2007) scored poorly (40%) on the same scale of blood glucose level. Majority (80.1%) of the study participants agreed that blood

glucose and BP monitoring by diabetes patients was very important. This exhibited an excellent knowledge. The few of them (19.9%) who did not agree to this point asserted that, a person did not need testing when feeling well without symptoms. Though participants in this study have shown an excellent level of knowledge, all the study participants (100%) of Yun et al., (2007) had asserted to that fact. Seventy five point two percent (75.2%) of the study participants agreed that daily blood glucose level testing was very important. However, a fair knowledge was found in a study conducted by Phillips et al., (2012) in Malmesbuny, South Africa when just a little above half of the respondents (53%) agreed that daily glucose testing was very important which could be due to inadequate health education on glucose monitoring.

The level of knowledge demonstrated by the participants of this study was very encouraging since it would enhance appropriate monitoring of blood glucose level. This would further enhance better management of diabetes to curtail the several unpleasant symptoms and complications. Concerning testing of urine protein by diabetes patients, a fair knowledge was demonstrated by the study participants when 58.2% of them agreed that diabetes patients should do urine test for protein. This fair knowledge of the study participants may be due to the fact that they were not asked to undergo such test and also the difficulty in explaining what protein test was in the local dialect since most of them do not understand English. Lack of proper understanding by participants on what urine test for protein was, had led to a greater number of them (35.3%) being neutral. It could also be as a result of urine testing not being part of routine care in the clinics. On

the contrary, an excellent knowledge was demonstrated among participants of a study by Yun et al., (2007) where 81.7% of them agreed that diabetes patients should undergo urine testing for protein because it was part of their routine care.

In conclusion, the mean score of knowledge of the study participants on monitoring was 71.6% indicating a very good level of knowledge. This however contradicts the findings of Arden et al., (2010) where a poor level of knowledge (24%) on self-monitoring was demonstrated among study participants as a result of lack of knowledge on the importance of monitoring.

Research question two sought to examine the attitude of diabetes patients toward diabetes. The finding of this study revealed that a greater percentage (63.7%) of participants have positive attitude and asserted that diabetes did not affect their life at all. According to the health promotion model proposed by Nola Pender, the attitude of a person affects his/her description to engaging in a health behavior (Pender et al., 2006). It was expected that once most of the study participants had positive attitude, they should be able to practice proper self-management activities to live a normal life. A similar finding of positive attitude was seen when a research was conducted by Chen et al., (2012). It was found out that 78.5% of the participants who had positive attitude asserted diabetes did not affect their life at all. Majority of the participants (77%) demonstrated a positive attitude when they agreed that they were as good as others. This attitude would lead to them engaging in a health promoting behavior. The finding of this study was in accordance with that of Chen et al., (2012). It was revealed in their study conducted among remission of patient of diabetes at the base line that 87.7% of

the respondents equally felt they were as good as others. With the issue of tight control of glucose level and monitoring, a greater percentage (89) of participants demonstrated a positive attitude.

The finding of this study contradicted that of Arden et al., (2010). Their findings revealed that just a few of the participants could justify the benefit of tight control of blood glucose whilst majority (90%) of them demonstrated a poor attitude due to inadequate education on the disease. The positive attitude found among the majority of the participants in this study was a positive predictor for adhering to proper self-management practices. According to the findings of this study majority of the participants (86.6%) agreed that they needed to be the core decision makers concerning diabetes self-management. On the other hand, a greater percentage (62%) of study participants in San Juan, Philippines conducted by Arden et al., (2010) revealed a negative attitude when they did not agree to be the core decision makers of the management of their condition. Adherence to a health promoting behavior by a client rests much on him or her. It was therefore a good finding that participants wanted to take lead in decision making concerning their health. Majority (71.6%) of the study participants noted type 2 diabetes was a serious disease. This attitude would help diabetes patients to pay more attention to their self-management practices. The effect of this attitude became evident when majority (63.7%) of the participants asserted that diabetes did not affect their life. In further explaining the effect of diabetes on participants, Garcia et al., (2007) stated that 6% of their study participants noted life was the same with diabetes whilst 8% indicated life was rather better with diabetes. In explaining

how better life was with diabetes, they cited changes in their life such as losing weight and learning how to eat healthy foods. Ninety two point six percent (92.6%) of the study participants agreed that they needed to control what they ate and say no to a lot of foods. A lower percentage of score (30%) was obtained for the same item when Shultz et al., (2009) conducted a study among diabetes patients to assess their beliefs about diet. The findings of this study may be due to the education given to them at the various clinics to avoid certain foods. According to the findings of this study, 92% of the research participants agreed that they should not eat sweets and that they should eat less sugar. A lower score was obtained when 20% of study participants by Shultz et al., (2009) stated that diabetes patients should eat less sugar and not to eat sweet. The higher percentage of the finding is because diabetes patients are educated not to take in sugar.

According to Shultz et al., (2009) 20% of study respondent believed that white bread such as tea bread, butter bread and sugar bread was bad food and not supposed to be eating by diabetes patients. By extension, they indicated that 80% of the participants do not believe that white bread should not be eaten by diabetic patients. The findings of the group contradicts that of this findings in a sense that a higher percentage (63.7%) indicated that they are not supposed to eat white bread. This was as a result of education at the clinic levels. This research revealed that most (93%) of the respondents of this study agreed that they should follow doctor's advice on what to eat. Participants explained their thought by saying that doctors have in-depth knowledge about the condition and know what was good for them. These findings were replicated by Shultz et al., (2009) when 100% of

the participants indicated they believed that diabetes patients needed to follow doctor's advice. On eating of more vegetables, salads, and less fattening foods, majority (90.6%) of the participants of the study indicated that it was a good practice for diabetes patients. A higher percentage was equally recorded by Shultz et al (2009) when it was revealed that 100% of the research respondents agreed that diabetes patients should eat more vegetables, salads and less fattening foods.

The mean percentage score of this study on the attitudes of diabetes patients on the management of diabetes was 85.3%. The mean percentage indicated an excellent attitude among the diabetic patients. Hence study participants would adhere to any event that would enhance their life. According to the Health Promotion Model by Nola Pender, the positive attitude of the study participants of this research may have its source from family members, peers or health care providers (Pender, et al., 2006 & Petiprin 2016). Furthermore, they said that the attitude of a person affects his/her predisposition to engage in health promotion behaviors. The positive attitude of participants of this study was therefore a determinant for adherence to a health promotion behavior.

