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SELF-CARE PRACTICES AMONG ELDERLY PATIENTS WITH TYPE 2 DIABETES MELLITUS AT THE GREATER ACCRA REGIONAL HOSPITAL.

BY

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DECLARATION

I, hereby declare that this study is my original work. It was under the supervision of my supervisors, Dr. Kwadwo Ameyaw Korsah and Dr. Gwendolyn Patience Mensah of the School of Nursing and Midwifery, University of Ghana. Acknowledgment of other people's research works used as references has been duly done. This dissertation has not been submitted for the award of a degree in this University or elsewhere either in part or in whole for another degree.

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DEDICATION

This research work is dedicated to God Almighty for His grace and strength and my lovely husband, Mr. Emmanuel Amakye-Nyame.

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ABSTRACT

Diabetes Mellitus (DM) has become a major public health problem in Ghana, Sub-Saharan Africa (SSA), and the entire globe. Diabetes is among the four non-communicable diseases globally. Studies have revealed that Ghana has been experiencing an increased number of aged populations who are likely to suffer from chronic diseases such as diabetes and increase demand for healthcare. Therefore, diabetes self-care practices among the elderly living with type-2 diabetes mellitus are very crucial in its management as poor self-care results in complications. However, in Ghana, little scholarly attention has been given to diabetes self-care practices among older adults living with Type 2 Diabetes Mellitus. Therefore, the reason for conducting a qualitative study was to explore the self-care practices of elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital. Albert Bandura's Social Cognitive Theory (1986) was used to guide the study.

An exploratory descriptive design with a purposive sampling technique was used to recruit twelve (12) participants after saturation was achieved. A face-to-face interview was done using a semi structured interview guide and audiotaped. Transcriptions of the collected data were done verbatim. Thematic content analysis was used to analyze the data received**.** Four major themes emerged after the analysis of collected data. These were: Knowledge of diabetes self-care, Self-regulation practices in diabetes management, Barriers that affect the management of diabetes, and a support system received by elderly patients in diabetes management. The findings of the study revealed that some of the participants knew self-care practices such as eating healthy, self-monitoring of blood glucose levels, and foot care practices among others, and were empowered, motivated, and achieved good results whilst others too were not engaging in effective diabetes self-care activities due to certain environmental impediments which served as barriers. It revealed financial hardship as one of the major barriers faced by elderly diabetes patients despite partial coverage of the National

Health Insurance Scheme (NHIS). Therefore, diabetes patients should be given high-quality adequate diabetes education, and delivery of diabetes education should include other formats such as video, leaflets, and written). Diabetes education can also be done at the community level for elderly diabetes. The government should make diabetes carefree for older adults with Type 2 Diabetes Mellitus. Developing theory-based approaches to care for individuals with diabetes can create a more progressive, coherent body of knowledge to assist healthcare providers in effectively teaching and coaching patients' diabetes self-care. Diabetes self-care among elderly patients is suboptimal.

Therefore, Diabetes education by health professionals should also include patient empowerment and culturally sensitive approaches that will be accepted by individuals with diabetes. In managing diabetes, it can be concluded that diabetes self-care practices which are healthy eating, medication adherence, self-monitoring of blood glucose, physical activity, and foot care practices are the key elements required for diabetes patients to stay healthy with improved quality of life. For that barriers to diabetes management should be given serious attention by stakeholders (hospitals, health professionals, health programmers, community leaders, government, etc) of this group.

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LIST OF ABBREVIATIONS

AADE	-	American Association of Diabetes Educators
ADA	-	American Diabetes Association
AIDS	-	Acquired Immunodeficiency Syndrome
AMA	-	Accra Metropolitan Authority
DM	-	Diabetes Mellitus
DSME	-	Diabetes Self-Management Education
Et al	-	And others
GARH	-	Greater Accra Regional Hospital
GDM	-	Gestational Diabetes Mellitus
GHS	-	Ghana Health Service
GHS-ERC	-	Ghana Health Service- Ethics Review Committee
GSS	-	Ghana Statistical Service
HbA1c	-	Glycated or Glycosylated hemoglobin
HDL	-	High Density Lipoprotein
HIV	-	Human Immunodeficiency Virus
IDF	-	International Diabetes Federation
JHS	-	Junior High School
MODY	-	Maturity-Onset Diabetes of the Young
MoH	-	Ministry of Health
NCD	-	Non-Communicable Disease
NGSP	-	National Glycohemoglobin Standardization Program
NHIS	-	National Health Insurance Scheme
NIDDK	-	National Institute of Diabetes and Digestive and Kidney Diseases

NIHB	-	Non-Insured Health Benefits
OAD	-	Oral Anti-diabetic Drug
OGLAs	-	Oral Glucose-lowering Agents
OGTT	-	Oral Glucose Tolerance Test
OHAs	-	Oral Hypoglycemic Agents
PCOS	-	Polycystic Ovary Syndrome
SCT	-	Social Cognitive Theory
SHS	-	Senior High School
SMBG	-	Self-Monitoring of Blood Glucose
T1DM	-	Type 1 Diabetes Mellitus
T2DM	-	Type 2 Diabetes Mellitus
TCM	-	Traditional Chinese Medicine
TPB	-	Theory of Planned Behaviour
TTM	-	Transtheoretical Model
WHO	-	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Diabetes Mellitus (DM) is a serious and common chronic illness globally. It is a chronic progressive metabolic disorder characterized by elevation of blood glucose levels (WHO, 2020) resulting from defects in insulin secretion, insulin action, or both (Diabetes, Atlas, 2006; WHO, 1999). Globally, the leading cause of death is non-communicable diseases (NCDs) such as diabetes as against all other causes put together (WHO, 2010, 2018). It is a major cause of limb amputations, blindness, kidney failure, and stroke (World Health Organization [WHO], 2020). It is also one of the top ten causes of death globally (International Diabetes Federation, IDF, [Atlas], 2019).

Currently, diabetes mellitus has been identified as a condition that often affects the elderly and has debilitating effects on their health. There are four general categories of diabetes mellitus. These are Type 1 formerly called juvenile-onset or insulin-dependent diabetes (due to autoimmune beta-cell destruction, usually leading to absolute insulin deficiency), Type 2 diabetes formerly known as adult-onset or noninsulin-dependent diabetes (due to a progressive loss of adequate beta-cell insulin secretion frequently on the background of insulin resistance), Gestational diabetes mellitus (diabetes diagnosed in the second or third trimester of pregnancy that was not overt diabetes before gestation) and specific types of diabetes due to other causes, examples, monogenic diabetes syndromes (such as neonatal diabetes and maturity-onset diabetes of the young (MODY)), diseases of the exocrine pancreas (such as cystic fibrosis and pancreatitis), and drug- or chemical-induced diabetes (such as with glucocorticoid use, in the treatment of HIV/AIDS, or after organ transplantation).

The predisposing factors of DM include obesity, age forty-five (45) or older, family history of diabetes an African American, Alaska Native, American Indian, Asian American, Hispanic/Latino, Native Hawaiian, or Pacific Islander origin, physical inactivity, a low level of HDL (high-density lipoprotein, good cholesterol), or a high level of triglycerides, a history of heart disease or stroke, etc, (Young-Hyman, 2020). The signs and symptoms may include increased thirst (polydipsia) and frequent urination (polyuria). increased hunger (polyphagia), unintended weight loss, fatigue, blurred vision, slow-healing sores, confusion, frequent infections, and balanitis in men. The presence of classical symptoms of high blood sugar, for example, frequent urination, and frequent thirst. and weight reduction and a random plasma glucose concentration of 11.1 mmol/L or fasting plasma glucose of 7.0 mmol/L or more, oral glucose tolerance test (OGTT) of 11.1mmol/L or glycated hemoglobin (HbA1c) test of 48mmol/mol (6.5%) (IDF, 2019).

Management is ninety-nine percent (99%) dependent on the patients (diabetes self-care) and treatment with medicine (anti-diabetics). Complications of diabetes mellitus include retinopathy, neuropathy, and nephropathy, vision loss, renal failure cardiovascular disease, stroke, amputation (Rangel, Rodrigues & de Sá, 2019). The number of elderly people with diabetes mellitus is also increasing. In 2017, the number of people living with diabetes aged 65 years and above were 123 million globally. This figure increased in 2019, as 135.6 million people living with diabetes were aged 65 years and above. That notwithstanding, it has been estimated that the number of people with diabetes aged 65 years and above will be 195.2 million in 2030 and 276.2 million in 2045 (IDF, 2019). It has been reported that diabetes is more prevalent among the older adult population.

Again, the age group with the highest expenditure were the sixty to sixty-nine years, fifty to fifty-five years, and seventy to seventy-nines with USD 177.7 billion, USD 173.0 billion, and USD 171.5 billion, respectively (IDF, 2019).

Furthermore, WHO has projected that non-communicable diseases such as diabetes will be the major cause of mortality in Africa by 2030 (WHO, 2013). Global diabetes expenditure keeps rising and it has been projected to reach USD 825 billion by 2030 and USD 845 billion by 2045 (IDF, 2019). In 2019, it was revealed that Switzerland came up with the highest expenditure per person in a year with USD 11,916, followed by the United States of America with USD 9,506, and lastly Norway with USD 9,061 (IDF, 2019). It is estimated that 422 million adults were living with diabetes in 2014, compared to 108 million in 1980.

The global prevalence of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population (WHO, 2020). Type 2 diabetes mellitus is the most prevalent of all types of diabetes and accounts for 90% of all diabetes cases worldwide (IDF, 2019). Within the globe, China, the USA (United States of America), and India are the countries with the largest aging population (65 years and above) living with diabetes. The USA beat India with the aging population with diabetes for 2019 and 2030 but it is predicted that India will surpass the USA by 2045 (IDF, 2019).

According to International Diabetes Federation, the global estimate of adults living with diabetes is over 460 million currently, which is an increase of 62% from 285 million in 2009. This is estimated to rise further to about 578 million adults in 2030 (IDF, 2019). With a growing prevalence of obesity, unhealthy diets, and widespread physical inactivity in developing countries, the burden of diabetes especially Types 2 diabetes is expected to increase further. The mass increase is from low-income countries to middle-income countries.

In Africa, the majority of the people living with diabetes, especially, type 2 diabetes, remain undiagnosed (IDF, 2017). According to IDF, the African region is estimated to have the highest future increase in the number of people with diabetes compared to other parts of the

world. Sub-Saharan African urban populations are the most affected due to nutrition transition, sedentary lifestyles, and aging (de-Graft Aikins et al., 2010; Patel & Burke, 2009). In Africa, almost 14 million adults had type 2 diabetes and over 298,160 deaths (6% of all deaths) were ascribed to diabetes. The cornerstone of blood glucose control (glycemic control) in the management of type 2 diabetes is the adoption of a healthy lifestyle including adherence to diet plans, cessation of smoking, and increased exercise to keep a healthy body weight (IDF, 2019).

In urban Ghana, the proportion of type 2 diabetes mellitus is 6% among adults and is likely to increase from half a million (500,000) in 2010 to around one million (1,000,000) by 2030 (Amoah et al., 2002; Shaw et al., 2010). Persistently high blood glucose levels in Type 2 Diabetes Mellitus (T2DM) lead to damage to the blood vessels which results in poor blood supply to major organs in the body (IDF, 2017). Findings from Yusuf et al. (2000) revealed that virtually 90% of people who reported nephropathy, retinopathy, neuropathy, and cardiovascular diseases had high blood sugar levels (HbA1c $\geq$ 7).

In Ghana again, the 2010 Population and Housing Census estimated that the population of the aged has increased seven-and-half times from 1960 to 2010 that is from 213,477 to 1,643,381. This constitutes 6.7 percent of the total national population in 2010 compared with 4.5 percent in 1960. Over two-thirds of the elderly (68.2%) are aged 60 to 74 years, and approximately one-tenth (9.6%) are very old (85 years and above) (Ghana Statistical Service [GSS], 2012). The natural processes of aging mean that chronic conditions are more prevalent among older adult populations. Management of diabetes, in general, continues to be challenging especially in resource-limited countries including Ghana (Wagner & Brath, 2012). Older adults are susceptible to suffering from illnesses and disabilities due to their weak immunity and aging processes resulting in reduced quality of life and high cost of health expenditure (Ishak et al., 2017).

Diabetes self-care is mostly viewed as the best way in keeping the health of patients with diabetes, but the effectiveness of self-care does not only control blood glucose levels but also prevent complications. However, this can be achieved by empowering older adults to believe in their competence and abilities to perform diabetes self-care activities and become more committed to achieving glycemic control. Ghana is noted to be the most religious country in Africa with &1.2% being Christians, 17.6% as Muslims, and 5.2% traditional worshippers. Their religious belief and participation positively affect type 2 diabetes mellitus management (Botchway et al., 2021).

However, the success of diabetes management does not depend on the patients alone even though the majority depends on them. The actions of family members, friends, and health professionals are highly required for better results. A systematic review by Nam et al revealed that inadequate knowledge, negative attitudes, social support, beliefs about diabetes and its management, financial difficulties, self-care skills, cultural and spiritual values, poor patient-health professional communication, and lack of motivation tend to impede efficient and effective management of the disease by patients (Nam et al., 2011).

Diabetes patients are responsible for the daily management and control of their blood glucose to delay and avoid complications (Toobert, D. J. & Glasgow, 2000). Self-care practices in diabetes are the main part of the management and it focuses on controlling and maintaining good blood sugar levels (Glasgow et al., 2004; Toobert, D. J. & Glasgow, 2000). According to American Diabetes Association (ADA), routine identification of diabetes must start from age forty-five irrespective of a person's weight, whether testing has been done for obese or overweight individuals who have one or more characteristics that make them prone to diabetes (Bigelow & Freeland, 2017).

It has also been revealed that medications such as thiazide diuretics, glucocorticoids, antipsychotics, and even statins for treating prediabetes have a higher rate of exposing patients to diabetes(Kirkman, 2014).

For elderly patients, monitoring of blood glucose at home should be according to the individual's ability to use a glucometer and interpret readings, support from a caregiver, glycemic targets, and the management type (Bigelow & Freeland, 2017). The connection between T2DM and weight is so high and studies have proven that the majority of patients living with T2DM are very fat or obese and fat people are more prone to getting T2DM (Wilding, 2014). Also, studies have revealed that fat people are highly prone to developing cardiovascular disease (CVD) (Article, 2016). The probability of these people getting CVD is even more in T2 DM patients (Jonsson et al., 2002). However, although T2DM and weight are strongly linked, not every fat person may have diabetes, and patients, not all the patients living with T2DM are fat or obese however, the incidence of skinny patients with T2DM is said to vary from country to country (Daousi et al., 2006; Gregg et al., 2007; Yano et al., 2012).

Older adults living with T2DM must be given assistance with lifestyle modification that will help in achieving good glycemic goals to delay or reduce complications. Also, to control T2DM in older adults effectively, they must eat healthy diets that will bring down their blood glucose levels. Studies have shown that some medical conditions such as obesity, diabetes mellitus, hyperlipidemia, atherosclerotic cardiovascular disease, cancer as well as some gastrointestinal conditions have been better in affected individuals who consistently eat high fiber diets or plant-based diets also known as vegetarian diets such as vegetables, grains, nuts and fruits and food that are prepared from plants (Wolfram & Ismail-Beigi, 2011).

Furthermore, foods high in whole grains, fruits, vegetables, legumes, and nuts; mild alcohol intake, reduced refined grains, red or refined meats, and sugar-sweetened beverages have proven to lower the probability of getting diabetes and improvement in blood sugar levels as well as blood lipids in patients living with diabetes (Ley et al., 2014). Doctors and dietitians can help these patients by planning healthy diabetes diets with them and planning of diet should be based on the individual's preference to control the condition. In the past decades, the establishment of many restaurants and increase in the availability of supermarkets have exposed both men and women to an unhealthy diet with increased calories, refined meat, beverages of high sugar content, high-energy snacks, and alcohol resulting in poor dietary control and reduced physical activity (Ezzati & Riboli, 2013; Popkin et al., 2012).

It is proven that modification of lifestyle such as restricting calories and engaging in physical activities to enhance weight loss indicated in most Diabetes Prevention Programs have produced a significant reduction in the sugar levels in patients with impaired glucose tolerance who were highly prone to developing diabetes by fifty-eight percent (58%) (Barrett-connor & Fowler, 2002). This great outcome of lifestyle adjustment was also discovered and reported among the American, Finnish, Chinese, and Indian populations (Barrett-connor & Fowler, 2002; Pan et al., 1997; Ramachandran et al., 2006; Toumillehto et al., 2013). Again, doctors must ensure that patients on insulin are prescribed a fixed insulin amount and must be motivated to have a constant supply of carbohydrates at every meal to help regulate the blood glucose and avoid hypoglycemia as well as have meals well balanced with carbohydrates, fats, and protein to avoid unexpected changes in their blood sugar levels (Flynn & Dhatariya, 2020).