Research question three aims at investigating the perceived barriers of diabetes toward self-management practices. This research revealed that a little above half of the study respondents (53.3%) saw multiplicity of cultures and languages in the Upper West Region to be a barrier to proper self-management practices. In explaining why this served as barrier, some of the participants especially those who did not come from the Upper West Region claimed they did not get the food stuff that they wanted in the market. Some who neither

understood English or Dagaare complained they found it difficult to understand the educational lectures at the clinics. Patients, who wished to practice proper self-management, tend not to be able to do so because of these barriers. Fifty four point two percent (54.2%) of the respondents also agreed that they were experiencing lack of human and material resources. This serves as a barrier to their self-management practices. Inadequate space for the clinic, lack of glucometer strips and unavailability of diabetic medications in the hospital pharmacy were some of the resources not available to them. From the table expensive diabetes medications served as barrier to most of the respondents. This is so because the diabetes medications which were covered by the NHIS were not found in the hospitals pharmacy, hence, respondents needed to buy them outside the hospitals making which is costly.

Participants also expressed their wish to have more personnel to attend to them at the clinics. Similarly, it was reported at the 3rd international DAWN summit at Florence, where barriers to a good diabetes care in India included multiplicity of cultures and languages and also lack of resources. (Wroe, 2006). It is evidenced from the findings of this research that 53.2% of the study respondents asserted insulin treatment as a barrier to their self-management practices. Participants complained of the scarcity and costly nature of insulin medications and also its storage and administration. However, insulin therapy did not serve as barriers for most people when only 27% of the study participants agreed to it as barrier (Nam et al., 2011). This may be because of ready

availability and less costly insulin therapy. It could also be due to proper education on storage and administration of insulin medication.

Inability by the study participants to afford treatment for diabetes was identified by majority (51.2%) of the study participants as a barrier to their self-management practices. They explained that diabetic medications are free under the National Health Insurance Scheme when gotten in the hospital's pharmacy. However, the constant unavailability of diabetic medication in the hospital pharmacy has compelled them to buy from other private pharmacies where they are more costly. Because of this respondents sometimes stayed without medications until they are able to get money to purchase these medications. This is evidently true when majority (53.2%) of the study participants were self-employed and most of them (24.4%) not earning money.

This study also revealed that 61.7% of the study participants disagreed that expensive diabetic diets served as a barrier to them in their self-management practices. This implied that majority of the study participants were able to afford the available recommended diet for diabetes patients. The few (38.3%) who saw diabetes patients' diet to be expensive must be given alternative diet which will enhance their adherence to the health promotion behavior of proper self-management practices.

Nam et al., (2011) agreed with the findings of this study when they said cost of diabetes patients treatment served as relevant barrier to self-management practices especially among people in the class of low socio-economic status and not registered by any health insurance scheme. In further explanation Nam et al.,

(2011) asserted that 60% of newly diagnosed patients who were not insured failed to obtain care as compared to 6% of those who were insured. To contradict findings of this study, Garcia et al., (2007) in their research study came out that just 45% of the study participants experienced more economic problems following their diet and surviving their illness.

A similar view of contradicting the findings of this research was seen when the findings of Phillips et al., (2012) revealed that majority (72%) of their study participants did not view cost of treatment as barriers to their self-management practices. This could be that, the drugs were available and affordable.

Majority of the participants (51.3%) disagreed with the statement that drugs taken more than once in a day served as a barrier to their self-management practice. The few who asserted it served as a barrier explained that, they sometimes forget and wished it could be once in a day.

The research finding of Nam et al., (2011) did not support that of this study. They found out that 64% of their study participants asserted that diabetes drugs with polytherapy regimen served as barrier to drug adherence.

A little above half of the study participants (55.2%) disagreed with lack of English proficiency as a barrier to proper self-management practice. This was so because the common languages spoken at the diabetic's clinics were English and Dagaare. Most patients who claimed lack of English proficiency was not a barrier though could not speak English got all necessary information translated in Dagaaare. However, the few (44.8%) who saw the item in question as barrier to

their self-management practices explained that, they did not understand Dagaare and could not also speak the English language well. In supporting the minority view of this study Nam et al., (2011) stated that inability for the patient to speak English was a primary barrier to self-management practices among many ethnic minority in United States to fully navigate mainstream health services

Slightly above average of the number of participants (53.8%) disagreed with the statement that lack of family support in the management of diabetes served as barrier to their self-management practices. It could be that they have a lot of family support and hence did not see it as a barrier to their management practices. However, just a few (46.2%) of the participants viewed it as a barrier. The families of such patients should be involved in the management process to earn their support. Nam et al., (2011) presented a varied view on the effect of family support on adherence to proper management practices. They conducted a study which revealed that spousal involvement in weight reduction regimen for diabetic patients yielded a negative impact for obese men and positive for obese women. It implied that the effect of family support was dependent on the sex of the client

Fifty six point seven percent (56.7%) of the study participants debunked the statement that insufficient knowledge of health care providers on diabetes served as barrier for them in their self- management practices. This did not serve as a barrier probably because they had knowledgeable medical officers and nurses at the clinics to give them what they needed.

According to Nam et al., (2011) clinicians' inadequate knowledge on managing diabetes was a significant barrier to better self- management practices. However, the finding of this study showed that participants were more likely to adhere to proper self-management practices with knowledgeable medical officers, nurses and other staff.

Again, majority (62.2%) of the study participants did not see unfriendly health care providers serving as barriers to their self-management practices. This was because most diabetes patients felt that the health care providers at their clinics were friendly. The findings could also be as a result of conducting the study at the hospital. This finding meant it was more likely most participants of this study would practice health promotion behaviors to better their diabetes. This support Nam et al., (2011) who said friendly provider-patient relationship is a good predictor of better diabetes self-management practices.

In conclusion majority (52.9%) of the study participants refuted most of the perceived barriers to their self-management practices. Hence most diabetes patients did not have barriers to self-management practices. This was a positive predictor to complying with a health promoting behavior. However, the few who had barriers to their self-management practices indicated multiplicity of cultures and languages, lack of human and material resources, insulin treatment and finally inability to afford treatment for diabetes.

According to Pender et al., (2006) barriers were often viewed as mental blocks, hurdles and personal cost of understanding a given behavior. It arouses motives of avoidance and had been consistently found to affect a person's

willingness to engage in a behavior. Hence, the 47.1% of participants of this study would have the motive of avoiding a health promoting behavior in order not to engage in it .Pender et al., (2006) added that when a person's barriers were low, his or her readiness to act was high; hence action was likely to occur. Most of the study participants (52.9%) have their barriers to be low, high readiness to act hence will likely take action to practice health promoting behavior.

Research question four sought to examine the services that were provided at the diabetic clinics in the various hospitals. The study findings indicated that majority (93.5%) of the respondents were given education on how to prevent the complications of diabetes. Phillips et al., (2012) reported similar findings when 60% of their study participants were provided with enough information about the possible effect of diabetes on the eye.

Majority (90.5%) of the study participants asserted they took prescription of medications at the clinics. The few diabetes patients who did not take their prescription at the clinics did so in the consulting rooms. This finding was similar to Nam et al., (2011) where primary care provider writes prescription for diabetes patients. In further affirmation of the study findings 83% of the respondents of a research study reported they were given specific education about their medicines when they were prescribed. (Dunning & Mamias, 2005).

The finding of this study showed that majority of the respondents (75.6%) indicated they spent at most 10-15 minutes with their health care provider. It meant that majority of the diabetic patients were satisfied with the time spent with their health care provider. The few of the participants who disagreed with the

statement took into consideration the waiting time before seeing the nurse or medical officer. The findings was in consonance with the statement on Nam et al., (2011) where primary care provider provided all the necessary care the patient needed within 10-15 minutes.

It was evidenced that the study participants were provided with a reminder system on their self-management practices. This was affirmed when 66.2% of the research respondents agreed to the statement that the clinic provided them with a reminder system on their self-management practices. This reminder system was explained by respondents to be an exercise book in which was written the results of their FBS and next visit. According to Nam et al., (2011) provision of automated reminder services could lead to better diabetes management.

Also, majority (83.1%) of the respondents of this study indicated getting feedback on their performance on diabetes management. The feedback was in a form of telling them the level of their FBS and whether it was within the normal range or not. This was because good practices would lead to recording FBS values within normal. In supporting this finding, Nam et al., (2011) proclaimed that provision of feedback to patients could lead to better self-management practices.

Sixty eight point two percent (68.2%) of the study participants indicated receiving education on foot care. This contradicts the findings of Abu-Qamar (2014) where 75.4% of his study participants did not receive education at their clinics on foot self-care. The study revealed positive findings of foot-care. This could assist client to practice foot care to prevent foot decay and possible amputation.

Less than half the study participants (41.8%) indicated that they were provided with a check list on their self-care. Majority of the study participants may face challenges with their self-care. This supported the statement of Nam et al., (2011) where provision of check lists for diabetes patients could lead to better diabetes management.

In conclusion diabetes patients received varied services at their clinics of attendance. The majority of the study participants attested to this fact. It could benefit a lot of diabetes patients if they were given check list on diabetes symptoms and complications to serve as a guide to their self-care.

Research question five of this study sought to explore the self-management practices of diabetes patients. This was done by asking questions in five main domains, namely; medication, nutrition, monitoring, foot care and exercise. The findings on each domain were discussed below;

On medications, the study revealed that majority of the participants (94%) adhered correctly to their medication regimen. It was also found out that majority of their study participants always took their medications regularly (Abu-Qamar, 2014 & Raithatha et al, 2014). The finding however contradict that of Bruce et al., (2015) who conducted a research at Korle-bu Teaching Hospital in Ghana and found out that minority (38.5%) of the study participants adhered correctly to their medication. Most of the respondents of this study (89%) asserted they had never missed a single dose of their medication over the past week. The finding was in conformity with Raithatha et al., (2014) who asserted that majority of his study participants (68%) said they had not missed a single dose of medication

over the past week. Eighty nine percent (89%) of the study participants agreed they were taking their medication for life since the disease could not be cured. Similar findings were revealed by Jackson et al (2014), where 68% of the respondents were taking their diabetic drugs for life with the same reasons as above. Majority of the participants (89%) followed instructions about their drugs strictly, similar (86%) to finding of Jackson et al., (2014). Finally, on self-management practices on medications majority of the participants (88%) indicated that they did not stop taking their medication even when they felt better. A lesser percentage (20%) was found by Dunning and Manias (2005) where participants regularly forgot. The reasons were that they wanted to stay off medication and too busy to remember.

In conclusion, the study participants adhered to proper self-management practices concerning their medications. This showed that participants demonstrated excellent practice in this domain. Though diabetes drugs were not affordable, participants still tried to adhere to proper medication practices. This could be as a result of their high knowledge on the importance of medications in managing their disease.

On nutrition, 79% of the participants ate less/no white bread (ordinary). A lesser percentage of participants (40%) were found by Shultz et al., (2009) who ate less ordinary bread. Another majority (85%) of the participants ate less fatty food including meat. On the other hand, a lesser percentage (50%) was discovered by Shultz et al., (2009) who ate less fatty food. Eighty six percent (86%) of the study respondents reduced their intake of sugar and sweets. Comparatively just a

few of the study participants (30%) reduced their sweet and sugar intake (Shultz et al., 2009). Eating more frequently but in smaller portion applies to 86% of the study participants. Comparatively, all participants were found with that same eating habit (Shultz et al., 2009). Eighty seven percent (87%) of respondents ate more fruits and vegetables and 81% drinking more soup. According to Shultz et al., (2009) all their study participants ate more fruits and vegetables and also drank more soup. Similar finding was revealed when the study participants made mention that diabetes patients need to take in more fruits in attempt to control diabetes (Garcia et al., 2007). The findings of this study also revealed that 70% of the study participants said they have never eaten food forbidden by diabetes patients neither did they drink alcoholic beverages. Similar higher percentages were scored by Garcia et al., (2007) where 81% of participants never ate food forbidden by diabetes patients and 90% never used alcoholic beverages.

In a nutshell, the study participants of this study have demonstrated excellent practices on self-management activities on nutrition. In summary, study participants had demonstrated excellent practices on nutrition. This was evident with a mean score of 80%. This could be as a result of the presence of nutritionist in all the various facilities who are part in the education of the patients.