Another diabetes self-care practice to be adhered to by older adults is physical activity. It is, however, recommended that diabetes patients engage in one hundred and fifty (150) minutes

of moderate to severe aerobic exercises weekly but this is, however, impossible with older patients due to associated comorbidities and aging processes (Lee et al., 2013).

Health professionals must therefore educate patients on the risk associated with exercise such as hypoglycemia, ensuring safety by engaging in the appropriate exercise equipment as well as engaging in the right exercises that have been approved by their doctors. Strong consideration must be given to safety, including decreasing the risk of hypoglycemia. It is necessary to understand the relationship between activity and glucose levels. Teaching should include risks for hypoglycemia as well as the use of safety equipment, such as properly fitting shoes for walking or helmets for bike riding.

Moreover, the accepted first-line medication given to elderly patients living with diabetes orally is metformin because it has a reduced rate of causing low blood glucose levels (hypoglycemia) in patients (Cegelka, 2013; Garber et al., 2015). The United States Food and Drug Administration gave a warning against, the administration of metformin and cautioned that it was safe to use when starting with mild to moderate impaired kidney conditions and suggested that monitoring of metformin use should involve estimation of glomerular filtration rate as well as the liver function (J. W. Williams et al., 2016). Also, medications that have a high ability to bring down the blood sugar levels such as insulin, and drugs that cause increased production of insulin from the pancreas (secretagogues) such as sulfonylureas and glinides should be given with care in elderly patients as they cause hypoglycemia and minimal glycemic targets should be set for these patients (Kirkman, 2014).

Also, glyburide must be administered to elderly patients living with T2DM (American Diabetes Association, 2015). Warfarin and sulfonylurea also cause hypoglycemia and are therefore not used for elderly patients (Romley et al., 2015). For these reasons, doctors must provide adequate education to patients who are on glucose-lowering medications and

caregivers about the dangers associated with these medications, the signs, and symptoms of hypoglycemia, and the immediate treatment available. Diabetes foot ulcers, among the complications of diabetes, tend to impede their quality of life, especially in the case of amputation but this can be avoided through education and engagement in proper foot care practices (Morey-Vargas & Smith, 2015; Pourkazemi et al., 2020). It has been established that twenty-five percent (25%) of patients living with diabetes get foot ulcers in their entire lives and the cost involved in the treatment of foot ulcers is more than two times of any chronic ulcer (Hurlow et al., 2018).

Therefore, it is important patients receive sufficient knowledge on good foot care practices from their care providers to avoid the dangers involve with poor foot care. Diabetes patients are required to keep their toes dry using talcum powder and avoid the use of lotion to prevent fungal infection (Pourkazemi et al., 2020). They also are expected to use skin moisturizers to keep their feet soft to prevent cracks, corns, and calluses and trim toenails straight across and not round to avoid toe damage (Hasnain & Sheikh, 2009). They are to inspect and examine their feet daily for cuts, swelling, and redness (Pourkazemi et al., 2020). They must be educated to avoid walking barefooted and wear soak as well as well-fitting shoes all the time and wiggle and rotate the ankles times toes at least two to three every day to promote good blood circulation of the feet as avoid smoking too (Scheffler, 2012).

Elderly patients living with T2DM may require a good support system as most of them may be too weak to perform certain daily activities, experience impaired cognitive function, or maybe battle with comorbidity (Nezu et al., 2014; O'Shea et al., 2015). Studies have shown that sixty percent (60%) of elderly patients with diabetes have at least one existing medical condition apart from diabetes with forty percent (40%) having not less than four sicknesses happening at the same time which include falls, fractures, depression, hearing and visual difficulties as well as incontinence of urine (Depeursinge et al., 2010; Huang, 2016). The

self-monitoring of blood glucose (SMBG) is a useful device for managing diabetes (Wang et al., 2019). It allows diabetes patients to know their actual blood glucose levels and then modify their diet, exercise, or treatment where possible.

Several studies have proven that SMBG helps in the improvement and control and provides quick treatment in patients with T1DM or T2DM (K. M. Miller et al., 2013; Polonsky et al., 2011). It has been revealed that adherence to SMBG in both developed and developing countries is sub-optimal with America, showing an adherence rate of 52%, Latin America at 38.5%, the United Kingdom at 49.8%, Jordan at 59%, Cameroon at 22.6% and China, 18.9% (Al-Keilani et al., 2017; Claude Mbanya et al., 2017; Farmer et al., 2008; Ji et al., 2013; Li et al, 2011; K. M. Miller et al., 2013; Vincze et al., 2004). Studies revealed that one SMBG in a week is enough and safe just as four SMBG in a week to have a good HbA1c in T2DM patients who are not on insulin and near metabolic targets (Mungrue, 2014). T2DM according to diabetes experts in the United Kingdom (UK), patients on oral hypoglycemic agents (OHA) should check their blood sugar at least once during the day but should note the testing period that is whether fasting, before lunch or dinner, or after lunch or dinner during the day (Rindone et al., 1997).

Furthermore, without self-care support, self-care practices in the management of diabetes may not be effective. One of the assistance obtained by older adults in managing diabetes at home is the care from family members which includes support with finances, monitoring of sugar levels, ensuring adherence to recommended diet and medications as well as emotional support (Chlebowy et al., 2010; Pennbrant et al., 2019; Wulandari et al., 2021). Health professionals (doctors, dietitians, nurses) however, provide support to diabetes patients through education on the condition and its management, training on hands-on skills as well as meeting their psychological and emotional needs which result in the improvement in patient care and reduction in hospitalization (Drincic et al., 2017; Sørensen et al., 2020). Also,

support from a network of friends with similar conditions and the wider community is greatly cherished in diabetes care as it increases their motivation and confidence (Sauchelli et al., 2021). Greater Accra Regional Hospital (also known as Ridge Hospital) is the regional and referral hospital for the region (Greater Accra). It runs a diabetic clinic which records about 200 people attending on weekly basis. The regional hospital also recorded an annual average of 1900 cases of diabetes between 2012 and 2014 (Ridge Hospital Annual Report, 2015).

In 2018, the total number of older adults (adults who were 60 years and above) who attended the diabetes clinic was sixty (60). These attended the clinic month after month or as were scheduled to be seen by the health care team (Ridge Hospital Records, 2018). Out of these, 43% (26 of them) were males and 57% were females (34 out of the 60). In the year 2019, these numbers increased greatly to 160 that is older adults above the age of 60 years attending the diabetic clinic. The females were 98, representing 61%, whilst the males were 62, representing 39%. This increase was more than double (specifically 266.67%) what was recorded the previous year (2018).

In 2020 however, the number of cases dropped significantly to 112 (30% compared with the previous year). This could mainly be attributed to the Coronavirus pandemic and the associated restrictions it brought on human life and society. Since the elderly and those with chronic conditions (including type 2 diabetes) were more vulnerable to the disease, most of these elderly people were afraid to attend the clinic unless it was inevitable. Male older adults were 52 (that is 46%) whilst females were 60 (representing 54%. As of 2021 from January to June, the diabetic clinic has recorded 68 cases. Among these, female older adults are 45 (representing 66%) whilst the male older adult were 23 (that is 34%) (Ridge Records, 2021). It could be seen that the cases recorded are increasing from 2018 to 2019, but decreased in 2020, due to the pandemic. Also, there were more female older adults throughout all three and a half years of review.

The framework for this research is based on Social Cognitive Theory (SCT), developed by psychologist Albert Bandura in 1986, and serves as the guiding framework for the study. In this study, the components of self-care for T2DM comprise healthy eating, medication adherence, physical activity, self-monitoring of blood glucose, and foot care practices (American Association of Diabetes Educators [AADE], 2020; Borhaninejad et al., 2017).

1.2 Statement of the Problem

Diabetes Mellitus has become a major public health problem in Ghana, Sub-Saharan Africa (SSA), and the entire globe. The rise in the prevalence of diabetes has been linked to increasing levels of physical inactivity, excess body weight, unhealthy dietary habits, and an aging population (WHO, 2020). In Ghana, the 2010 Population and Housing Census estimated that the population of the aged has increased seven-and-half times from 1960 to 2010 that is from 213,477 to 1,643,381. This constitutes 6.7 percent of the total national population in 2010 compared with 4.5 percent in 1960. Over two-thirds of the elderly (68.2%) are within 60 to 74 years, and approximately one-tenth (9.6%) are very old (85 years and above) (GSS, 2012).

Currently, older people constitute about 7.2% of the country's total population (Mba, 2010). Ghana has one of the fastest-growing and highest proportions of older persons in the sub-region (Helpage, 2015; Mba, 2010). Research posits that an aging population is associated with an increase in chronic non-communicable diseases (NCD) as well as disabilities (Martin & Schoeni, 2014; Prince et al., 2015; Suzman et al., 2015). The natural processes of aging mean that chronic conditions are more prevalent among older adult populations. Evidence from literature indicates that the prevalence of chronic conditions such as obesity, diabetes,

and cardiovascular diseases is increasing in Ghana and the sub-region (Addai et al., 2014; Biritwum et al., 2005).

Management of diabetes, in general, continues to be challenging especially in resource-limited countries including Ghana (Wagner & Brath, 2012). Older adults are susceptible to suffering from illnesses and disabilities due to their weak immunity and aging processes resulting in reduced quality of life and high cost of health expenditure (Ishak et al., 2017). Studies have shown that diabetes self-care practices when adhered to by patients with the condition lead to a positive impact on their health, reduced complications (hypertension, amputation, nephropathy, neuropathy, retinopathy, cardiovascular disease, impotence, and skin lesions), reduced emergency admissions at hospitals, and improved quality of life and reduction in (Adeloye et al., 2017; Balducci et al., 2014; Mogre, Johnson, Tzelepis, & Paul, 2019).

Furthermore, most elderly patients living with T2DM and for their age may be battling with comorbidities, financial crises, and physical and psychological challenges, and may rely on total support and motivation from family members, loved ones, health professionals, community, and the nation to control their blood glucose levels through the adherence of recommended self-care activities. The findings of many studies suggest that diabetes patients who have fewer self-care skills are more exposed to the negative consequences of this disease (Ishak et al., 2017). This problem will be more severe in the elderly because caring for them is more difficult due to numerous physical and psychological problems that lead to different and sometimes irreversible consequences (G. C. Williams et al., 2004).

Also, to the best of the knowledge of the researcher, it appears that there is little scholarly attention given to the self-care practices among elderly patients with diabetes in Ghana although some researchers for example de-Graft Aikins et al. (2019), Asamoah-Boaheng,

Sarfo-Kantanka, Tuffour, Eghan, and Mbanya (2019), and among others have done some studies on diabetes. For this reason, this research seeks to explore the self-care practices of elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital.

1.3 Purpose of the study

The purpose of this study is to explore the self-care practices among elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital (Ridge Hospital).

1.4 Research Objectives

The objectives of this research study were obtained from the Social Cognitive Theory (Bandura, 1986). In other words, the major constructs of the Social Cognitive Theory postulated by Bandura in 1986 were employed to organize the research objectives of this study, and for that matter as an organizing framework for the entire thesis. The main objective of this exploratory descriptive research is to explore the self-care practices among elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital. The following are the specific objectives of what this study aims for.

1. Explore the knowledge of elderly patients with Type 2 Diabetes Mellitus on self-care practices.
2. Discover how elderly patients living with Type 2 Diabetes Mellitus can self-regulate their blood glucose levels.
3. Identify the barriers within the environment preventing elderly patients living with Type 2 Diabetes Mellitus from engaging in diabetes self-care.
4. Explore the sources of support received by elderly patients with T2DM in practicing diabetes self-care.

1.5 Research questions

1. What knowledge do elderly patients living with Type 2 Diabetes Mellitus have on diabetes self-care practices?
2. How do elderly patients with Type 2 Diabetes Mellitus self-regulate their blood glucose levels?
3. What barriers within the environment prevent elderly patients living with Type 2 Diabetes Mellitus from engaging in self-care practices?
4. What sources of support do elderly patients with Type 2 Diabetes Mellitus receive in their engagement with diabetes self-care?

1.6 Significance of the study

The findings of this study will help improve the self-care practices of this caliber of patients at Greater Accra Regional Hospital. Knowledge from this study will add to existing knowledge as well as bridge the knowledge gap.

Findings may inform the provision of new guidelines and protocols on diabetes mellitus which can be used on the wards to manage patients diagnosed with diabetes mellitus. It is also expected that nurses in practices and academia will develop an interest in the findings and conduct further diabetes research. The findings may reveal challenges related to adherence to self-care practices among Type 2 Diabetes Mellitus (T2DM) elderly patients so that appropriate interventions could be developed and resolved holistically. The researcher will have an in-depth understanding of the self-care problems of the elderly living with T2DM and how to improve self-care practices of the elderly with diabetes. Lastly, the findings of the study will help policymakers amend, enforce, and promote policies tailored toward the prevention and management of diabetes.

1.7 Operational Definitions

Self-care: the daily tasks that an individual living with Type 2 Diabetes Mellitus performs to manage diabetes.

Self-care practices are those activities such as healthy eating, regular exercising, self-monitoring of blood glucose levels, and foot-care practices that patients living with T2DM are to adhere to.

Elderly patients: patients who are sixty years and above.

Type 2 Diabetes Mellitus: is a condition characterized by persistently high blood sugar levels (hyperglycemia) due to insufficient insulin production and the inability of an individual to effectively metabolize blood glucose.

1.8 Summary

This chapter covered in detail the introduction and background of the study, an overview of diabetes, a problem statement revealing problems of the globe and national level of diabetes self-care, the significance of the research, that is, its impact on clinical practice, education, and research. It also highlighted the purpose of the research, objectives, and operational definition of key terms, and lastly the researcher's motivation in conducting the study. The next section will center on the theoretical framework, literature review, and the philosophical underpinning of qualitative research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of associated publications is necessary for any research work. This literature review makes provision for the theoretical framework on which this research is established. The purpose of this chapter is to bring out various studies that pertained to self-care practices concerning elderly patients living with diabetes mellitus type 2. A literature review provides a background of current knowledge on the topic and highlights the necessity for new studies (Polit & Beck, 2010).

The review of literature on the self-care practices among elderly patients with Type 2 Diabetes Mellitus (T2DM) is organized based on the research objectives which were obtained from the Social Cognitive Theory, serving as the guiding framework for the study. Related literature concerning this study is organized as follows: knowledge of elderly patients with type 2 diabetes patients about diabetes self-care practices, self-regulation of self-care practices of elderly patients living with Type 2 Diabetes Mellitus, the barriers preventing elderly patients with T2DM from engaging in diabetes self-care and sources of support received by elderly patients living with Type 2 Diabetes Mellitus. The search items were journaled articles, papers (Newspapers and thesis), reports, and books. Databases such as Science Direct, Medline, Cochrane Library, Cumulative Index to Nursing & Allied Health Literature (CINAHL), Wiley Online Library, SAGE, and Google Scholar were used.

The criteria for the search were abstracts, PDF full-text articles, current updates, and both quantitative and qualitative research articles. Key terms used for the search were: “self-care practices”, “self-care management”, “self-care behaviors”, “self-care activities”, “among elderly patients with type 2 diabetes”, and “among older adults with diabetes”.

2.2 Theories that were Considered for The Study

The utilization of behavioral models or theories is important in research work regarding behavior and health because they give a better understanding of human behavior and are suitable for health promotion behaviors and public health interventions. Some of the behavioral models/theories considered for this study were the Theory of Planned Behavior (TPB) and the Transtheoretical Model (TTM).

2.3 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was developed by social psychologist Icek Ajzen in 1985 but started as the Theory of Reasoned Action in 1980. TPB helps in the prediction of behavior and to understand of behavior and connects beliefs to behavior. It posits that a person's behavioral intentions are shaped by his or her attitude, subjective norms, and perceived behavioral control. In TPB, behavioral intention is the key determinant of human social behavior. It posits that behaviors are determined immediately by behavioral intentions which are determined by three components thus attitude, subjective norm, and perceived behavioral control which shape a person's intentions. The theory describes that in all behaviors people have the power to employ self-control.

It is of the assumption that the appropriate way to predict a person's behavior is when the individual has the intention to behave in a particular way (Ajzen, 1988). TPB has four main constructs. These are attitudes, behavioral intentions, subjective norms, and Perceived behavioral control (Ajzen, 1991). The theory predicts intention; however, the intention is not a good component to predict a behavior change or maintaining behavior. Hence, the Theory of Planned Behavior could not be used to guide the framework of this study.

2.4 Transtheoretical Model

The second theory or model considered was Transtheoretical Model (TTM). This theory was developed by psychologists James Prochaska and Carlo DiClemente in 1984, and 1986. TTM evaluates a person's preparedness to act on a new healthier behavior with strategies of change that serve as a guide for the person. It has five main constructs namely: precontemplation, contemplation, preparation, action, maintenance, and termination. Even though TTM is intended to change a behavior, it disregards the social context in which the behavior occurs. This was the reason Transtheoretical Model was not used as the framework for the study. The research upon going through these behavioral change theories landed on Social Cognitive Theory which was used as a guiding framework for this study.