The next domain sought to explore how diabetes client monitored their blood sugar level. Thirty one percent (31%) of the study participants monitored their own blood glucose level. On the contrary majority (83%) of the study participant of Dunning and Manias (2005) monitored their own blood glucose level with their personal glucose meter. From the study, on table 10, 151 (75.2%)

respondents asserted that daily glucose level testing was very important; however, a little above average (58%) of the participant had their personal glucose meter. This could be linked to their financial status since 24.4% of the respondents were not on salary and 38.8% received monthly income less than GH₵400.00 Comparatively more participants (82%) in a study by Philips et al., (2002) had their personal glucose meter. On the other hand just a few people (11%) of a study owned a glucose meter (Arden et al., 2010). Similarly, 3.2% of a study participants mentioned they had personal glucose meter (Garcia et al., 2007).

Minority of the study participants (25%) monitored their blood sugar level more than once every week. Similarly, 29% of study participants measured their blood sugar level more than once weekly, lower frequency of self-monitoring of blood glucose is associated with high HbAlc. (Chen et al., 2012). Regarding measurement of blood glucose level before and after every planned activity, minority (36%) of the study participants asserted it applied to them. Similarly less than average (40%) of patients involved in a study measured their blood sugar level before and after every planned activity. Such people had personal glucose meter and are able to conduct the test and interpret the findings. The mean percentage, score on monitoring of blood glucose level of this study was 30% indicating poor practice of monitoring. The finding could be due to non-availability of glucometer strips from time to time and also the cost associated with testing.

The fourth domain on this scale is on foot care. Majority of the study participants (61%) said they regularly examined their feet for abnormalities.

However a lesser percentage (39%) of participants was found by Arden et al (2010) with similar practice of foot care. The differences could be as a result of in adequate knowledge on how to examine ones feet. On issues of adding detergent to water to wash their feet, 40% of the participants did apply as opposed to 60% who did not apply.. Similarly, 57.4% study participants stated they added detergent to the water used to wash their feet (Abu-Qamar, 2014). The study participants who add detergent noted they used deltol, this was done according to the participants to kill microorganisms. Sixty four percent (64%) of the study participants dried their feet thoroughly following washing as compared to 57.4% of participants who practiced the same thing. Participants who dried their feet after washing indicated that microorganism easily settles on wet surfaces, hence drying will prevent them from settling. Fifty four percent (54%) of the respondents lubricated their feet following washing by using normal pomade.

According to Abu-Qamar (2014), 51.1% of the study participants equally lubricated their feet following washing, in addition, 85.7% of the study participants used blunt instrument to clean under their nails whenever there was dirt to prevent injury as compared to 57% of the participants of this study. The minority of the study participants (37%) cut their nails with the help of others to avoid injury. The majority (63%) cut their nails by themselves by being always very careful. Similarly a lot (79.9%) of study participants equally cut their nails themselves, where 39% of the participants put on a foot wear that was closed to protect their feet. Similar fewer (36.4%) of the study participants of Abu-Qamar (2014), had same practice of wearing closed shoes. Participants who cut their

nails by themselves thought that they were more careful than others as opposed to participants that sought the help of others. Similar finding of foot wear in both studies was due to the inconvenience in putting on and removing foot wears.

Majority (59%) of the study respondents did not walk bare footed to avoid injuries. It conforms to Abu-Qamar (2014) where majority (76.7%) of the study participants also made sure not to walk bare footed, the reason being that diabetes patients had the knowledge of protecting their feet from injuries. A few (43%) of the respondents asserted the use of socks that did not have rubber material in them. The majority (57%) of the respondents who used socks with rubber material were prone to foot problems. Just a few (44%) of the participants changed their socks or try to wear new ones every day. The majority (56%) of them were not concern about changing socks or wearing a new one every day. Comparatively, about 51.2% of his study participants used socks that did not have rubber material and many (71.3%) of them changed their socks every day (Abu-Qamar, 2014). In conclusion, the average percentage of foot care practices among the participants is 52% showing that they had a very fair practice. This could be due to inadequate education on foot care at the clinic level.

The last domain on this scale was exercise. Majority (74%) of the participants saw exercise as a priority to them. A contrary view was seen where most of their study participants did not prioritize exercise as a mode of managing their diabetes (Phillips et al., 2012). Majority of the study participants (78%) noted walking was their preferred exercise, 69% exercised every day in the form of scheduled walking and 70% exercised at least twice a week. Comparing these

findings to Garcia et al., (2007), 45% of their study participants made same claim of walking being a preferred exercise, 31% of the participants exercising every day and 10% of them exercising at least twice a week. The differences in the findings of this study and that of others could be inadequate information on how exercise helps in the control of diabetes among the participants of the other study. The mean percentage score on self-management regarding exercise was 72%. This shows that participants have shown a good practice in this domain.

Research hypothesis one sought to investigate the relationship between diabetes patients knowledge on diabetes and self-management practices. The finding of the study indicated that there was a relationship between the knowledge of diabetes patients and their self-management practices. The findings of this research are in affirmation with many other research findings. For example Shrivastava et al., (2013) did agree that there was a positive relationship between the knowledge of a client and the management of the disease, and that one can only take good care of a disease if he/she has the knowledge. Furthermore, American Diabetes Association (2006) asserted that there was fourfold increase in diabetes complication among diabetes patients who have no knowledge on self-care practices as compared to those who have knowledge. In further supporting the findings of this research, there was a positive correlation between adherence to medication and level of knowledge on drug adherence (Bruce, et al., 2015 & Jackson, et al., 2014). The reasons for similar findings between this study and that of others could be that, both studies were organized among similar audience who were knowledgeable and will to put their knowledge into practice. On the other

hand, other research findings have also come out that, there was no relationship between knowledge of diabetes patients on diabetes and self-management practices. One such was Nam, et al., (2011) who said knowledge has nothing to do with practice. Phillips et al., (2012) also revealed that there was no relationship between those who knew diabetes mellitus could damage their eye and those who reported having eye examination. Is possible of the audience of these researches were not ready to practice what they knew about the disease.

According to Pender et al., (2006) a person's perceived knowledge in a particular domain motivates him or her to engage in those behaviors. Knowledge influences a person's perceived barriers. The finding of this research has come to support Pender's Health Promotion Model which explains that knowledge is a determinant of a health promotion behavior.