2.5 Social Cognitive Theory

Social cognitive theory (SCT) is one of the commonest theories used in many studies to improve behavior in patients with chronic conditions such as diabetes mellitus Social Cognitive Theory (SCT) posits a reciprocal deterministic relationship or interaction between the individual, his or her environment, and behavior This interaction is known as Reciprocal determinism or triadic reciprocality (Bandura, 1977, 1986, 2001). It was developed from Social Learning Theory by psychologist Albert Bandura in 1986. The aim of SCT describes how all the factors in the person and the environment influence the behavior of an individual concerning health and the way people regulate behavior to achieve a targeted goal and maintain the behavior after a period. The interactions between the personal, behavioral and environmental factors are reciprocal and bidirectional (Bandura, 1989).

Justification of theory

Social cognitive theory (SCT) is one of the commonest theories used in many studies to improve behavior in patients with chronic conditions such as diabetes mellitus. Social Cognitive Theory (SCT) posits a reciprocal deterministic relationship or interaction between

the individual, his or her environment, and behavior This interaction is known as Reciprocal determinism or triadic reciprocality (Bandura, 1977, 1986, 2001).

The main reasons for choosing SCT over Planned Behavioral Theory and Transtheoretical Model are that SCT allows people to regulate their behavior to achieve the desired goal through knowledge acquisition. Also, in SCT, it is expected that a patient's behavior would be maintained after some time in an external environment where the behavior is displayed. It also gives opportunities for social support in the maintenance of behavior and the achievement of targeted goals.

However, in Transtheoretical Model (TTM), even though it is intended to change a behavior, it disregards the social context in which the behavior occurs. Again, the theory indicates the stages of change but it is not clear where a person's behavior is formed. This was the reason TTM was not used as the framework for the study. The Theory of Planned Behavior (TPB) is of the assumption that the appropriate way to predict a person's behavior is when the individual has the intention to behave in a particular way (Ajzen, 1988). The theory predicts intention; however, intention alone is not a good component to predict a behavior change or whether a person will maintain a behavior. It also does not consider the environmental factors responsible for a person's intention to carry out a behavior. For this reason, the Theory of Planned Behavior could not be used to guide the framework of this study.

Theoretical framework: Social Cognitive Theory

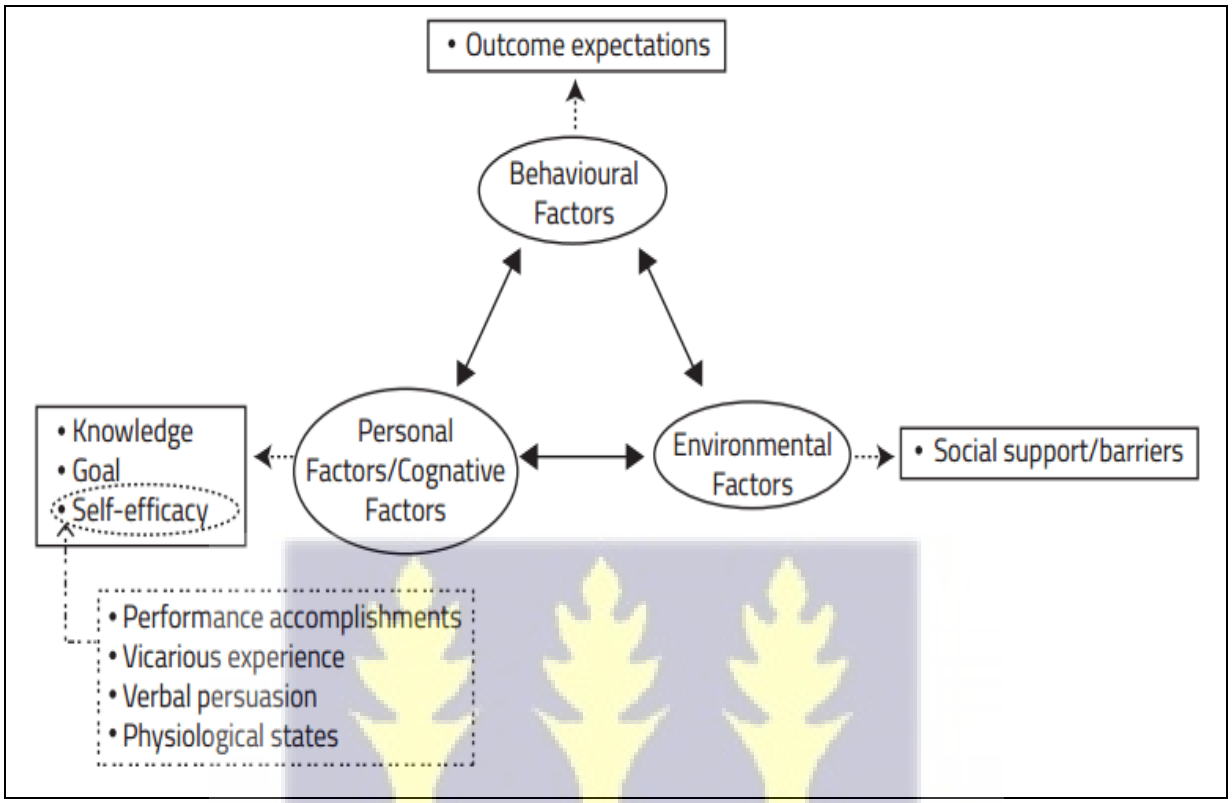

Figure 2.1: Determinants in Social Cognitive Theory

From the diagram, a person's knowledge will influence his/her behavior which is self-regulation, and behavior or self-regulation influences knowledge. Same for behavior and environment. A person's behavior can influence his/her environment and the barriers, as well as the support system in the environment, can also influence the self-regulation practices of an individual. Also, the knowledge of an individual can influence the support system as well as the barriers in the environment. In diabetes management, patients modify their behavior and adhere to self-care practices to have well-controlled blood glucose levels, healthy, and quality of life, there has to be an acquisition of knowledge (personal /cognitive factor) from healthcare providers (environmental factors) coupled with social support (environmental

factors) which will empower, motivate and drive the individual to set goals and targets (self-regulation, behavioral factors) and engage in diabetes self-care practices. However, patients will develop diabetes-associated complications if knowledge is lacking. This tends to affect self-regulation negatively which is a behavior factor. This tends to affect the social support system too which is an environmental factor.

2.6 Triadic Reciprocality

The reciprocal determinism is in the form of a triangle. At the top of the triangle are behavioral factors and the two corners are personal or cognitive factors and environmental factors. The connection between the three shows that they are influenced by each other. But the main aim is that the personal or cognitive factors, the environment, and behavior all influence each other.

This indicates that human beings are shaped by their environment likewise humans also shape the environment. This is what the triangle depicts. The link between cognitive or personal factors (knowledge) the behavior (self-regulation) shows an interaction between diabetes patients and their respective behavior which can be influenced by their thoughts and actions. The link between environmental factors (like social support and barriers) and behavior shows the interaction between the environment and their behavior which involves the person's behavior is influenced by their respective social network and in turn, affects their behavior. The link between the personal and the environment involves beliefs and cognitive competencies developed and modified by social influence. This interaction tends to affect the behavior of elderly patients living with diabetes either negatively or positively towards diabetes self-care.

SCT has been reported to have several constructs that include knowledge, self-efficacy, expectations of results, social support, self-regulation, goals, potential facilitators, and barriers (Wendling & Beadle, 2015). Adapting self-care behavior based on this theory can, therefore, be implemented as one of the effective ways of managing diabetes in elderly patients. Managing diabetes self-care is very important in terms of reducing morbidity and mortality of diabetes patients, however, it becomes a challenge to many people living with diabetes, as they need to adapt and learn self-care practices in their daily lives (Chan et al., 2017). The patient's desire to self-manage diabetes at home is influenced by personal knowledge, self-regulation, barriers, and social support. The study makes use of these constructs: knowledge (personal factor), and self-regulation (behavioral factor even though it is not directly seen in the diagram.

According to Bandura, the developer of SCT, self-regulation falls under behavioral factors (Bandura, 1978), barriers (environmental factor), and social support (environmental support). Personal factors affect the way people feel and the emotions they have in different situations, which cause them to behave otherwise. Behavioral factors include the skills an individual possesses, the ability to control one's process by applying a set of mechanisms such as self-monitoring, goal setting, feedback, self-reward, self-instruction (self-regulation), and the level of practice for specific tasks. Environmental factors include societal norms, community participation, interaction, etc

Knowledge (Personal or Cognitive factor): As much as self-care practices in Type 2 Diabetes Mellitus are a concern, knowledge, and skills are required by patients with the condition of diabetes self-care practices are necessary for bringing the disease under control (Bonger et al., 2018). Therefore a person's understanding of the disease, benefits, and

consequences of treatment and management of a condition is one of the most important factors that influence a behavior (Short et al., 2013; Young et al., 2015). Therefore, this suggests better knowledge about the diabetes disease and self-care practices such as adherence to healthy eating, medication compliance, blood glucose monitoring, foot care practices, etc. For instance, if a person knows that not eating a healthy diet or not taking his medication as directed by the physician will make him blind or cause his leg to be amputated, or premature death, he or she will put a premium on the management of diabetes. Furthermore, this knowledge tends to impact their lives positively.

According to the framework, the relationship between the constructs is bidirectional. This means that knowledge will impact self-regulation as well as the environment in which the person lives. So, knowledge received by patients on self-care practices at diabetes centers is supposed to shape their behavior in a positive perspective, improve their skills and knowledge, and motivate and empower them towards engagement in self-care practices. At the same time, knowledge will influence the environment too.

So, knowledge of diabetes self-care is also supposed to impact the environment positively. This means that if patients understand the education on self-care practices such as eating healthy, adhering to recommended medications among others, and complying with those recommendations, their blood glucose will be controlled, which may reduce the kind of support patients will demand in managing the condition as well as reduced the barriers uncounted in the environment. However, the opposite will occur if patients lack knowledge or understanding about their condition and its management. That means that patients will not able to self-regulate their blood glucose level due to ignorance, low self-esteem, discouragement, and frustrations resulting in negative consequences of the condition and

finally death. Then on the environment, there will be more demand from the environment and more problems or challenges.

Diabetes Self-Management Education (DSME) which is usually facilitated by health professionals at diabetes centers promotes knowledge, and skills and provides patients the ability to self-manage their condition (Al Saeed et al, 2018) leading to better glycemic control and delay or prevent complications. This will also reduce the financial burden on patients, relatives, and the nation as a whole, the reduced workload on health professionals, and reduced regular hospital admissions and mortality. Patients who practice adhering to dietary or exercise recommendations have higher satisfaction levels than those who do not (Kueh et al., 2017).

Patients who have a better understanding of the condition stand a better chance of making informed decisions regarding their diabetes management and work towards achieving good glycemic results. Linking patients' knowledge of diabetes self-care to self-regulation of the Behavior component in the model will mean that patients who have adequate knowledge of their condition will be confident and motivated to perform self-care activities. Such a person will also develop his or her problem-solving skills, overcome most barriers, and make informed decisions on treatment which will eventually result in well-controlled blood glucose levels (Hailu et al., 2019). Then in the environment, social support from peers, health professionals, community, and family will be reduced with fewer barriers. This, therefore, makes knowledge a critical factor to consider in ensuring that diabetes patients comply with all recommendations from their health professionals.

Self-Regulation (Behavioral factor): This component of the model explains how people regulate their behavior through control and reinforcement to achieve goal-directed behavior

that can be maintained over time. This is because individual and societal health are increasingly threatened by diseases like diabetes and hence diabetes patients must be responsible for managing their condition daily, under the direction of health professionals. Self-regulation is where patients translate their knowledge into action and achieve results. Self-regulation behaviors are therefore necessary for patients with type 2 diabetes in the pursuit of their different goals concerning diet, exercise, medication adherence, etc. to achieve glycemic control and reduce or delay complications (Oftedal et al., 2010).

Relating it to the model, patients who have good knowledge of their condition and its management will have positive attitudes, high self-esteem, and confidence in themselves, and will implement the recommended instructions such as dietary or medication recommendations from their health professionals.

The implementation of these instructions will lead to a positive outcome (good glycemic control) and improved quality of life. Then on the environment, this will positively influence or impact the environment. When a patient's condition is under control, his or her support system (family, peers, community, and health professionals) will not be overburdened. For instance, health professionals will not be overloaded with too many diabetes patients due to frequent hospital admissions or emergency admissions. And with knowledge, because the patient has achieved or attained targeted results will seek more knowledge to be in that of good health and no or fewer complications and vice versa. Self-regulation is, therefore, an essential factor in influencing the patient's capacity to control the diabetes disease and can be implemented through a successful treatment plan. This is because changing health behaviors is not something a patient can do with his or her willpower and therefore there is a need for elderly diabetes patients to acquire self-regulation abilities to lead healthy lives (Bandura, 1997).

Barriers (Environmental factor): Health professionals support diabetes patients through education and motivation to help patients follow diabetes self-care recommendations such as healthy eating, physical activity, self-monitoring of blood glucose (SMBG), foot care, and so on. Compliance with these activities has proven to bring the condition under control, reduce long-term complications, and reduced death (Mogre, Johnson, Tzelepis, Shaw, et al., 2019). However, elderly diabetes patients in implementing self-care practices are faced with barriers within their environmental setting preventing them from engaging in effective self-care practices. Some of these barriers include financial difficulties (high medical cost) associated with managing the disease, communication problems with their health professionals, lack of social support, cultural and societal norms, inadequate diabetes health facilities and personnel and so on which reduces their ability to perform diabetes self-care effectively. As a result of this, most of them get exposed to diabetes-related complications due to poor glycemic control (Joo & Lee, 2016).

Older adults are susceptible to suffering from illnesses and disabilities due to their weak immunity and aging processes resulting in reduced quality of life and high cost of health expenditure (Ishak et al., 2017), couples with these barriers tend to make their lives more miserable and pitiable. This negative impact tends to affect the relatives of these patients too, health professionals, communities, and the nation as a whole. According to the theory, the environmental barriers will influence behavior negatively through demotivation, low self-esteem, discouragement, and no willpower resulting in disengagement in self-care practices such as adhering to a healthy diet, medication, and poor self-regulation leading to complications and an unhealthy lifestyle. This will also influence the knowledge level of patients too.

Patients will end up missing hospital appointments which will result in no or insufficient knowledge and hands-on skills to engage in self-care activities such as self-monitoring of blood glucose levels, foot care, medication among others. For instance, language barrier, where a patient cannot speak, write or understand the English language but all communication with health professionals is in the English language. Such a patient will find it difficult to express himself or herself and cannot clarify issues with diabetes with health professionals. The patient will feel frustrated, discouraged and may have to travel far to seek diabetes care where his or her health needs will be met. This may lead to stress, inadequate diabetes knowledge, difficulty engaging in self-care activities, poor glycemic control, and complications.

Social Support (Environmental factor): Social support is the process where patients enjoy love and receive company and attention from family members, friends, and other people. This makes them think and feel that other people respect them, are interested in their well-being as well as value them. It also leaves a feeling that they belong to a social network of love and commitment (Rad et al., 2013). This study, therefore, explores this construct (social support) in SCT from family members, friends and close relations, health professionals, peers, and the community and their contribution to influencing self-care practices of elderly diabetes patients. Patients may receive support either emotionally or physically (Kaya & Caydam, 2019). Most patients are motivated to carry out self-care activities due to influence from family, especially older adults.

Social support is significant in the lives of elderly patients living with T2DM. This is because it helps them cope with the control and management of the condition (Sharoni et al., 2018). Continuous or reliable support from families, peers, health professionals, and so on shapes a patient's behavior or helps a patient to maintain a behavior after a while. For instance, a patient who receives support from family through the preparation of a healthy diabetic diet is

more likely to adhere to dietary recommendations than one without such support. Again, patients who have a good relationship with their health professionals and understand their guidance and instructions in the language they can understand and also in simple terms on diabetes management will have a positive result and vice versa. Such patients because they are adequately informed about the condition and its management are empowered and show a positive attitude (self-regulation) towards treatment options even amid challenges.

This will lead to good outcomes such as good glycemic control, reduced or delay complications, reduced frequent hospitalization, low mortality, and improved quality of life.

This is because they feel motivated, loved, and encouraged to have such a support system. Knowledge will increase because they receive assistance to attend hospital appointments, sometimes with a relative who is also educated on the condition. A good relationship with healthcare providers allows them to reach out to them each time they need assistance. Self-regulation practices will also be achieved because the support system enjoyed by diabetes patients empowers them, motivate them, and increase their confidence level to work towards controlling the condition. However, if patients are denied this support, their knowledge and skills to achieve targeted goals (self-regulation) will be affected. This will also lead to discouragement, lack of ability and desire to perform self-regulation practices, and eventually the negative consequences of the disease.

2.7 Literature Review

Related literature concerning this study is organized as follows: knowledge of elderly patients with type 2 diabetes patients about diabetes self-care practices; self-regulation of self-care practices of elderly patients living with type 2 diabetes mellitus; the barriers preventing elderly patients with T2DM from engaging in diabetes self-care; sources of support received

by elderly patients living with type 2 diabetes mellitus; and at the end of the main literature section, a summary of the literature reviewed has been presented.

2.8 Knowledge of Self-Care Practices of Elderly Patients with Type 2 Diabetes Mellitus

Education appears to be the most efficient and productive way to assist patients with type 2 diabetes mellitus (T2DM) achieve good glycemic levels and staying healthy (Shams et al., 2016). A patient's knowledge of the condition is an essential component that can help patients manage the disease, more and more people will understand the disease better and know how to change their behavior toward positive results or outcomes (Hariyono, 2020). The main remedy to T2DM for diabetes patients is to have sufficient knowledge of the disease. It is known that when patients have information about their disease condition, they will be able to identify the dangers associated with the condition, be encouraged to go to all lengths for the best treatment, and become more responsible to manage it (Jasper et al., 2014).

In Ghana, a study was conducted to assess patients' knowledge of diabetes complications and self-management strategies. Patients referred to diet as a core component of their diabetes self-management practice, according to the findings. Almost all of the patients were aware of dietary practices and believed that eating healthy had a positive impact on their blood glucose levels. In their meals, the majority of participants emphasized "no or low sugar consumption." One of the least stated self-management practices by the participants was exercise. Only two out of the twenty participants said that exercise was part of their diabetes self-management or were aware of the benefits of exercise, according to the study. Bossman et al (2020) discovered that several people described traveling large distances to their farmlands as a way to be physically active.

The majority of patients reported they took their drugs as prescribed and returned to the clinic frequently for refills. The handful who had received any information said they checked their feet now and then or wore suitable footwear to protect themselves, particularly low-heeled shoes to avoid accidental wounds. Furthermore, some of the farmers among the participants were aware of how to protect themselves from developing a cut or sore at work. However, several of the patients engaged in behaviors that increased their risk of foot problems. Some patients, for example, claimed to have treated their leg wounds at home (Bossman et al., 2020).

According to Diabetologist Professor Inzucchi, a patient who has adequate information about the condition will go the extra mile to keep the blood levels under control by following self-care recommendations from health professionals (Jackson et al., 2014). Insufficient knowledge of self-care practices will cause poor glycemic control and eventually result in complications such as retinopathy, nephropathy, neuropathy, and heart problems like hypertension (Jackson et al., 2014). These patients need to receive sufficient knowledge and education on the disease condition, self-care practices as well as the medications prescribed for them. A cross-sectional study conducted in Iran among in-patients with type 2 diabetes on diabetes knowledge, attitude, and practice revealed that diabetes longer duration of the disease was highly correlated with increased knowledge and information about the disease and management which was also consistent with Raj and Angadi's findings (Niroomand et al., 2016).

In a study on diabetes knowledge and self-care practices among diabetes patients in Rural Sullia, they found out that checking the feet daily as well as inspecting the inside of their shoes or footwear was not followed by the majority of the diabetes patients. The commonest habit they were practicing was to monitor their blood glucose levels at least once every three months and when directed by a doctor. Nearly half of the participants took medicines on

regular basis but less than half also exercised for twenty to thirty minutes five days a week. It was again discovered that poor food habits made it difficult for them to achieve good glycemic levels (Dinesh et al., 2016).

According to Murata et al (2003), diabetes knowledge is sometimes the foundation to make the right judgments concerning diet, physical activity, medication adherence, control of weight, foot care, glucose monitoring, and delay or prevent diabetes-related complications. The results show that those with lower health literacy have lower scores on the Diabetes Knowledge Test, are less physically active, less likely to perform glucose self-control, and have higher HbA1c levels than those with higher health literacy.

Furthermore, in a cross-sectional study conducted in Ethiopia to examine knowledge, attitude, and practice regarding diabetic self-care of T2DM patients, it was disclosed that more than half of the participants (201participants out of 371) practiced good self-care participants (Mekonnen & Hussien, 2021). The best self-care practices adhered to were no smoking (328 participants), medication adherence (305 participants), and adherence to no alcohol consumption (253 participants). It was revealed that adherence to self-monitoring of blood glucose (40 participants) was not adhered to by the majority of the participants (Mekonnen & Hussien, 2021). This could be a result of inadequate knowledge on the importance of self-monitoring of glucose and the lack of glucometer and its usage.

In Ethiopia, a controlled clinical trial was conducted to study the effect of knowledge, self-care behavior, and self-efficacy through diabetes self-management education (DSME) for T2DM patients (Hailu et al., 2019). With regards to foot care practices after the intervention, there was a significant difference between the two groups. Those who had DSME improved on foot care practices more than those without DSME. Similar results were seen in Morocco and Cameroon after the peer-supported intervention was carried out (Hailu et al., 2019).

This is evident that foot care practices correlate with increased DSME positively thereby preventing diabetes-associated foot complications.

In Brazil, a study showed that elderly patients living with diabetes and having low schooling lacked knowledge of the condition eight times more than their colleagues with high schooling (Borba et al., 2019). A longitudinal study was conducted for 751 elderly patients and found out that a low rate of literacy is associated with age and this was obvious among elderly with higher educational levels. This, however, asserts that low levels of education and old age contribute to insufficient health literacy and poor glycemic control (Borba et al, 2019).

In another study, Shams et al, which involved elderly diabetes patients, asserted that a good number of the elderly patients who participated in the study were aware that diabetic wounds heal slowly but did not know the safety measures required in cutting their finger and toenails and deal with cuts and abrasions but knew the target blood glucose levels and that, the checking of blood glucose levels is done using blood and not sugar (Shams et al., 2016).

Furthermore, in Brazil, a study conducted by Lima et al among elderly patients with diabetes revealed that elderly patients know that their disease requires different management approaches and the need to modify their lifestyle which include eating healthy foods, routine physical activity as well as compliance strictly to their physicians' instructions regarding their treatment (Lima et al., 2016). They also know that diabetes is a disease that demands complete care (Lima et al., 2016). It was evident in a study that due to the lack of knowledge on how to use a glucometer at home, patients who have a glucometer at home have poor diabetes self-care 2.5 times more than those who do not. The study reported that almost 90% of participants were not trained on how to check blood glucose levels using a glucometer (Kassahun et al., 2016).

A systematic review showed that age hinders patients from acquiring knowledge concerning diabetes self-care and glycemic control. In China, a study was conducted among 108 seniors living with diabetes and the results indicated that age and diabetes knowledge correlated negatively (Borba et al, 2019). It was revealed that diabetes patients with lower age had more knowledge of the condition than those with advanced age (Borba et al, 2019).

In Tanzania, research by Chiwanga and Nielekela revealed that most diabetes patients did not practice self- foot care including those at risk of getting foot ulcers. Most of them never engaged in regular foot inspections and were cutting their nails with razor blades and knives (Chiwanga & Njelekela, 2015).

Again, in the Netherlands, van der Heide et al (2014) examined the mediating role of diabetes knowledge on the relationship between diabetes health literacy and self-care practices among some Dutch adults with diabetes and found out that lower health literacy was significantly associated with less diabetes knowledge, higher glycated hemoglobin (HbA1c) level, less self-control of glucose level, and less physical activity (Kugbey et al., 2017).

At the National Diabetes Center in Baghdad, Iraq, a qualitative technique was used to collect data from T2DM patients. Twenty-four participants in the study agreed that regular daily walking is beneficial for controlling blood glucose levels, but only three said it should be brisk, and only four said it should be at least 30 minutes per day (Mikhael et al., 2019). Four participants, on the other hand, mentioned that Swedish exercise can be beneficial to diabetic patients. As an example of beneficial exercise, he mentioned resistant exercise. Gardening was deemed a useful and sufficient type of physical activity for diabetic patients by one participant while cooking and cleaning the house was deemed sufficient exercise for diabetic patients by another.

None of the participants mentioned other aerobic exercises like cycling, swimming, or tennis, nor did they mention resistance exercise as useful (Mikhael et al., 2019). Only 14 participants (7 on insulin and 7 on tablets) knew when to take their anti-diabetic medication, according to the study; however, two participants (7 on insulin) do not take their medication half an hour before a meal because they are hungry. All 16 insulin users were taught proper injection techniques, with 9 of them being taught by a physician, 2 by a pharmacist, 2 by a diabetes educator, 2 by other patients, and only 1 being taught by a nurse. Although the majority of the participants stated that they have at least one glucometer, only 22 of them (16 on insulin and 6 on tablets) knew how to use it to monitor their blood glucose levels.

Other patients, reading the glucometer manual, a pharmacist, a laboratory technician, or the physician all taught the participants how to test blood glucose. For more than 6 months, eight participants (4 on insulin and 4 on tablets) did not check their blood glucose levels. While some participants stated that they measure their blood glucose levels at least once or twice weekly, others stated that they measure their blood glucose levels 3–4 times per week, twice daily, or three times daily (Mikhael et al., 2019).

2.9 Self-regulation of self-care practices of elderly patients living with Type 2 Diabetes Mellitus

At home, people with diabetes must manage food, activity, and exercise, monitor blood sugar, confront diabetes-related problems, strategies to reduce risks, and maintain healthy coping behaviors in the face of daily challenges (Tomlin & Asimakopoulou, 2014). Self-regulation involves the ways people reshape their behavior by setting personal goals and effortfully working towards achieving the desired goal (Inzlicht et al., 2021). Self-regulation assists patients to achieve target goals and maintain self-care behaviors (Chuman & Hatamochi, 2021).

These self-care activities are carried out every day, demanding attention, strategy, and planning. The success of diabetes self-care depends heavily on patients' ability to integrate self-care activities into their daily routines. Relating it to the behavior of elderly patients with diabetes about their self-care, it implies the ability to do the things required to prevent unhealthy complications or restore one to the journey of good health if the opposite has occurred. Self-regulation in its totality raises patients' motivation level and engagement in self-care activities modifies habits and performs activities that promote diabetes care (Hariyono & Leo Yosdimyati, 2020).

Self-regulation behaviors are therefore necessary for patients with type 2 diabetes in the pursuit of their different goals concerning diet, exercise, medication adherence, etc. to achieve glycemic control and reduce or delay complications (Oftedal et al., 2010). Diabetes patients must receive adequate education regarding the disease and its management so that they will feel empowered to obey the recommended self-care practices from their health professionals which includes eating healthy, exercising regularly, monitoring their blood glucose levels, and caring for their feet properly to prolong their lives and also delay or reduce complications. Patients who have self-regulation skills are more motivated to adhere to self-care activities. Findings of research revealed that the levels of blood glucose remained normal after patients received knowledge and skills on diabetes and took a decision to set goals and worked towards achieving the targeted goals. In their study, they found that the intervention group had more reduction in calorie consumption than the control group. This change occurred because the patients themselves engaged in the self-regulation process to initiate the change by complying with dietary instructions (Chuman & Hatamochi, 2021).

Another study by Miller and friends whose study was to improve treatment compliance by adolescents with Type 1 diabetes mellitus (T1DM) and to strengthen their self-regulation through behavior intervention tests. It was recommended in this study that adolescents with

type 1 diabetes mellitus must be actively involved in self-regulation tasks such as regularly monitoring their blood glucose, adopting healthy eating habits every day, and ensuring access to sufficient T1DM devices in case they experience hypoglycemia and hyperglycemia (Laffel et al., 2020).

Studies have shown that self-regulation training has tremendous improvements in diet, physical activity, and self-monitoring of blood glucose. This was evident in a study by Tavakolizadeh et al which was consistent with previous studies from Giral Guembe and Esfandyari (2011), Heydari et al (2007), Brown (2002), and Behncke (2002). These studies showed that participants obtained good blood glucose levels, patients on insulin achieved a notable improvement in their physical activity after six months, and positive setting up goals, diet planning, and receiving support from dietary changes after self-regulation training was conducted. In these studies, patients achieved the targets by ensuring the performance of those activities such as avoiding overeating, consuming sugar-free diets, and so on (Tavakolizadeh et al., 2014).

A study conducted revealed that 464 of the study participants took their prescribed medication every day of the week. The majority of the respondents, 397, did not use the recommended Self-monitoring of blood glucose method. More than half of the 278 study participants did not follow the recommended diet management methods, according to the findings. Around two-thirds of those polled had followed the diabetic foot care guidelines. 386 people said they cleansed their feet every day of the week, while 273 diabetic patients said they checked their feet every day of the week. More than half of the respondents said they inspect their feet every day, and nearly all of them said they dry between their toes after washing their feet (Getie et al., 2020). Health care providers must offer consistent and high-quality education and information on self-care activities and hands-on training on a diet, exercise, and self-monitoring of blood glucose levels during education sessions at diabetes

units. This will offer a better understanding to patients since older adults want detailed and structured information and practical teachings (Brewer-Lowry et al., 2010).

A study also revealed that the majority of the participants, about twenty-four (24) out of thirty (30) had their blood glucose still not controlled with self-regulation strategies but statistically, the analysis revealed an effect of self-regulation on the blood glucose level of the diabetes patients. Their findings again indicated that few of the patients whose blood glucose levels were controlled after self-regulation were able to keep their blood sugar under control throughout (Hariyono & Leo Yosdimyati, 2020). Given this, health professionals must empower older adults to challenge themselves in learning self-regulation skills such as skills concerning diabetes self-management and know that they are the sole motivators in accomplishing their set goals. This will lead to proper compliance to recommended self-care activities, healthy life, and improved quality of life just like their younger counterparts. Research has shown that most elderly patients believe that diabetes self-care is needed to stay longer and live an independent life (Choi et al., 2014).

To assist elderly patients living with T2DM with self-regulation processes such as goal-setting, self-monitoring, self-reward, and reinforcement among others, health professionals must support older adults with strategies that facilitate behavior change to enhance their self-care skills, confidence, and self-efficacy for blood glucose control as well as deal with aging-related problems, such as memory decline, poor understanding of diabetes self-management and cognitive impairment (Choi et al., 2014).

Studies show that one of the powerful ways for self-care behavior changes is through social support (Hunt et al., 2012). It is evident that older adults label positive attitudes concerning diabetes self-care as a potent strategy and are being encouraged to participate actively in diabetes self-care practices such as adjusting to modify their lifestyle (Choi et al., 2014).

It is also very important that older adults exercise total control over their minds during fearful times in the management of diabetes. This is because research shows that inability to adjust the mind is linked to poor metabolic control and self-management of diabetes (Schmitt et al., 2014).

Even though some of them may express fear about a severe complication or negative emotions after diagnosis, they must adjust, overcome their fears, and make clear decisions to prioritize health and initiate change in behavior Whittemore et al (2019) with the help of their health professionals and family members to obtain good glycemic control. Some participants reported that diabetes regulatory behaviors such as healthy eating and exercise gave them an immediate feeling of bodily well-being, which positively influenced their motivation for continuing this behavior. However, the majority stated that the requirements of diabetes regulatory behaviors such as exercising did not result in a sense of bodily well-being, but rather in a feeling of physical discomfort, weakness, and fatigue.

Literature suggests that self-efficacy and self-regulation contribute to physical activity and both are needed in changing behavior successfully however after four months of follow-up, only self-regulation correlated with physical activity (Olson & McAuley, 2015). Olson and McAuley's studies also reveal that diabetes patients cannot change their health habits through willpower alone but also through motivation, self-regulation, and skills. This is therefore very necessary for health professionals to teach older adults suffering from diabetes self-regulation strategies. A study was conducted to investigate whether self-efficacy and self-regulation will increase the physical activity of older adults with diabetes. The findings showed that after a short eight (8) weeks intervention, there was some form of improvement in the physical activity level of the participants in post-intervention when compared with the control group. The study revealed that only self-regulation correlated to physical activity after four (4) months (Olson & McAuley, 2015).

2.10 Barriers (environmental) preventing elderly patients with Type 2 Diabetes Mellitus from engaging in diabetes self-care practices.

Generally, people want to feel well for that matter they try their best to maintain and improve to feel well (Beverly et al., 2016). In general, individuals value feeling well and place a high priority on maintaining and improving the way they feel. Diabetes self-care requires that 98% involve the patients' engagement with assistance from health professionals, family, and friends when there is no more strength in self-care (Feil et al., 2012). Such practices must be regular and ongoing. As older adults are encouraged to practice successful diabetes self-care, however, there are a couple of challenges faced by these patients. Most of these patients are likely to encounter barriers in the environment where they live which poses serious challenges to their adherence to recommended self-care practices.