Research hypothesis two seeks to determine the relationship between attitude of diabetes patients and their self-management practices. It was established that a relationship existed between the knowledge of diabetes patients and self-management practices. The finding of this study was in conformity with Shrivastava et al., (2013) who conducted a study in India. They came out that poor adherence to treatment regimen was correlated to poor attitude of patients toward the disease. Further supporting the findings of this study, Chen et al., (2012) stated that positive attitude was correlated to positive self-care adherence. The similarity in findings could be that, both researches had similar audience with positive attitude and were ready to practice proper self-management.

According to Pender's Health Promotion Model, interpersonal influence are cognitions concerning the behaviors, believes or attitudes of people, and that they affect individual's predisposition to engage in health promotion behavior (Pender et al., 2006 & Petiprin, 2006). Supporting Nola Pender's Model of Health Promotion, the finding of this study has come to add that attitudes of diabetes patient on diabetes are determinants for self-management practices.

Research hypothesis three sought to examine the effect of demographic factors on self-management practices. The demographic factors considered were; age, sex, marital status, level of education, occupation, religion, duration of diabetes, and income. It was evident from the study that none of the demographic factors of diabetes patients listed had influence on their self-management practices. Considering the age of participants this finding agreed with Abu-Qamar (2014) who said that there was no statistical significant association between age of study participants and their practice of foot self-care. The finding is however, contrary to that of Abrahim (2011) where there exist a correlation between age and regular self-care. Older patients took better care of themselves than younger ones. Shiu (2007) also had contrary findings where he indicated that younger age was a predictor for self-management practices.

With the relationship between sex and self-management, the study findings conforms with that of Abu-Qamar (2014) where there was no statistically significant association between the sex of his study participants and their self-care practices. According to Abrahim (2011) there was statistically significant correlation between married couple and their self-management practices.

Abraham's finding contradicts that of this study where there was no statistically significant correlation between marital status and self-management practices.

It was evident from the study result that there was no statistically significant correlation between level of education and self-management practices. Many studies have shown the opposite result where there was a statistically significant relation between education and foot care (Abu –Qamar, 2014; Abrahim, 2011)).

The study finding revealed that there was no statistically significant correlation between the occupation of diabetes patients and their self-management practices. However, this finding contradict that of Akotey (2012) who as a result of a research conducted at Korle-bu Teaching Hospital implied that the status of a person with regard to work has effect on the person's glycaemic control. According to the findings of this study, there was no statistically significant correlation between religion and self-management practices. This contradicts the findings of Abrahim (2011) where there was statistically significant correlation between religion and self-management practices.

The study also revealed that there was no statistically significant correlation between duration of diabetes and self-management practices. It contradicted with Abraham (2011) where long duration of diabetes diagnosis has a positive correlation with self-care activities.

Also, income level was not correlated to self-management practices. The finding was contrary to Shrivastava et al., (2013) who proclaimed that non-compliance was higher among the low socio-economic group of study

participants. The study finding also contradicted Abrahim (2011), where there was positive correlation between income and self-management practices.

The study finding did not conform to the Health Promotion Model of Nola Pender which said that the personal factors of individuals were predictive of their given behavior.

Research hypothesis four sought to determine whether there was significant difference between the selected hospitals and the self-management practices of the diabetes patients who received care at that facility. The study revealed that there was a statistically significant difference in self-management practices of diabetes patients who received care at Wa and Lawra. The study further indicated patients who received care at Wa regional hospital were better off regarding self-management practices as compared to patients who received care at Lawra district hospital.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of main findings and conclusions drawn from the study. It also presents recommendations that are worth implementing in order to accelerate health delivery as well as areas for further research that would serve as points of reference for further studies for academics and policy makers.

Summary

The research aimed at assessing the knowledge and attitudes of diabetes patients on self-knowledge practices in public hospitals in the Upper West Region. It was guided by a conceptual frame work namely the Health promotion Model by Nola Pender. The use of quantitative approach and closed ended questions in seeking responses from the study participants were adopted. A total of 201 respondents were admitted for the study. The responses of the study participants were analyzed using SPSS version 21 and the key findings based on the study objectives are as follows;

Firstly, the study unraveled that majority of the study participants had excellent knowledge on the five domains that they were tested on. The domains were pathology of diabetes, screaming risk factor of diabetes, symptoms and complications of diabetes, treatment and self-management of diabetes and monitoring. It meant that participants might have had in depth knowledge on these domains through education or experience.

Secondly, though it was found that participants had excellent knowledge on the five domains, the mean percentage score for knowledge on pathology was low. Participants therefore did not have enough knowledge on what insulin was and what it did concerning diabetes.

Furthermore, the research found out that study participants demonstrated positive attitude toward diabetes. This of cause would help them in their management practices. It was also evident from the views of the respondents that they had no barriers to their self-management practices. This was a favorable finding because it served as a predictor to good management practices.

The research also revealed that the diabetes patients' clinics of the various health facilities provided a lot of services to their patients. Some of these services were; giving education on preventing the complications of diabetes and foot care, writing prescriptions for patients, providing check lists and a reminder system on self-management practices and finally giving feedback to patients on their performance. Patients spent maximum 15 minutes with health care provider.

The study further revealed that there was a relationship between the knowledge and attitudes of diabetes patients and their self-management practices. It meant that the level of knowledge of the participants and their attitudes has an influence on how they practices self-care.

One of the key findings of the study was that, the demographic factors of diabetes patients had no influence on how they practice self-management activities.

Another major finding of the study was that, there was significant difference between self-management practices of diabetes patients seeking services at Wa Regional Hospital and those seeking services at Lawra District Hospital. The study also revealed that participants adhered to correct practices of self-management on three of the five domains they were asked questions on. These domains were medication, nutrition and exercise. Participants of the study did not adhere correctly to self-management practices on monitoring of blood sugar level and foot care.

Conclusion

Based on the study findings, the researcher concluded that diabetes patients in the Upper West Region have in-depth knowledge on the disease condition and self-management practices. This was a positive predictor to self-management practices. This was because the findings of the research confirmed the hypothesis that there was a statistically significant relationship between diabetes patients knowledge on diabetes and self-management practices.

It was also concluded that diabetes patients in the Upper West Region had positive attitude regarding diabetes. This positive attitude was a motivator to practicing self-management activities to enhance quality of life. The study findings confirmed the hypothesis that there was a statistically significant relationship between diabetes patients attitude on diabetes and self-management practices.

Diabetes patients in the Upper West Region were free to seek health care and practice proper self-management activities without much hindrance.