In a study by Algarfri et al, it was revealed that a lack of social support was reported frequently by the female participants. They complained that obeying cultural norms and societal expectations concerning safety, security, and traditional dressing mostly women prevented them from engaging in physical activities in the gym in South Asian (Pakistan and Indian) British population and some Arabic countries like Qatar (Alghafri et al., 2017). Research has shown that diabetes patients experience a short visit duration during consultation with doctors due to an inadequate number of staff serving as a barrier to diabetes self-care. It is proven that in communication between diabetes patients and health professionals, the value of time spent by the patients was 5.2 minutes for the discussion of self-care activities such as blood glucose testing, medication, and diet among others. These patients also encountered specialists' turnout, shortages of nurses, physicians, and dietitians and due to the busy schedule of these few practitioners and dietitians, patients received insufficient knowledge on self-care practices (McBrien et al., 2017).

In China, cultural belief was seen as an impediment to the self-care activities of elderly patients when interviewed. Older diabetes patients prefer Traditional Chinese Medicine (TCM), an herbal medicine made up of natural products and other health products such as herbal tea and balsam pear to recommended-prescribed medicines by their physicians. They believe TCM is less harmful and safer to use than the recommended medicines from doctors (Western medicines). Most of these patients choose TCM remedies themselves without considering the negative implications (Shen et al., 2013).

Another research was conducted from a global point of view mainly on four continents which were Europe, Australia, Asia, and America on barriers to diabetes management among Type 1 and Type 2 diabetes patients. The findings revealed financial hardship as one of the barriers to diabetes self-care for the participants.

The participants requested that the government gives them more financial backing since their health insurance does not cover glycosylated hemoglobin (HbA1c) test and the need for continuous monitoring. They complained of the challenge of meeting the cost of some clinical investigations which are not covered by health insurance as well as the purchasing of devices such as glucometers and strips render them financially incapacitated (Adu et al., 2019).

Also, in Canada, findings from the research revealed that diabetes patients living in Alberta First Nations communities although they have full insurance coverage for medication, still face financial difficulties in managing diabetes. The study found that obtaining other diabetes equipment such as glucometer and glucose strips was financially problematic for most of them even though they received partial financial support from Non-Insured Health Benefits (NIHB) (Kulhawy-Wibe et al., 2018).

In the United States of America (USA), a study conducted among Korean-American elderly immigrants identified language issues as a barrier preventing them from effectively engaging in self-care activities. The study found that even though the USA has National Guidelines that provide cultural and linguistic sensitive healthcare services to patients who are not fluent in the English language, language was still a problem stressing most elderly immigrants. From this study, most of them travel long distances to seek health care from doctors who are not even diabetes specialists. This situation led to poor quality of care and low patient satisfaction (Joo & Lee, 2016).

Another study again found that elderly patients who were inactive lived too far from recreational centers, sidewalks, parks, or fitness centers that serve as a motivator for them to engage in exercise such as walking. This was similar to a study conducted in Malaysia.

Lack of a fitness facility was a barrier to physical activity as it identified there was no fitness center in the study area or close to the area (Justine et al., 2013).

Diabetes patients in rural settings experience geographic barriers making it difficult for them to access healthcare. They travel from afar for follow-up appointments and emergency services. In the United States of America, the White House Rural Council report in 2011 revealed that diabetes patients from rural areas traveled long distances for medical care, there was a scanty routine examination by the patients, and early detection of complications of diabetes was a very low and poor outcome of their health status as a result of inadequate health facilities and lack of health professionals (McBrien et al., 2017).

In Brazil, a study conducted showed that involvement in social and cultural functions such as weddings, festivals, family gatherings, and political meetings among others served as a barrier to self-care. It was reported in this study that thirty-nine percent (39.9%) of the participants could not adhere to dietary recommendations as a result of these social and

cultural functions because such events are seen as moments of showing love and affection and cannot be ignored. This has left a lot of diabetes patients in distress as they are not able to observe a healthy diet (Vargas et al, 2015).

In another study by Whitmore and friends, it was evident that the patients lacked access to healthy food, medications, and devices such as glucometers and test strips which affected their practices of self-care negatively. According to the participants eating healthy to control Type 2 diabetes mellitus is highly expensive. Hence, families of low income show no or low interest (Whittemore et al., 2019).

In McBrien and friends' study, the participants mentioned that lack of guidance by health professionals, inaccessibility to exercise centers or wellness centers, and inadequate knowledge on where or how to exercise were barriers to their engagement in exercise which was in line with findings of other studies among older adults with T2DM and the general population. It was identified in Swedish research that accessibility of exercise centers correlated to the frequent number of times spent from average to vigorous activities and for those who visited local exercise centers met physical activity recommendations sixty-nine percent (69%) more than those challenged with exercise facility inaccessibility (McBrien et al., 2017).

Furthermore, it has been proven that the lack of quality diabetes education for diabetes patients serves as an impediment to controlling T2DM. the study revealed that although the communities offer diabetes patients diabetes education services, there is still a lack of available rich diabetes education for some of the participants. Most of them were not informed of any education service and some too were not pleased with the education given to them in the communities. They had to go to tertiary hospitals for diabetes education which will demand more costs. Due to this problem, some of them seek options such as the internet

where there is no guidance or support compared to face-to-face interaction. This may also lead to inadequate knowledge of the condition and its management (Kulhawy-Wibe et al., 2018).

2.11 Sources of support received by elderly patients living with Type 2 Diabetes Mellitus

Diabetes is a chronic condition that requires constant behavior change for patients to adhere to recommended practices (Rad et al., 2013). One of the key components to change in behavior regarding self-care among people living with diabetes is social support (Ahmed & Yeasmeen, 2016). This is because it helps them cope with the control and management of this condition (Ahmad Sharoni et al., 2018). Social support is therefore the process where patients enjoy love, and receive company and attention from family members, friends, and other people. This makes them think and feel that other people respect them, are interested in their well-being as well as value them. It also leaves a feeling that they belong to a social network of love and commitment (Rad et al., 2013).

Patients may receive support either emotionally or physically (Kaya & Caydam, 2019). Emotional social support has to do with the individual's relationship with people that serve as a means of providing information, emotional or influence towards the well-being of the individual whereas physical support also involves the various forms of social interactions such as marital status and friends and the level of interaction with these relationships that is a social network (Kaya & Caydam, 2019).

For this reason, social support is necessary for undertaking effective self-care activities and glycemic control. Social support according to Shayeghian et al study was correlated with good glycemic control and self-care behaviors (Karimy et al., 2018). However, the greatest aspect of the care is performed when at home and in the family. As a result of this, diabetes is

sometimes known as the disease of the family because the influence of the management and control involves members of the family (Rad et al, 2013). Social support, more especially family support is an essential component in the success of diabetes self-care management. Most patients are motivated to carry out self-care activities due to influence from family, especially older adults. Social support is significant in the lives of elderly patients living with T2DM. This is because it helps them cope with the control and management of this condition (Ahmad Sharoni et al., 2018). Again, research has identified that the provision of emotional help with diabetes self-care to elderly patients through social support (family, friends, and organizations) are of great value to this group of patients' networks (Kaya & Caydam, 2019).

A study by Gillibrand and Albright on social support and diabetes self-care revealed a positive significant correlation between social support and self-care behaviors. They found out that self-care activities especially diet was highly influenced by social and family support (Rad et al, 2013). Marquez and friends' research on social support indicated that social support contributed to the physical activity and weight loss of patients with diabetes (Karimy et al., 2018).

Studies have revealed that the kind of social support majority of elderly patients are more satisfied with is the support from family members that is from spouse and children (Ahmad Sharoni et al., 2018). Although the family is the smallest element in society, the members significantly assist with diabetes self-care in various ways. The family members provide a conducive environment for the patients where they receive satisfactory care which may lead to good health and improved quality of life. The family members may also give updates on new diabetes care that may be beneficial to their relatives with diabetes, provide information on current medicines or even modern devices such as glucometer which may make the monitoring of blood glucose levels easier and simpler, assist in the compliance with

medications, diet, and physical activity, reminding of appointments for medical reviews and monitoring of blood glucose (Ahmed & Yeasmeen, 2016).

According to Strom and Egede (2012), family support is linked to self-care activities such as diet and exercise and fewer barriers to diabetes management. A researcher Sinclair and friends identified in their study that there was a significant correlation between adherence to self-care practices like self-monitoring of glucose, insulin administration, exercise, and self-care performed outside the home and psychological as well as influential support from their friends and family members (Werfalli et al., 2020). This means that the precious time spent by friends and families as well as assisting with their knowledge on diabetes management has great significance on self-care (Werfalli et al, 2020).

This means that in other to contribute to the healthy life of the elderly with diabetes, they must embrace and have adequate knowledge of the condition in conjunction with social support from friends and family. For this reason, health professionals must enhance their interpersonal skills and motivate elderly patients and their relatives to comply with diabetes self-care recommendations. Researcher Wen conducted a study on family support, diet, and sports among elderly men who were American Mexican living with T2DM. He noticed that increase in family support increased with adherence to sports and diet (Rad et al, 2013).

Furthermore, studies showed that the most vital source of support in diabetes care is that of a supportive relationship, and support from a spouse is the most vital type of support elderly patients with chronic conditions especially diabetes require (Kaya & Caydam, 2019). It is proven that marriages with great support from spouses are a strong predictor of self-care behaviors. This reason is that intimacy is directly associated with adaptation (Rivera-Hernandez et al., 2016). Also, in the study of Dimatteo et al, it was revealed that patients who were married complied with a healthy diet 1.27 times better than those who

were not. In another study by Dizaji and friends, it was reported that married patients also have good self-care behaviors and report to the clinic for reviews timely. The differences between the married patients and the unmarried with regard to diabetes care may be attributed to the support system of the family that the married patients enjoy (Karimy et al., 2018).

A supportive spouse may get involved in meal preparation suitable for the condition, medication administration, or exercise and can adjust to the situation. This action from the spouse motivates the diabetes partner to observe the recommended practices**.** However, the opposite will happen if the spouse with diabetes is managing the condition all alone. Furthermore, a spouse with diabetes may experience discouragement, anxiety, frustrations, and lack of confidence if couples are not living together or in dispute (Rivera-Hernandez et al., 2016)**.** Even though the family offers a varying degree of support to diabetes patients which includes encouraging them to adhere to diabetes care and their day-to-day activities, research has revealed that some families may not be supportive of diabetes care of their diabetes relatives. They criticize and nag which however reduces their freedom and confidence, and in turn demotivates them resulting in psychological distress or depression (Oftedal et al., 2010).

It is proven that poor social support does not only lead to high rates of mortality, morbidity, and depression but also affects the individual's general well-being and quality of life (Kaya & Caydam, 2019). The healthcare service is one of the supportive systems that renders various forms of care to T2DM patients and contributes to their wellbeing. Studies showed that some health care professionals did not know that some patients were unable to self-manage their condition which caused such patients more confusion and discouragement (Oftedal et al., 2010). This, therefore, indicates that some health professionals may not have a supportive relationship with diabetes patients. Research has revealed that adults with diabetes express a need for psychological support from their health professionals (Hendrieckx et al., 2020).

Studies have shown that people living with diabetes receive psychological support from diabetologists, nurses, and general practitioners than from psychologists ((Hendrieckx et al, 2020). This means that diabetes health professionals despite their knowledge of the condition and its management are also in the best position to provide emotional care to patients living with diabetes. Studies have indicated that the best way health professionals can support or coach diabetes patients is to develop self-efficacy, and skills such as setting goals, solving problems and controlling emotional problems. Health professionals do this together with the diabetes patients as well as their relatives to inform and support them.

Studies reported nurses were rated in the support they render to diabetes patients based on effective communication, therapeutic counseling, and professional interaction, and patient-centered care gives the patients the opportunity to make decisions that favors diabetes care and improves their quality of life (Cardoso et al., 2019). Health professionals (doctors, dietitians, nurses) educate patients on their condition, associated complications, test results, and the need for lifestyle modification (Boström et al., 2012). According to the United Kingdom National Audit in 2012, nurse practitioners run about one-third of the diabetes clinic in primary care. These nurses assist by providing care to diabetes patients based on their individual needs, training, encouraging patient safety, diabetes self-care, and hands-on skills (Courtenay et al., 2015).

Support from peers is very crucial in diabetes self-management. Peer support is the support received by diabetes patients from individuals also with diabetes but shares their life experiences of the condition to build, encourage, motivate and empower other diabetes patients through the knowledge gained. These individuals can be by an immediate family member or caregiver which is usually done face to face or through phone, community health worker, programs for mentorship, and so on (Warshaw et al., 2019).

Studies have revealed that peer support is appreciated by older adults in diabetes care. In China, peer group activities were organized for elderly diabetes patients which allowed them to interact, found role models, received consolation, and compare their conditions with those also living with diabetes (Shen et al., 2013).

Again, a study conducted in Free State, South Africa, diabetes peer support intervention for diabetes patients was done through the Mmogo-method (a qualitative data collection method in South Africa) to find out the experiences of diabetes patients, the findings revealed that the participants appreciated the importance of peer support intervention by the community health workers and emphasized how they had benefited from the study which included lifestyle modification, the confidence they developed to improve self-care, the new knowledge obtained and the consolation given them. They also expressed how the intervention had connected them to other peers with a similar problem. Furthermore, this finding was similar to that of Paul et al in Ireland whose study explored the experiences of diabetes patients, peer supporters, and nurses amid peer support intervention for diabetes patients. They had good results concerning peer support (Pienaar & Reid, 2021).

The findings of Peimani et al also revealed that the glycated hemoglobin (HbA1c) level of participants came down after peer support intervention was conducted and the p-value was equal to 0.045 9 (p = 0.045) making the study very significant. This was consistent with another study by Thom and friends where after six (6) months of peer support intervention, the glycated hemoglobin of the study participants dropped by 1.07 percent (1.07%), p = 0.001 (Peimani et al., 2018). Peer support in diabetes management cannot be overlooked due to its relevance.

Community support is the support received by diabetes patients from their communities or organizations they find themselves in. Support may come from religious groups, a community committee, community health workers, civic, freemasonry officials, barbers, drivers, and vehicle operators among others but patients who are not members of such associations or groups may not benefit from these sources of support (Warshaw et al., 2019). Research in China by Shen et al. (2013) again revealed that their participants enjoyed serene and peaceful communities and received help from the community committee.

Due to the love and unity that existed among the community members, the elderly diabetes patients (participants) were offered daily assistance such as leaders checking up on them, supporting them with trivial things, and asking about their conditions among others. This support from the community committee and neighbors empowered participants to give serious attention to their condition. They were also motivated, empowered, and improved their diabetes self-care as a result of the availability of posters and billboards in the residence which promoted awareness in the community (Shen et al., 2013).

2.12 Recommended Self-Care Practices

Diet: must be planned according to the individual preference and culture. Patients living with T2DM must receive professional advice on their diet from nutritionists or dietitians with regard to diabetes. It is advised that patients living with T2DM should consume more fiber diets, less processed carbohydrates, fruits in moderation, and vegetables. Low-fat dairy and healthy vegetable-based fats such as avocado, nuts, or olive oil are good for diabetes patients. They must avoid carbohydrates with added sugars or refined grains such as white bread, and white rice but eat whole grains like wheat, pasta, oats, barley, etc They must eat at least three main meals in a day. They must avoid the consumption of polished sugars and products like fizzy drinks, chocolates, or toffees because these are simple sugars.

Medication adherence: Patients can adhere to their medications by first of all starting the treatment when ordered by their doctors. They should decide to refill prescribed medication in the pharmacy. They should avoid taking the wrong dose.

They should avoid discontinuing their treatment. Patients must ensure they receive adequate counseling on their medication from healthcare providers before administering them.

Self-monitoring of blood glucose: It is advisable that if a patient takes insulin, testing is recommended before meals and at bedtime if the patient is taking multiple daily injections. One may test only before breakfast and dinner if he/she is on intermediate or long-acting insulin. However, for those who are not on insulin but on diet and exercise to manage T2DM, they may not need to test their blood glucose levels daily.

Physical activity: the recommended exercises or physical activities recommended for diabetes patients after consultation with their doctors include 30 minutes of moderate activity such as walking at a brisk pace (Kirkman et al., 2012). Yoga and chi are allowed to increase flexibility, muscular strength, and balance (ADA, 2017). Aerobic exercises such as walking, climbing stairs, jogging or running, etc, especially for those with disabilities in function (De Vries et al., 2012). Also, chair exercises are allowed for elderly patients.

Footcare: diabetes patients must inspect and check their feet daily for any abnormalities such as redness, cuts, blisters, and dry skin. Daily checking of the bottom of feet and between toes is required to rule out foot problems like corns and callous, fissures, and other skin infections (Ahmad Sharoni et al., 2018). Keep their toes dry at all times to prevent toe infections (Bakker et al., 2012). Foot examination at least once a year is recommended. Proper washing of their feet during bath times is recommended. Must avoid cutting nails with sharps but trim with a nail cutter. They must avoid walking barefooted and wear shoes all the time.

2.13 Summary of the Literature Review

A thorough literature search was done on the self-care practices of elderly patients with T2DM. the search was done under the following theme; knowledge of elderly patients on diabetes self-care practices, self-regulation of self-care practices among elderly diabetes patients, barriers that prevent elderly patients from engaging in self-care practices and lastly the sources of support relied on by these elderly patients with T2DM. Also, current studies from various scholars and researchers both qualitative and quantitative in line with this study were reviewed and used. Again, studies on diabetes in all populations (children, adolescents, and adults) in general were reviewed even though this study is focused on the elderly population.

From the literature, the main remedy to T2DM for diabetes patients is to have sufficient knowledge of the disease. It is known that when patients have information about their disease condition, they will be able to identify the dangers associated with the condition, be encouraged to go to all lengths for the best treatment, and become more responsible to manage it. Insufficient knowledge of self-care practices will lead to poor glycemic control and eventually result in complications such as retinopathy, nephropathy, neuropathy, and heart problems like hypertension and poor quality of life as well as premature death.

Self-regulation involves the ways people reshape their behavior by setting personal goals and effortfully working towards achieving the desired goal. This assists patients to achieve target goals and maintain self-care behaviors. Self-care activities are carried out every day, demanding attention, strategy, and planning from diabetes patients, and when adhered to become a routine for diabetes patients even in the midst of challenges. The success of diabetes self-care depends heavily on patients' ability to integrate self-care activities into their daily routines through self-regulation.

Barriers faced by elderly diabetes patients hinder them from practicing effective diabetes self-care. These various forms of impediments have exposed most diabetes patients to the negative consequences of diabetes and have placed more financial demands on patients, relatives, health professionals, the country, and the entire globe. Due to these barriers, most diabetes patients are dissatisfied with the care from their healthcare providers and refuse to attend scheduled appointments with their doctors.

Social support is necessary for undertaking effective self-care activities and achieving good glycemic control. However, the greatest aspect of the care is performed when at home and in the family. Social support is significant in the lives of elderly patients living with T2DM. This is because it helps them cope with the control and management of this condition. This means that in other to contribute to the healthy life of the elderly with diabetes, they must embrace and have adequate knowledge of the condition in conjunction with social support from friends, family, health professionals, and the community in which they live. For this reason, health professionals must enhance their interpersonal skills and motivate elderly patients and their relatives to comply with diabetes self-care recommendations.

2.14 The philosophical underpinning of qualitative research

Wahyuni (2012) defines the research paradigm as consisting of a set of essential assumptions and beliefs on a worldview that influence researchers' thinking and behavior. This study adopted the Interpretivist/Social Constructivist paradigm. According to Interpretivists, there is a clear difference between what empirical studies inform us of the world and what may be occurring Interpretivism worldview posits that people may see the same thing differently and come to varied conclusions due to the various cognitive, experiential, and other lenses they

wear. They construct understanding premised on detail and specificities and shared meaning (Antwi & Hamza, 2015).

Methodological approaches for interpretivism are more qualitative. Research evidence is only a part of the entire pieces of evidence sought, which is constructed through local and subjective practices. Knowledge is gained by an inductive approach recognizing, understanding, developing, and contrasting constructions through dialogue Interpretivists however contend that the objective of qualitative studies is not to generalize but to explore the meanings, and lived experiences, and obtain deeper insights from participants on a phenomenon. Such meanings are best socially constructed by both participants who experienced it and the researcher who is collecting the data in a mutually engaging setting. It is also argued by interpretivist-social constructionists that human behavior is dynamic across time and space, and therefore generalization beyond the particular people and time studied is not the main aim of qualitative studies (Antwi & Hamza, 2015). Every researcher should therefore choose which paradigm best reflects his or her set of individual beliefs and decide to adopt that worldview.

The study, therefore, selected the interpretivist-social constructionists' paradigm which, according to the researcher, represents the best set of philosophical beliefs for the inquiry and which also informed the methodology that was fit for the research purpose. Based on the nature of the phenomenon, which involved exploring the lived experiences and views of participants of elderly patients with Type 2 Diabetes Mellitus and characterizing their perspectives, the interpretivist/social constructivist paradigm was selected to help elicit a better understanding and ensure effective co-construction of the multiple realities involved.

CHAPTER THREE

RESEARCH METHODS

3.1 Introduction

This chapter centers on how the study was done. It gives a detailed explanation of the method and the methodology involved, the study design, the research setting, target population, sample size, method of sampling, data collection instrument, instrument administration procedure, data analysis, data management, and ethical requirement procedures.

3.2 Research Design

This study used an exploratory descriptive approach of qualitative research to explore and describe the self-care practices of elderly patients with T2DM. this approach is suitable for this kind of study because literature reveals little scholarly attention has been given to self-care practices of elderly patients with T2DM, particularly in Ghana. The feelings, thoughts, perceptions, and actions of participants are vital to understanding the phenomenon being studied (Polit et al., 2006).

For a researcher to obtain an in-depth insight into the experiences of a person or group of people and come to a comprehension of the phenomenon of the health of a person or group of people in a particular geographical location and come to a comprehension of the phenomenon under study, an exploratory descriptive design is an appropriate approach to use (Kline, 2008). The reason the researcher used this design was that, to the best of the researcher's knowledge, there seems to be little scholarly attention on self-care practices among the elderly with the condition (Asamoah-Boaheng et al., 2019; de-Graft Aikins et al., 2019; Doherty et al., 2014). This design, therefore, enabled the researcher to have one-on-one interaction with patients living with Type 2 diabetes mellitus by employing interviews, through which their knowledge of diabetes self-care was uncovered.

3.3 The setting of the Study

The study was conducted at the Diabetes Clinic of the Greater Accra Regional Hospital (GARH), popularly known as the Ridge Hospital in the Greater Accra Region of Ghana. The clinic is an Outpatient department (OPD) headed by two endocrinologists (diabetes specialists) who oversee the offers of the clinic and the diabetes patients. Diabetes patients are seen every day but Tuesday is the day majority of them are seen and also get to see the diabetes specialists. On this day, about forty (40) to fifty (50) attendants. There are medical doctors including house officers and nurses with various ranks in the clinic. The affairs of the nursing team are coordinated by a Nurse In-charge to ensure the smooth running of the clinic and effective patient care.

The clinic has three consulting rooms with each room occupied by a doctor and a nurse assistant for consultation. At Ridge hospital, the diabetes clinic starts at eight o'clock in the morning and diabetes education begins an hour before the clinic starts. Diabetes education includes the condition, causes, symptoms, treatment, complication, and self-care practices among others. This is handled by the senior nurses on duty and is done from Mondays to Fridays. Education is usually a group one where questions of patients are addressed to their satisfaction. Patients who need to see a dietitian is given a referral by their doctors. At the end of every consultation, the nurses give patients their next appointment date for the next visit.

GARH is in the Accra Metropolitan Assembly (AMA), precisely the Osu Klottey Sub-Metropolitan Assembly with nine (9) electoral areas namely, Osu Doku, Ringway Estate, Kinkawe, Osu Alata, Asylum Down, North Adabraka, Tudu, Odaw-Naa, and Official Town (AMA, 2018). The Greater Accra Regional Hospital (GARH) is an ultra-modern facility with a bed capacity of 620 and provides healthcare services to the whole of the Greater Accra Region with an estimated population of 4,283,322 (GSS, 2012).

The hospital serves the whole of the region. The Regional Hospital is accredited by the Medical and Dental Council of Ghana for the training of House officers in Medicine, Surgery, Obstetrics and Gynecology, Dentistry, and training post-graduate Residents in Pediatrics, Obstetrics, and Radiology. There are about 90 doctors and over 250 nurses at the hospital. It is a regional referral center that accepts referrals from all parts of the region and provides a wide range of services. These include surgical, medical, obstetrics and gynecology, accident and emergency services, pharmacy, radiology, and laboratory services.

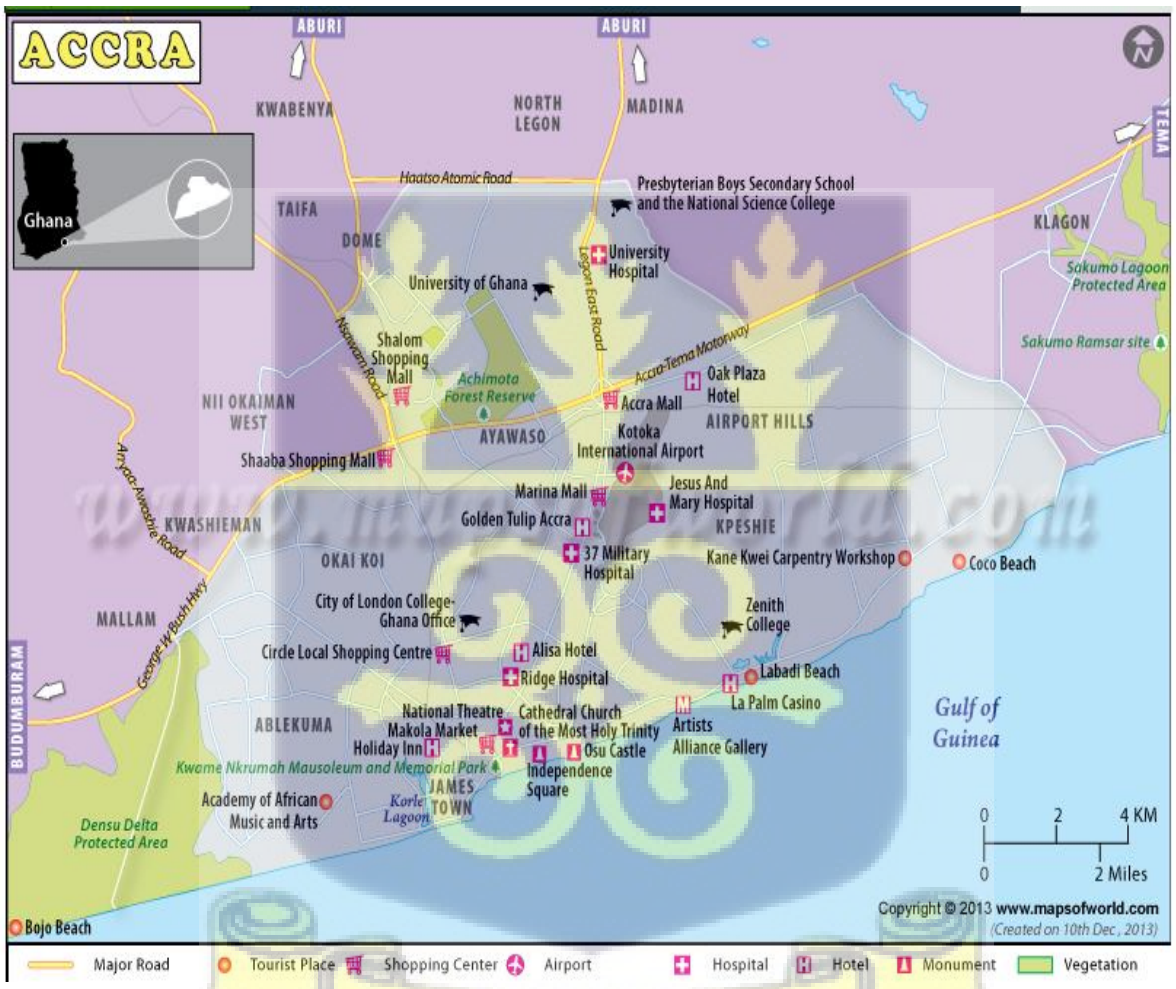

Figure 3.1: Accra City Map highlighting Greater Accra Regional Hospital

3.4 Target population

A target population is a group of people that a researcher recruits from a particular area of study (Creswell, 2013). The target population for the study included all elderly patients living with T2DM who attend a clinic at Greater Accra Regional Hospital (Ridge Hospital).

3.5 Inclusion Criteria

The inclusion criteria involved:

- All elderly patients aged at least 60 or more with a medical diagnosis of Diabetes T2DM for at least one year,
- not on admission, with no cognitive impairment or chronic complications of diabetes and
- Able to walk and can communicate verbally in English, Twi, Ewe, or Ga.

3.6 Exclusion Criteria

The study excluded:

- All patients living with diabetes mellitus who are less than 60 years of age are diagnosed with T2DM in less than a year.

3.7 Sample size

Generally, the sample size of qualitative research depends on the saturation of data, that is, the giving of similar responses by successive participants, and the emergence of no new theme or subthemes (Mason, 2010). The sample size was not decided before sampling and data collection. A total of twelve (12) participants were used in this study. This was achieved when no new response was obtained from study participants and the arrival of no new theme or subtheme. This means that saturation of data had been obtained by this number (Turner-Bowker et al., 2018).

3.8 Sampling Technique

Purposive sampling was used to recruit the participants for this study. Purposive sampling is a non-probability sampling technique in which a researcher relies on his or her judgment about a population to draw a sample that has characteristics required for the study from the population (Khan, 2014). The researcher used purposive sampling because she was only interested in older adults who were sixty (60) and above, have been diagnosed with T2DM for at least one year, and can give relevant information on their diabetes self-care practices. The purpose of the study was explained to the participants. They were given a detailed explanation of both the inclusion and the exclusion criteria for the study. Participants who met the inclusion criteria and consented were recruited and interviewed and became part of the study.

3.9 Ethical Consideration

For this study, ethical clearance is required for the protection of human objects, so ethical clearance (Appendix A) was obtained from the Ghana Health Service Ethical Review Board (GHS-ERC) and an introductory letter (Appendix B) from the School of Nursing and Midwifery (SoNM), the University of Ghana was sent to the Greater Accra Regional Hospital before the collection of data. Afterward, permission was obtained from the unit head of the Specialist Diabetes Clinic with assistance from the Nurse In-Charge of the OPD which the Diabetes clinic forms part of before recruiting participants for the study. The purpose of the study was explained to the participants, and their consent was sought before they were interviewed and became part of the study. Due to the Covid-19 pandemic, all protocols of Covid-19 were strictly adhered to. To ensure this, the participants were provided with nose masks and alcohol-based hand sanitizer.

A social distance of at least one meter between the researcher and the participant during the interview was maintained. The participants were informed that although they might not be

compensated directly in the form of money, a bottle of water, and snacks at the end of the interview, by participating in the study, the findings of the study will improve their diabetes self-care practices. Also, participants were informed that the interviews would have no harm whatsoever to their personality and their associates. All the participants were treated the same regardless of their beliefs and sentiments. In addition, participants who willingly consented to be part of the study were given a consent form to read and sign or thumbprint after they had understood the content of the consent form and the study before they became part of the study and were interviewed. The participants were assured of confidentiality and anonymity and were informed that they have the right to opt out of the study at any time during the research without any consequences.

Furthermore, privacy was ensured when the interviews were conducted. This was done as the interviews were between the interviewer and the interviewee only. However, a third party was employed as an interpreter when a local language that is Ewe or Ga which was not conversant to the interviewer was used. Audio recordings of collected data and consent forms have been kept under lock and key. Transcribed data and field notes have also been stored on a pen drive and kept under lock and key to be accessible to only the researcher to ensure confidentiality.

3.10 Data Collection Instrument

A semi-structured interview was used to collect data from participants. A semi-structured interview is a type of interview in which an interviewer is guided by a script or a set of questions to ensure all the interviewees provide information on the same topics but the interviewer can explore interesting issues in-depth based on the answers or responses by the interviewees (Qu & Dumay, 2011). Therefore, in conducting the interview, a semi-structured interview guide (Appendix E) was used to explore the self-care practices among elderly patients with T2DM. The semi-structured interview guide was developed but guided by the

social cognitive theory which defined the research objectives for this study. The interview guide was divided into two sections or two parts, of which the first part comprised of participants' demographic information, and the second part comprised of open-ended questions on participants' self-care practices of T2DM as well as probes based on their responses or answers. the interview of participants, however, was not repeated in this study.

3.11 Data Collection Procedure

The collection of data was dependent on the philosophical and theoretical underpinnings of the research with the intention that the data collected will produce the purpose of the research. Ethical clearance (Appendix A) for this research was obtained from Ghana Health Service- Ethics Review Committee (GHS-ERC) which was taken to the administration of GARH together with an introductory letter (Appendix B) from the School of Nursing and Midwifery (SoNM), Legon. After which the researcher was allowed to begin data collection.

The researcher was introduced to the Director of Nursing Services of GARH, the Nurse Manager for the Diabetes Clinic, and the other nurses. Primary data was collected from participants from Specialist Diabetes Clinic, GARH. The Nurse Manager for the Specialist Diabetes Clinic appointed one of the nurses to assist the researcher in the recruitment of participants. The nurse was therefore given a detailed explanation of both the inclusion and the exclusion criteria for the study. Before participants are recruited, the nurse introduced the researcher to the participants. Participants who consent to be part were informed of the purpose and the objectives of the research in the language they understand which is English, Twi, Ewe, or Ga.