The various services provided at diabetes patients clinics had led to the excellent level of knowledge and positive attitude portrayed among the diabetes patients in the Upper West Region.

The research findings rejected the hypothesis that there was a statistically significant effect of demographic factors on self-management practices. It implied sex, gender, district of location, occupation, and income among others did not have influence on self-management practice

Based on the finding of the study, the researcher draws a conclusion that most diabetes patients in the Upper West Region adhered to correct self-management practices on medication, nutrition and exercise. However, they needed to improve upon the management on monitoring of blood sugar level and foot care.

In general, the study has revealed excellent knowledge and positive attitude toward the management of diabetes. The study has brought to bare the issues confronting diabetes patients in the Upper West Region. The problems of the diabetes patient of this Region have to do with inadequate knowledge in the area of disease pathology and risk factors. Comparatively lower percentages were scored in disease pathology and risk factors as compared to the other domains. In addition, diabetes patients needed more education on how to monitor the condition and also how to practice proper foot care.

Recommendation

In view of the findings of this study, it is recommended that stakeholders mentioned below should do the following.

1. Health care providers at the diabetic clinics should make it a protocol to give health education on each clinic day most especially on areas of pathology and risk factors of diabetes, foot care and monitoring of blood sugar level in languages that all patients could understand.
2. The Regional Medical stores and the Medical Directors of the various hospitals are to ensure that there are diabetes patients' drugs available in the hospitals' pharmacy to eliminate that barrier to self-management practices.
3. It is recommended for the Medical Directors of the hospitals to assign enough personnel to the diabetic clinics especially in the early mornings to prevent patients from waiting for long since this was a barrier to self-management practices. Hospital managers are also recommended to ensure the availability of glucometers and the strips to ensure rapid testing. This could be made free of charge.
4. It is recommended for hospital Managers to develop check lists indicating unfavorable signs and symptoms regarding their conditions. This check list is to be posted at the diabetic clinics and also given to the patients to serve as a guide to their self-management practices.

Suggestions for Future Research

The following areas are recommended for further research study.

Further studies should be designed and conducted by other health and research institutions to confirm the risk factors and pathology of diabetes and the effect of these variables on self-management practices.

This study failed to explore the type of diabetes the respondents were suffering from. As such there would be the need for a study to assess the most prevalent type of diabetes in order to inform the specific intervention needed to improve the situation in the Upper West Region.

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APPENDIX A

PLEASE TICK [√] IN THE BOX CORRESPONDING TO THE MOST APPROPRAITE ANSWER OR WRITE SHORT NOTES WHERE NECESSARY.			
SECTION A: Demographic Characteristics			
No	Question	Response	(√)
1	What is your age?		
2	What is your sex?	1-Male	
		2-Female	
3	What is your marital status?	1-Never Married	
		2-Married	
		3-Divorced	
		4-Separated	
		5-Widowed	
		6-Cohabiting	
4	Which district do you live?		
5	What is your highest level of education attained?	1-No formal education	
		2-Primary school	
		3-Secondary school	
		4-Training college/poly	
		5-University	
6	What is your occupation?	1-Government employee	
		2-Self – employed	
		3-Private sector	
		4-Student	
		5-Unemployed	
7	What religion do you belong to?	1-Christianity	
		2-Islam	
		3-Traditional	
		4-Others (please specify)…	
8	How long have you been diagnosed of diabetes?	1-less than one year	
		2-One year ago	
		3-Two years ago	
		4-Three years ago	
		5-Four years ago	
		6-five years ago	
		7-More than five years ago	
9	What is your level of monthly income?	1-< GH¢200	
		2- GH¢ 200-400	
		3- GH¢ 500-700	
		4- GH¢ 800-1000	
		5- GH¢1000-3000	
		6-> GH¢ 4000	

		Not applicable				
SECTION B: Knowledge Of Diabetic Patients						
Please indicate to what extent you agree to the following statement by ticking the corresponding box		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.0	**General knowledge on pathology of diabetes**					
1.1	Diabetes is a condition of high blood sugar					
1.2	Diabetes is a condition of lack of insulin					
1.3	Insulin is a hormone which is produced in pancreas					
Please indicate to what extent you agree to the following statement by ticking the corresponding box		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.4	Insulin regulates blood sugar					
1.5	Diabetes is non-contagious					
2.0	**Knowledge of screening risk factors of diabetes**					
2.1	Family history of diabetes mellitus					
2.2	Age≥35 years					
2.3	Obesity					
2.4	Pregnancy					
3.0	**Knowledge on symptoms and chronic DM complications**					
3.1	Thirst					
3.2	Kidney problems e.g. Frequent urination					
3.3	Retinopathy e.g. Blurred vision leading to blindness					
3.4	Slow healing of cuts and wounds					
3.5	Neuropathy					
3.6	Diabetic foot (e.g. decaying limbs requiring surgical removal)					
3.7	High blood pressure or peripheral vascular disease					
3.8	Erectile dysfunction					
4.0	**Knowledge of treatment and self-management of diabetes**					
4.1	Insulin injections is used for treatment					
4.2	Oral tablets are also available for treatment					
4.3	Diabetes patients should carry sweets when they are out					
4.4	Good weight control is necessary in diabetes control					
4.5	Regular eye check-up is necessary					
4.6	Diabetes patients should not consume alcohol and not smoke					
4.7	Diabetes patients should not donate blood					
4.8	Diabetes patients should not skip meals even when busy					
4.9	Regular exercise reduces the need for diabetic medications					
5.0	**Knowledge of monitoring**					
5.1	The desirable level of blood sugar for diabetes					

	patients is at or below 6.6 mmol/L					
5.2	Diabetes patients should do blood glucose and BP monitoring					
5.3	Diabetes patients should do urine test for protein					
5.4	Daily blood glucose level testing is very important					

SECTION C: Attitudes Of Diabetic Patients						
Indicate to what extent you believe the following statements by ticking the corresponding box. Each statement starts with 'In general I believe that'		**Strongly Disagree**	**Dis agr ee**	**Neutral**	**Agree**	**Strong ly Agree**
1	…diabetes does not affect my life at all					
2	…I am good as others despite my diabetes					
3	…I need to have a tight control of glucose monitoring					
4	…I need to be the core decision maker concerning diabetes self-management practices					
5	…type 2 diabetes is a serious disease					
6	…i need to control what I eat; have to say no to a lot of foods; can't eat certain things					
7	…I should eat less sugar; important not to eat sweets					
8	…Am Not supposed to eat white bread (ordinary bread); ''bad foods''					
9	…I should follow doctors' advice about what to eat					
10	…I need to eat more vegetables, salads, less fattening foods					

SECTION D: Self-Management Practices					
Thinking about your self-management practices over the last 8 weeks, please specify the extent to which each statement applies to you personally.		**Does not apply to me**	**Applies to me to some degree**	**Applies to me to a considera ble degree**	**Applies to me very much**
1.0	**Medication**				
1.1	I adhere correctly to my medication regimen				
1.2	I never missed a single dose of medication in the past week				
1.3	I am taking my diabetic drugs for life				
1.4	Instructions about my drugs are followed strictly				
1.5	I don't stop taking my medication when I feel better				
2.0	**Nutrition**				
2.1	I eat less/no white bread (ordinary bread)				
2.2	I eat less fatty foods, including bacon, ''meat''; use less fat				
2.3	I reduce intake of sugar and sweets (cookies, cakes)				
2.4	I eat more frequently, but smaller portions				
2.5	I eat more fruits and vegetables				
2.6	Drink more soup				
2.7	I eat on a schedule				
2.8	I have never eaten food forbidden by diabetes patients				

2.9	I do not drink alcoholic beverages				
3.0	**Monitoring of blood sugar**				
3.1	I monitor my own blood glucose level				
3.2	I have a glucose meter myself				
3.3	I monitor my blood sugar level more than ones every week				
3.4	I do measure my blood glucose level before and after every planned activity				
4.0	**Foot care**				
4.1	I regularly examine my feet for abnormalities				
4.2	I do not add detergent to the water I use to wash my feet				
4.3	I dry my feet thoroughly following washing				
4.4	I lubricate my feet following washing				
4.5	I use blunt instrument to clean under my nail				
4.6	I cut my nails by the help of others				
4.7	I wear a foot wear that is closed to protect my feet				
4.8	I make sure I do not walk barefooted				
4.9	The socks I use do not have rubber material in them				
4.10	I change my socks every day/wear clean socks every day				
5.0	**Exercise**				
5.1	Exercise is a priority to me				
5.2	Walking is my preferred exercise				
5.3	I exercise every day				
5.4	I exercise at least twice a week				
5.5	I exercise 20-30 minutes per day for at least three days in a week				

SECTION E: Perceived barriers					
Please indicate by ticking in the box to what extent the following serve as barriers to your self-management practices		**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
1	Multiplicity of cultures				
2	Lack of resources .e.g. human and material				
3	Drugs taken more than once in a day				
4	Insulin treatment				
5	Lack of English proficiency				
6	Inability to afford treatment for diabetes				
7	No support in the management of diabetes				
8	Insufficient knowledge of health care providers on diabetes.				
9	Unfriendly health care providers				
10	Expensive diabetic diet				

SECTION F: Practices in the diabetic clinics				
Do indicate yes, no or no idea by ticking in the box that corresponds to the question regarding services provided at the clinic.		Yes	No	No idea
1	Am given education on how to prevent the complications of diabetes			
2	I am given prescription by my health care provider			

3	I spend at most 10 -15 minutes with my health care provider			
4	The clinic provides me with a reminder system on my self-management practices			
5	I am provided with a check list on my self-care			
6	The clinic gives me feedback on my performance on diabetes management			
7	The clinic gives education on foot care			

APPENDIX B
ETHICAL CLEARANCE

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT
TEL: 03321-33172/3 / 0207355653/ 0244207814
C/O Directorate of Research, Innovation and Consultancy
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/3/50
YOUR REF:

9TH MARCH, 2016

Mr. Stephen Kpenkura
School of Nursing and Midwifery
University of Cape Coast

Dear Mr. Kpenkura,

ETHICAL CLEARANCE –ID NO: (UCCIRB/CHAS/2015/42)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted **Provisional Approval** for implementation of your research protocol titled: **"Knowledge and Attitudes of Diabetic Clients on Self-Management Practices in District Hospitals in the Upper West Region"**

This approval requires that you submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

Please note that any modification of the project must be submitted to the UCCIRB for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol

Yours faithfully,

for: (Samuel Asiedu Owusu)
ADMINISTRATOR

cc: The Chairman, UCCIRB

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST
Date: 09-03-16

APPENDIX C
LETTER OF PERMISSION

NURSES' TRAINING COLLEGE

P. O. BOX24

JIRAPA U/W/R

30TH MARCH, 2016.

THE REGIONAL DIRECTOR OF HEALTH SERVICES

REGIONAL HEALTH ADMISNISTRATION

P.O.BOX 298

WA UPPER WEST REGIONAL

Dear Sir,

PERMISSION TO USE HOSPITAL FACILITIES FOR A RESEARCH

I am a second year student of the University of Cape Coast pursuing Master of Nursing programme. I am conducting a research titled **'Knowledge and Attitudes of Diabetic Clients on Self-Management Practices in Hospitals in the Upper West Region'.**

I would be happy if you could grant me the permission to use the following facilities for my research study: Wa Regional Hospital, Lawra District Hospital, Jirapa St. Joseph's Hospital and Nandom St. Theresa's Hospital.

Attached is a copy of my research proposal and ethical clearance for your perusal.

Counting on your usual consideration.