Each participant in the study decided on the date, time, and venue for the interview. Before the interview was conducted, Covid-19 protocols were strictly observed. Each participant was provided with nose masks and ensured proper wearing of the masks. The researcher made sure the room or place where the participant was interviewed was well ventilated, cleaned,

and disinfected surfaces frequently and thoroughly especially frequently touched areas such as door handles, table surfaces, phone screens, pens, etc. Social distancing was maintained at least a one-meter distance between the researcher and the participants. All participants were given alcohol-based hand sanitizers which were used frequently during the time of the interview. Each participant was given a consent form to read, asked questions, and seek clarifications based on the content of the consent form and the study, and willingly signed or thumb printed the consent form after he or she had clarified all doubts and was very satisfied with the content of what he or she had read and the answers he or she had received.

For participants who could not read, the information was translated to them in a local language they understood. Each interview was audio-recorded and had a time duration of forty-five (45) minutes to sixty (60) minutes. Additionally, the researcher kept field notes to record information on his thoughts, emotions, and biases, as well as participants' environment, gestures, and non-verbal communication. Participants who consented to be part were informed of the maintenance of confidentiality and anonymity of their information. Again, they were informed of their right to opt out when they want and do so without fear. Participants were informed that the researcher may come back for clarification when needed.

3.12 Piloting the Instrument

Piloting of research instruments enables the researcher to know and understand the difficulty of participants to understand and answer the questions they pose to them. Piloting of the research instrument will therefore help modify the instrument before it is administered to the study participants to elicit the right responses from them (Resnick, 2015). The semi-structured interview guide, which was the data collection instrument, was piloted at the Pentecost Hospital at Madina since the hospital has the same caliber of patients with diabetes as GARH, which was the study setting. A semi-structured interview guide was employed to

interview three patients with diabetes who met the inclusion criteria for this study and willingly agreed and consented to be part of the study.

Their responses were used to make changes in the interview guide when needed before it was administered to the participants of this study so that the questions could be unambiguous to them, and the right responses would be elicited from them as well. An audio device was used to record the interviews and field notes of non-verbal communications such as gestures, facial expressions, mannerisms, and body language was also kept. In addition, this experience could also help the researcher to develop his interviewing skills before she interviews the participants of this study. Concerning the pilot interviews, none was used for the study because the data received was not rich and in-depth enough to be used for the study but helped the researcher to develop a better interview guide suitable for the study. It also helped the researcher to develop her interviewing skills and creativity in eliciting reach and in-depth responses from participants.

3.13 Data Management

The data collected during the research was secured to ensure that the confidentiality of the participants was maintained. Each participant was given a code before the interview was conducted. Afterward, pseudonyms were used to replace the codes after the interviews.

On the researcher's password-protected laptop, a folder was created for the response of each participant which contained the participant's transcribed interview and the researcher's field notes on the participant. Also, the audio recordings, field notes, interview transcripts, as well as the participants' consent forms were stored in a secured locker in the researcher's office. In addition, to guard against the loss of the raw data, the raw data was stored on a pen drive. However, after five years, the secured data will be discarded (Lin, 2009).

3.14 Data Analysis

Foundational to qualitative analysis is thematic content analysis. Thematic content analysis is a qualitative analysis method used to identify, analyze, and report patterns in collected or gathered data. Thematic content analysis helps in the organization and detailed description of data, as well as helps in the interpretation of gathered data (Braun & Clarke, 2006). The data collected for this research was therefore analyzed using thematic content analysis by Braun and Clark. According to Braun and Clarke, the thematic content analysis comprises six stages. The six stages of thematic content analysis the data was gathered were taken through "familiarization with the data, generation of initial codes, searching for themes, reviewing of themes, definition, and naming of themes, and production of the report" (Braun & Clarke, 2006).

The recorded interviews were first transcribed verbatim, the transcripts were read, and re-read, and the initial ideas, as well as interesting ideas coming from the data, were noted. Afterward, initial codes from the data were generated, and extracts from the data were matched to the relevant codes. Then, the various codes were collated into potential themes that were linked to the constructs of the conceptual framework. After that, the various themes were reviewed if some of them could be merged, broken down, or eliminated depending on the amount of data supporting them. Additionally, the data extracts under each theme are read and re-read to determine whether they form a coherent pattern. Afterward, a detailed analysis of each theme was conducted and the coherent pattern of the analysis of each theme was also looked at, as well as how each theme answered the research questions. Finally, a final analysis of the themes was done, and a research report was generated to provide accurate answers to the research questions.

3.15 Methodological Rigor

The utter importance of rigor in qualitative research cannot be overemphasized because of its greater worth and trustworthiness in ensuring that, the responses and experiences of participants are accurately represented or reported in a qualitative study, and researchers' conclusions in a qualitative study are the correct representation of participants' responses (Burns & Groove, 2014). There are varied methods for ensuring rigor or trustworthiness in qualitative research. There are varied methods for ensuring rigor or trustworthiness in qualitative research. However, the most commonly used one is that posited by Lincoln and Guba in 1985 (Houghton et al., 2013). Therefore, the main criteria for ensuring rigor or trustworthiness in qualitative research comprise credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

3.15.1 Credibility

Credibility refers to the correctness and authenticity of research findings (Polit et al., 2006). Credibility, therefore, brings to light the accuracy and representativeness of research findings from the data gathered from study participants (Anney, 2014)(Anney, 2014). Credibility in qualitative research can be ensured through member checking and peer debriefing (Houghton et al., 2013).

Purposive sampling was therefore employed to recruit the exact participants for this study who were elderly patients living with type 2 diabetes mellitus who attended a clinic at the Specialist Diabetes Clinic at the Greater Accra Regional Hospital (Ridge Hospital), who was sixty years and above and had been diagnosed of the condition for at least a year to explore their self-care practices of diabetes mellitus. This ensured that an accurate picture of the phenomenon under study was presented.

Member checking was ensured by verifying from study participants if their transcribed responses correspond to what they put out or what they wanted to put out before conclusions were drawn by the researcher. In addition, member checking was also ensured during data analysis and interpretation by using the accurate views of study participants to eliminate any bias on the part of the researcher. Also, to ensure peer debriefing, the first three transcribed interviews were coded separately by the researcher and one of her peers or course mates. The researcher then reviewed her coding by comparing it to that of her peer or coursemate and made the necessary changes.

3.15.2 Transferability

Transferability refers to the extent to which the findings of a qualitative study can be transferred to another context with other respondents (Anney, 2014). To ensure transferability, the original context of qualitative research works must be adequately described so that readers and consumers of the research can make the correct judgment on how the research findings apply to specific contexts (Houghton et al., 2013). Transferability was therefore ensured by outlining a vivid description of the study setting which is, the Greater Accra Regional Hospital (Ridge Hospital), clearly indicating the research method used and the characteristics of the participants that were selected.

Additionally, examples of the raw data were included in the study and clearly stated some of the participants' quotes directly.

3.15.3 Dependability

Dependability refers to the replicability of research findings or research results in the same or similar context with the same or similar participants when the same method is utilized (Shenton, 2004). This means that the same results or findings will be generated if another researcher who was not involved in this study conducted the same study. Dependability,

therefore, ensures that over time and during varied conditions, the data gathered is stable (Polit et al., 2006). Dependability in qualitative research can be achieved through audit trials and the code-recode strategy (Anney, 2014). To ensure an audit trail, the researcher records every area of the study diligently and correctly to avoid biases. All transcripts were read over and over for accuracy. Also, to ensure the code-recode strategy, coding was done twice with a one-week duration between the first session of codes and the second one. The researcher compared the results of the two sets of codes and made the necessary changes for accuracy.

3.15.4 *Confirmability*

Confirmability refers to the extent to which the findings of the research can be corroborated by other researchers. Confirmability, therefore, gives credence to the information provided by participants by ensuring that, interpretations of the data are not invented by the researcher or influenced by the researcher's knowledge, biases, and experiences, but are rather a reflection of the voice of the participants and the conditions of the research. One way to ensure confirmability in qualitative research is through an audit trail (Anney, 2014; Polit et al., 2006).

To ensure an audit trail, the researcher ensured findings were derived from the data, which was the reflection of the self-care practices of elderly patients living with type 2 diabetes mellitus. To ensure this, the researcher audio recorded the responses of the study participants and transcribed them verbatim. Afterward, themes and subthemes were derived from the data and supported with quotes from the participants. The researcher avoided biases to ensure true reflection and representation of the participants' voices.

CHAPTER FOUR

FINDINGS OF THE STUDY

4.1 Introduction

This chapter describes the data obtained from participants who met the inclusion criteria of the study as interpreted from the analysis and clarifies the findings of the study. The presentation was done in line with the themes developed during data analysis using thematic content analysis. This chapter is in two sections. The first section describes the demographic characteristics of the study participants whilst the second section describes the findings of the study after analysis of collected data. The themes reflected the aims and objectives of the study. Four (4) main themes were identified based on the constructs of the theoretical framework, Social Cognitive Theory (SCT) by Albert Bandura with other sub-themes. Verbatim quotations are added to the analysis.

4.2 Description of the Study Population

A total of twelve (12) participants were used for this study; seven (7) females and five (5) males. The participants used were between the ages of sixty to seventy plus (60-75+) with eight (8) married, three (3) divorced, and one (1) widowed. Five (5) of the participants had no formal education, six (6) of the participants had basic education with only one (1) participant with secondary education. On employment, seven (7) of the participants had retired whiles five (5) were working. Nine (9) of the participants were Christians whiles three (3) were Muslims. Five (5) of the participants were Akan of different tribes, two (2) were from the Ga tribe, another two (2) Ewes, again two (2) were Konkombas, and one (1) Dagomba. On the duration of being diagnosed with diabetes, seven (7) have had the disease for six to ten (6-10) years whiles two (2) have had it for eleven to fifteen (11-15) years, and the rest, two (2) participants less than five (5) years.

4.3 Organization of the themes

The use of thematic content analysis helped to develop four (4) main themes for the study. Knowledge on diabetes self-care, Self-regulation practices in diabetes management, Barriers that affect the management of diabetes, and Support systems relied on for the management of diabetes were the four (4) main themes developed.

Out of these four (4) themes, nineteen (19) sub-themes were developed. Under the theme "Knowledge on diabetes self-care", five (5) sub-themes were developed: Knowledge of healthy eating, Knowledge of medication usage, Knowledge of physical activity, Knowledge of foot care practices, and Knowledge of self-monitoring of blood glucose. For the theme "Self-regulation practices in diabetes management" five (4) sub-themes were developed: Adherence to healthy eating, Compliance with medication, Self-monitoring of blood glucose, Engagement in physical activities, and foot care practices. With regards to the theme "Barriers that affect the management of diabetes", six (6) sub-themes were developed. Inadequate financial support, Lack of quality diabetes education, Communication barrier, Language barrier, Cultural norms affecting practices and perception, Limited diabetes health facilities and personnel, and Limited community-level resources. The last theme "Support system relied on upon the management of diabetes" also developed four (4) sub-themes namely, Family support, Peer support, Health professionals support, and Community support. These themes and sub-themes are linked to the aims and objectives of the study and in conformity to the constructs of SCT.

Table 4.1 Organisation of Major Themes and Sub-themes

Main Themes	Sub-Themes
Knowledge of diabetes self-care	• Knowledge of healthy eating • Knowledge of medication usage • Knowledge of physical activity • Knowledge of foot care practices • Knowledge of self-monitoring of blood glucose levels
Self-regulation practices in diabetes management	• Adherence to healthy eating • Compliance to medication • Self-monitoring of blood glucose levels • Engagement in physical activity
Barriers that affect the management of diabetes	• Inadequate financial support • Lack of quality diabetes education • Language barrier • Cultural norms affecting practices and perception • Limited diabetes health facilities and personnel • Limited community-level resources
Support systems relied on in the management	• Family support

of diabetes	• Peer support • Health professionals support • Community support

4.4 Knowledge of diabetes self-care

This theme sought to determine whether participants know about diabetes and its related self-care practices. It was expected that participants would be able to show knowledge of diabetes self-care practices such as healthy eating, adherence to medications, self-monitoring of blood glucose levels, and foot care. The question posed was "*What do you know about diabetes self-care practices?"* participants gave their views on what they know about diabetes and self-care practices. They indicated what they are told to do at home by their health professionals during clinic times to control diabetes. Some of them showed knowledge of self-care by indicating that modifying their eating habits to suit the recommended dietary regimen, checking blood glucose regularly, and constant foot examination for cuts, calluses, and dryness after each bathing.

Few of them showed a lack of knowledge on some practices of diabetes self-care such as foot care practices, self-monitoring of blood glucose levels, and the use of a glucometer. Few of them thought Type 2 diabetes could be controlled only with anti-diabetics. Some showed knowledge of diabetes-related complications; if not well managed whilst few of them did not know. Knowledge of diabetes self-care practices developed four (4) sub-themes namely: Knowledge about healthy eating, Knowledge about medication usage, Knowledge about physical activity, and Knowledge of foot care practices.

4.5 Knowledge of Healthy Eating

Knowledge of healthy eating is a sub-theme under the knowledge of diabetes self-care which describes participants' knowledge of eating healthy diets to help their condition. The participants revealed many ways of eating healthy to help their diabetes condition. The participants indicated that they are very particular about the kind of meal or food they eat. Some of the healthy eating practices indicated by the participants were: adherence to diet, eating fewer carbohydrates, eating more vegetables, eating fruits (in moderation), reducing the number of meals per day to at least three meals a day, eating all meals on time, stop chewing sugarcane, avoid polished sugars and products like fizzy drinks, chocolates, or toffees and eat regularly especially those on Oral Glucose-Lowering Agents (OGLAs) to prevent hypoglycemia.

One participant stated:

"I know I have to eat small 'banku', but more stew with vegetables and fruits according to the doctor". (Participant 5).

Another participant added:

"I have stopped eating sugarcanes and sugar as they don't help my condition." (Participant 2)

The participants showed knowledge of healthy eating by giving portions of carbohydrates she has to consume that she has to eat small banku and more stew. She also knew that she has to eat fruits for a balanced diet. But the question is, does she know she needs just a sizable amount of the fruits and must eat it in moderation? Participant 2 knew that sugar will cause his blood glucose levels to rise more and for that matter, he has modified his behavior to stop consuming sugarcanes and sugar.

4.6 Knowledge of medication usage

This sub-theme deals with participants' knowledge of medication usage, specifically, knowledge of the type of medicines prescribed for diabetes and how they administer them. The participants showed apt knowledge of diabetes medication usage and what they take. Participants revealed specifically what they do regarding medication. Some indicated that they ensure that their medicine is taken on time and consistently. Others indicated that they ensure their medication is always available and never run out of stalk as this ensures that they always take their medicine. One participant who was the only one on insulin among them also indicated that she ensures that insulin injection is taken on time. This is evident by the statements below:

"I take Metformin for diabetes and some other one but the medicines are many because I have hypertension too." (Participant 10)

Another participant added:

''I have learned to take my insulin injections on time and ensure that I take the right dosage.'' (Participant 12)

The participants knew the type of medications they are served to control their condition but could not remember all because of the existence of comorbidities, they have more medicines to take. They know they do not have to go without their anti-diabetics as the other participant declared that he does not want to miss taking his medications.

4.7 Knowledge of Physical Activity

This sub-theme tackled participants' knowledge of physical activity about their condition. Some of the participants indicated that they have knowledge of exercise and how it helps the anatomy of diabetes patients. However, some participants also indicated that they do not know the help exercise does to the body of diabetes patients and thus do not engage in

physical activities. Some too did not know that walking, engagement in household chores, and swimming are forms of physical activities.

''I do not know if the physical activity will help with my condition so I don't exercise.'' (Participant 8)

The majority of the participants did not know that physical activity was part of the self-care recommendations for diabetes management. In this regard, a lack of knowledge on physical activity or exercise is evident.

4.8 Knowledge of Foot Care Practices

This sub-theme sought to investigate the foot care practices of participants. The study indicated that participants know foot care practices for diabetes. While some of the participants indicated that they had some form of education on foot care practices, others did not. Some of the foot care practices indicated by participants were: wearing slippers regularly, not walking barefooted, and wearing boots to avoid foot injuries. Some participants indicated that they take cutting their nails seriously so that no wound is developed, thus, some file nails instead of cutting nails with blades or scissors. Some did not know that regular foot examination by their doctors at least yearly was recommended for diabetes foot care. Some of the female participants also admitted that they inspect their feet for calluses and dryness after every bath and apply moisturizer (Vaseline) to their feet. This is evident by the statements below:

"I take care of my feet by making sure I don't walk barefooted with a blade to cut the toenails." (Participant 6)

Another participant indicated:

"I protect my feet, file my nails, avoid blades to cut them use and Vaseline on my feet after bathing." (Participant 3)

Some of the participants showed knowledge in foot care practices while others too had insufficient education on foot care practices in diabetes care.

4.9 Knowledge of self-monitoring of blood glucose (SMBG) level

This is the last sub-theme of the theme "knowledge on diabetes self-care". This sub-theme sought to explore participants' knowledge of self-monitoring of their glucose levels and glucometer usage. The majority of them knew the purpose of SMBG and indicated that SMBG makes them know the type of food that causes their blood glucose to rise after eating so that they can avoid it and also whether the anti-diabetics are helping or not. Some of them too showed a lack of skills in the usage of a glucometer. Few too had inadequate knowledge of SMBG. This was evident when they said SMBG is for patients on insulin only. These participants did not know that those who are not on insulin but on diet and exercise to manage T2DM need to test their blood glucose levels but not on daily basis.