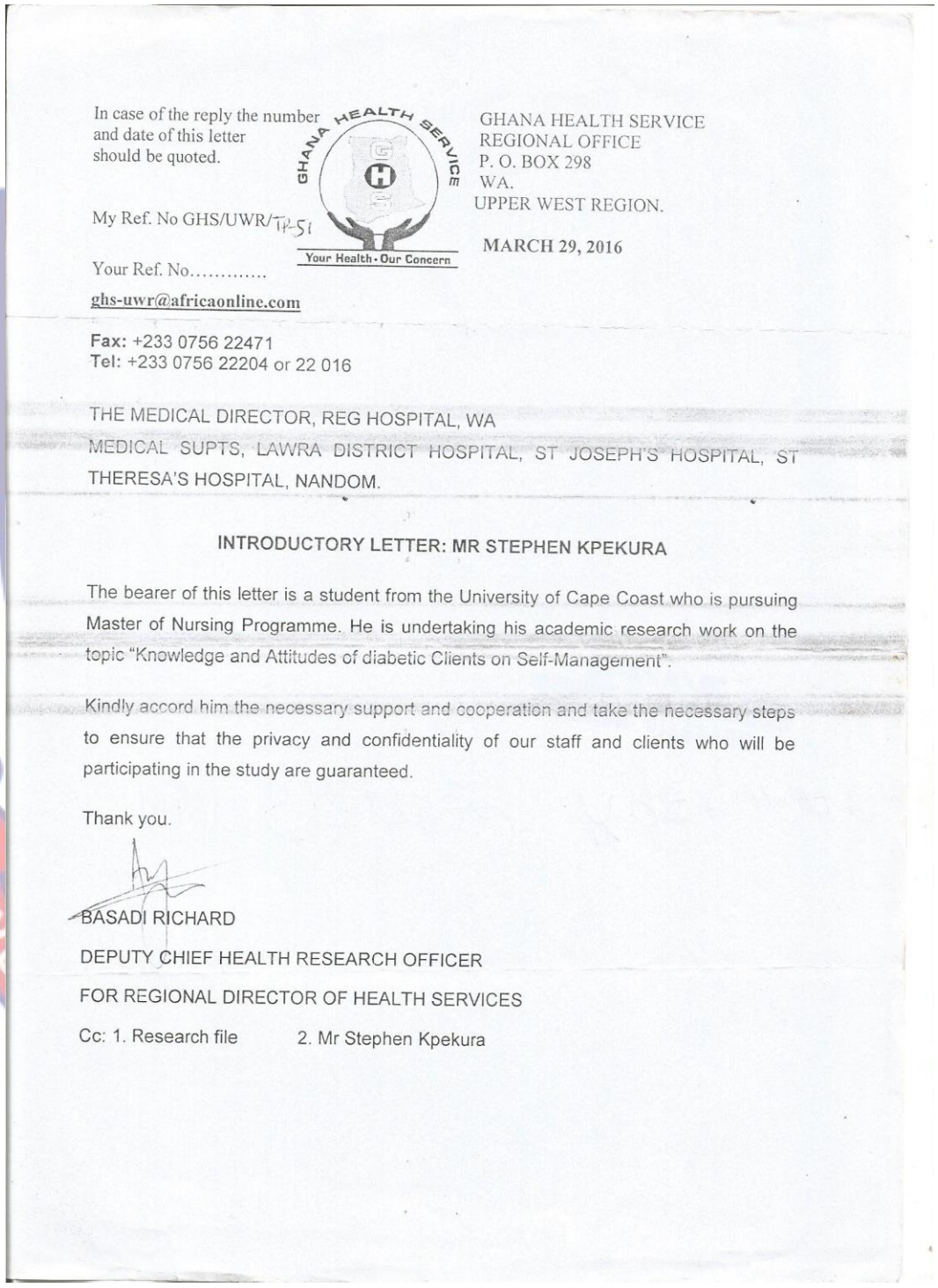
Thank you.

Yours faithfully,

Stephen Kpekura

(0209204940)

APPENDIX D
LETTER FROM HEALTH DIRECTORATE



In case of the reply the number and date of this letter should be quoted.

GHANA HEALTH SERVICE
REGIONAL OFFICE
P. O. BOX 298
WA.
UPPER WEST REGION.

My Ref. No GHS/UWR/TP-51

MARCH 29, 2016

Your Ref. No.....

ghs-uwr@africaonline.com

Fax: +233 0756 22471
Tel: +233 0756 22204 or 22 016

THE MEDICAL DIRECTOR, REG HOSPITAL, WA
MEDICAL SUPTS, LAWRA DISTRICT HOSPITAL, ST JOSEPH'S HOSPITAL, ST THERESA'S HOSPITAL, NANDOM.

INTRODUCTORY LETTER: MR STEPHEN KPEKURA

The bearer of this letter is a student from the University of Cape Coast who is pursuing Master of Nursing Programme. He is undertaking his academic research work on the topic "Knowledge and Attitudes of diabetic Clients on Self-Management".

Kindly accord him the necessary support and cooperation and take the necessary steps to ensure that the privacy and confidentiality of our staff and clients who will be participating in the study are guaranteed.

Thank you.

BASADI RICHARD
DEPUTY CHIEF HEALTH RESEARCH OFFICER
FOR REGIONAL DIRECTOR OF HEALTH SERVICES

Cc: 1. Research file 2. Mr Stephen Kpekura

APPENDIX E
INFORMATION SHEET

I am a Master of Nursing student of the University of Cape Coast. The title of this research study is Knowledge and Attitudes of Diabetic Patients on Self-Management Practices in Hospitals in the Upper West Region. The findings of this study will help shape policies regarding better self-management practices among diabetes patients. The findings will also shape health promotion policies regarding diabetes self-management practices.

To find answers to the questions of this study, I invite you to take part in this research project. If you accept, you will be required to fill out a survey which will be provided by the researcher or assistant and collected by the same person. Your participation in this research is highly significant. It will take you about 20 minutes to answer a questionnaire and there is no any anticipated risk.

You are free to ask any question for clarification. Anything you tell us will be used without using your name. We will not use your name if we share anything you tell us.

You can choose whether you want to take part or not. You can also choose to withdraw in the course of the study without any penalty.

Thank you.

……..

Stephen Kpekura

(Student ID: BS/MNS/14/0009)

CONTACT PERSONS:

1. STUDENT: Stephen Kpekura (0209204940. Email: kpekurastephen@yahoo.com.
2. FIRST SUPERVISOR: Dr. S. V. Nuvor (0205853850). Email: s.v.nuvor@uccsms.edu.gh
3. SECOND SUPERVISOR: Dr. Jerry P. Ninnoni (0554025222)
4. UCCIRB Office: 0332135351/0289670793(4). Email address: irb@ucc.edu.gh .

APPENDIX F
CONSENT TO PARTICIPATE IN A RESEARCH

1. I confirm that I have read and understood the information sheet explaining the above research project and I have had the opportunity to ask questions about the project.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.
3. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.
4. I agree for the data collected from me to be used in future research
5. I agree to take part in the above research project.

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of witness (If different from lead researcher)	Date	Signature

To be signed and dated in presence of the participant

_____	_____	_____
Lead Researcher	Date	Signature

To be signed and dated in presence of the participant