*"I check my blood sugar at the Pharmacy because I can't use the glucometer." (*Participant 1)

Another participant added:

"I don't check my blood sugar at home because those on insulin are to do that at home." (Participant 4)

Participants exhibit some form of knowledge of SMBG but are not good enough. What they know is what they will practice. Some of them do not check their glucose at all when at home because they know it is only for patients on insulin injection which is not the case. However,

those who know that it is good the monitor your blood glucose whether on insulin or not also do not know how to use the glucometer and for that matter are not bothered to have one.

4.10 Self-regulation practices in diabetes management

This theme focuses on how diabetes patients self-regulate activities to manage their condition. It focused on the individual and how they translate the knowledge and skills acquired as well as the support received into action and achieving target results that are controlling diabetes through compliance to health professionals' recommendations. Out of this, four (4) sub-themes were developed: adherence to healthy eating, compliance to medication, self-monitoring of blood glucose, and engagement in physical activities.

4.10.1 Adherence to healthy eating

With this sub-theme, the focus was on how participants follow their healthy eating recommendations or if participants adhere to their healthy diet plan from health professionals. From the results, some participants indicated that they follow or adhere to recommended dietary instructions. They indicated there is a healthy eating routine they follow to enable them to manage the condition. Some participants, on the contrary, indicated that they do not have a strict plan but ensure that they eat a healthy diet to enable them to manage their condition.

"I eat a half plate of rice and fill the remaining half with vegetables since I follow a strict diet plan" (Participants 10)

Healthy eating is recommended for all patients with Type 2 diabetes mellitus. A healthy diet plan is required in diabetes management and must be complied with by diabetes patients. The participant knew following a healthy diet will help him achieve well-controlled blood glucose levels.

4.11 Compliance with medication

This sub-theme sought to understand how participants follow their anti-diabetic medications or if they comply with the medication regimen. From the study, participants indicated that they comply with the medication regimen with respect to the condition except for one participant who indicated that forgetfulness sometimes takes the better of him causing him not to take them as instructed. One participant indicated:

"I take Metformin 500mg two times a day by the use of an alarm clock and I'm doing well now."

(Participant 9)

This is an indication that some participants deliberated engaging in self-regulation activities. This is evident as one uses an alarm as a reminder in order not to forget to take his anti-diabetics. Adherence to the medication regimen produced the participant his expectation. He has seen improvement in his condition after using an alarm to make sure he takes medication at the right time. Whiles some participants make effort to comply with medication regimens, some too do not adhere due to forgetfulness and tight work schedule.

Another participant added:

"Sometimes I forget to take my medication due to my tight work schedule." (Participant 2)

4.12 Self-monitoring of blood glucose

This sub-theme focused on finding out how participants help themselves to monitor their blood glucose levels. The findings indicated that participants regularly check their blood glucose levels. Whiles some check their blood glucose level every morning and some too before bedtime. Some of them admitted that they check it but not regularly at hospitals, clinics, or nearby pharmacies. A few participants indicated that they have a blood glucose

testing device (glucometer) in the house to aid them in their testing. Thus, participants monitor their blood glucose level as their duty and ensure that it is done.

"I make sure that I check my blood glucose level every morning before at a pharmacy close to me." (Participant 1)

Participants show adherence by making sure that blood glucose is checked every morning before breakfast. This helps because if blood sugar is good and after breakfast, it rises, she will know what caused the rise in sugar levels and avoid it. And if it's high or low too, the necessary measures will be put in place to counteract every impending danger. However, it is advisable participants get their glucometer and be thought how to use them at home. It is safer that way.

4.13 Engagement in physical activities

With regards to participants' engagement in physical activity, the sub-theme sought to investigate if participants engage in physical activities and how they are done. The study indicated that some participants engage in physical activities. Some participants indicated that they do daily exercise whiles others indicated that they walk around with their partners. One participant also mentioned a 'keep fit club in his neighborhood that supports physical activity regimen. Few of them were demotivated and did not adhere to physical activity recommendations because of limited facilities in their community such as lack of wellness centers, sidewalks, or groups, and the high cost of exercise centers that do not enhance physical activity regimen. One participant stated:

"I do exercise every day with the TV people at least 30mins every day and a fitness club." (Participant 11)

"I do not exercise or engage in physical activity and there is no wellness center here" (Participant 9)

However, some participants indicated that they do not do any physical exercise. Some indicated that due to a lack of resources such as wellness centers or a fitness club in the community, they feel demotivated to engage in physical activity. The cost involved in physical activity in some exercise centers is highly expensive and they cannot afford it. Hence, their inability to follow recommended physical activity leads to poor glycemic control and its associated complications.

4.14 Barriers that affect the management of diabetes

With regards to this theme, the aim was to identify elements or things that act as barriers or blockages to the better management of diabetes by patients. From this, six (6) sub-themes were developed: Inadequate financial support, Lack of quality diabetes education, Language barrier, Cultural norms affecting practices and perception, Limited diabetes health facilities and personnel, and Limited community-level resources.

4.14.1 Inadequate financial support

This sub-theme detailed financial difficulties that make the management of diabetes difficult for participants. The participants indicated that financial difficulty is one of their cardinal barriers. Some stated that diabetes medications are expensive despite the partial coverage of the National Health Insurance Scheme (NHIS). Some too complained that the cost of diabetes care was very high. The majority had retired from their work and were not engaged in any income-generating ventures. Also, purchasing the medication constantly as well as having to do continuous clinical investigations was taking a toll on their finances. Others also indicated that local herbal medications are cheaper than the ones prescribed from the hospitals and as such, they prefer to buy those due to financial constraints.

"The National Health Insurance Scheme (NHIS) cater for the medical bill but not everything." (Participant 9)

Another participant added:

"It is hard for me financially because so government should make it free for only us." (Participant 11)

Most of them find it difficult to adhere to medication regimens and other diabetes self-care recommendations due to financial hardship. Even though the NHIS assists them financially, it is still not enough because diabetes care is expensive and demands more financial support unfortunately a number of them have retired and have no business or work that brings them income. They are calling on the government to make diabetes carefree for elderly diabetes patients. This inability to adhere to self-care activities has made some of them stressed and devastated.

4.14.2 Inadequate quality diabetes education

This sub-theme dealt with an inadequate high-quality education that diabetes patients are denied and serves as a barrier to effective self-care practices in managing diabetes. Some of the participants indicated they received adequate and high-quality diabetes education which has led to tremendous improvement in their condition.

Most of the participants established that although diabetes education is available at diabetes units, some of them don't get enough education. They indicated that diabetes education at diabetes centers is done very early in the mornings and by the time they get there, it would be over and they miss out on the knowledge shared.

Some also iterated that diabetes education especially dietary plans were not person-centered to suit their individual preferences but were generalized making it difficult to follow. Few of them were expecting healthcare providers to educate them on issues such as the preparation of traditional meals, spiritual beliefs, use of herbal medications, and cultural beliefs as they pertain to the management of diabetes. One male participant also indicated that he was

expecting care providers to make it compulsory for men to bring their wives or significant relatives to be educated on the preparation of traditional foods. The participants again indicated that the materials for delivery of diabetes education and information could be in other formats such as videos, pictures, and writing. This would make it easier for all classes of patients to be educated, understand and apply.

One participant complained of not having access to diabetes education materials such as leaflets at diabetes centers. This is evident in the statements:

"I retired as a nurse assistant in this hospital but I don't get any material on diabetes like a leaflet." (Participant 5)

Another participant added:

"Can't they make it compulsory for we the men to bring our wives all the time since they cook for us." (Participant 9)

Participants could have adequate knowledge and understanding of diabetes and its management to improve and yield good results if other formats of diabetes education materials such as leaflets were made available especially the educated ones at diabetes centers. Every diabetes patient must see a dietitian to have a diet plan that is individualized and person-centered.

4.14.3 Language barrier

Language barrier as a sub-theme relates to factors that hindered effective communication between participants (diabetes patients) and healthcare providers. Some participants indicated that they find it difficult to understand some English from the nurses that attend to them while some participants also said they are unable to ask questions back in English. Some too

iterated that the nurses at time communicate in local dialect mostly Twi and Ga which they find it difficult to understand and express themselves.

Participants added this problem makes them, misunderstand care providers' instructions, miss appointments and disobey diabetes treatment plans. According to some participants, they received inadequate care and become highly dissatisfied with a health professional. Other participants find it difficult to understand medical terminologies used by health workers.

"Some of the nurses communicate in English and I do not understand English very well." (Participant 5)

Another participant added:

"I do not understand some of the medical terminologies they use." (Participant 2)

For most of them communicating in a language that they do not understand or speak is a huge challenge for them as well as the use of medical terminologies. They always need interpretation of what is being said by their health care providers. This makes life very frustrating and difficult for them to comprehend diabetes-related discussions. They become dissatisfied with healthcare providers and look for other alternatives which may worsen the condition.

4.14.4 Cultural norms affecting practices and perception

The cultural attributes that affect the management of diabetes patients are the focus of this sub-theme. From the study, some participants indicated that there was a stigma associated with weight loss and thus as diabetes patients, they were particular about not losing weight, and any physical activity that would cause weight loss was a problem to them. Some participants also indicated that it was difficult to exercise freely because some dress codes are not allowed culturally (Islam) at the gym. One participant indicated that the addiction to traditional foods like fufu and banku made it difficult to switch to a strict diet plan.

"In our community, people see slim people as poor and sick so I don't want to lose weight." (Participant 3)

Another participant added:

"Hmmm, I do not like to go to the gym because of my Muslim outfit as a woman." (Participant 6)

Due to different cultures, tribes, backgrounds of participants, and their deeply-rooted perceptions about cultural and traditional norms, they find it difficult to modify their behaviors and conform to professional guidance that will help control diabetes. According to the participants because society sees slim people as poor people, losing weight to help control diabetes is a challenge, and are even worried about that. This hinders adherence to diabetes self-care and impedes diabetes management. Such perception and cultural practices do no good to the people but deny them access to a healthy and quality lifestyle. Islamic dressing too restricts women from engaging in exercises that are recommended in diabetes management. This prevents Muslim women from complying to exercise regimens.

4.14.5 Limited diabetes health facilities and personnel

This sub-theme deals with the inadequate personnel and facilities available to serve or attend to diabetes patients. From the analysis, participants indicated that there were no peculiar diabetes centers or clinics near them that could serve and meet their diabetes treatment needs except few ones including Ridge hospital where they seek medical care. In some facilities too, there are no diabetes specialists except general physicians who may not meet most of their needs. Some participants also indicated that there were very limited doctors and nurses available at the hospital where they visit. Due to the inadequacy with regards to doctors and nurses, some participants indicated that they spend more time in the hospital waiting to be attended to and less time spent with doctors during consultation. Some of them complained of

seeing diabetes specialists outside of the hospital as well as dietitians because of few specialists and dietitians. They also said the majority of the nurses were general nurses and not much-specialized diabetes nurses. This situation tends to impede quality diabetes education.

"There is no diabetes health facility near me so I come to this facility." (Participant 3)

Another participant added:

"These days we keep too long and nurses are not many at the diabetes unit here." Participant 10

Participants travel from afar to seek diabetes treatment because of limited diabetes health facilities. Participants keep too long to be attended to due to lack of staff. This can frustrate them and miss out on hospital appointments resulting in poor glycemic control. Inadequate personnel (doctors, nurses, and dietitians) contributes to treatment delays and long waiting time. As a result of this, not much opportunity is given to participants to discuss diabetes-related matters bothering them. They tend to lose confidence in health care providers, dissatisfy with care given, and disobey professional guidance such as compliance to diabetes self-care recommendations.

4.15 Limited access to community-level resources

This sub-theme tends to focus on the resources inaccessible in the communities and were serving as barriers to diabetes self-care. Most of the participants mentioned some of the few resources that were absent and were obstructing quality diabetes care. Some of them mentioned the absence of community health centers. Most of them indicated the provision of community-based clinics with diabetes specialists and diabetes nurse educators as well as dietitians in operation instead of hospital-based clinics to promote access. They also showed readiness to partake in health education and information sessions at the community level than

tertiary care settings. They also indicated that follow-up visit is very pivotal in diabetes self-care particularly the aged population.

A number of them indicated that nurses (community health nurses) visiting them at home to attend to their health needs will help them against moving up and down in their condition. The participants complained of a lack of recreational facilities like sidewalks, parks, wellness centers, community clubs (keep-fit clubs) for the elderly that will motivate and support physical activity recommendations except for some church groups that organize sports activities for their members.

"There is no community health center close here." (Participant 8)

Another participant added:

"It will be good to have enough community nurses that will be following up on us the older adults in our homes regularly." (Participant 1)

The support system relied on by patients in the management of diabetes

The final theme circled on the existing system of support that exists for and on which elderly diabetes patients rely. This theme developed four (4) sub-themes: Family support, Peer support, Health professionals support, and Community.

4.15.1 Family Support

Family support is important to any individual, more so when they are battling with any health condition and particularly this population. This sub-theme focused on how participants rely on family support in their quest to manage diabetes. From the study, participants have varying support from their family members. Some indicated that their son, spouse, or house help helps with the administration of their medicines including reminding them to take their medications, injection, and hospital visitation on time. Some participants also indicated that

their spouses, children, and other extended family members support them financially so they can pay for their medications and hospital bills. One participant indicated that her son constantly reminds her to check her blood glucose level and helps in physically buying medicines including eating the right foods.

"Yes! My eating is checked regularly by family members at home" (Participant 10)

Some participants can regulate their eating habits as a result of support from family members. Their diets are constantly checked by relatives to stay in line with recommended dietary requirements. Others too comply with medication regimen because of their relatives' support including reminding them to take their anti-diabetics on time and making sure that the right dose is taken. The support of the family in diabetes management cannot be overlooked.

4.15.2 Peer support

This sub-theme focused on how participants received support from their peers in the management of diabetes. From the study, the participant had divided views. Some participants stated that they receive support from peers who are in the same condition. Some peers call to encourage and give them a guideline on healthy eating and give them a general education on the condition, whiles some also encourage them to do exercises. However, some participants also indicated that they do not receive any form of support from their peers. Some said they do not receive calls on encouragement or tips to live a good life and that some peers show "no expression of love for their condition".

"I have some friends who help me on what to eat and how to go about things and medication." (Participant 4)

Another participant added:

"My friends do not help me so I do everything on my own." (Participant 6)

Some of the participants are aware of peer support and they benefit from it. Others too are unaware and are wondering if whether peer support in diabetes management exists in Ghana. Healthcare providers must encourage peer support groups in diabetes centers where other diabetes patients could come and share their experience with their fellow patients living with diabetes to empower and encourage them.

4.15.3 Health professionals support

This sub-theme focused on whether participants have needed support from health professionals. Participants expressed varying views on the sub-theme. Some were of the view that the health professionals they have come across were helpful when they were diagnosed and during their treatment. Thus, some participants are satisfied with the services of the health professionals and their attitudes. Some also indicated that health care professionals take their time to educate them on diabetes and what they can do to manage the condition.

On the other hand, some participants indicated they received less support from a health professional. Whiles some said some nurses and doctors were rude towards them and did not have time for them. Others said they have no dietician to talk to and none was assigned to them. Thus, some participants are of the view that health professionals do not support them and were not professional in their conduct.

"Some nurses are very polite to me and explain things to me." (Participants 7)

Another added:

*"No nurse or doctor helped me with my diet plan and one nurse exhibited unprofessional attitude." (*Participant 3)

Health care professionals support diabetes care by putting up the right attitude such as politeness, respect, and valuing the patients irrespective of their social status. This will instill in them confidence, trust, and satisfaction and go all out in obedience to recommended self-

care practices. Care providers who do not display the right professional conduct do not foster a healthy relationship between them and diabetes patients.

4.15.4 Community support

This sub-theme dealt with how diabetes patients receive support from the community in which they live. From the study, all participants except one indicated that they receive no support from their communities. The participant that received support from the community indicated that it came from the church where a sum of money was given to help support medical bills and some foodstuffs.

"My community does not support me in any way" (Participant 4)

Another participant added:

"Yes, only my church supported me financially and foodstuff at a point." (Participant 10)

Community support is recommended in diabetes management but most participants do not receive such form of support in their communities. However, communities can support diabetes management by setting up diabetes support groups, organizing health outreaches, and health talk to educate them on healthy eating, lifestyle modification, and diabetes complication prevention.

4.16 Researcher's Reflections on the Study

Participants were not prepared at the time of the recruitment due to the coronavirus pandemic. However, after the aim and the inclusion and exclusion criteria were explained to them and Covid-19 protocols maintained, they found it interested to be part of the study. Participants became more willing and prepared to be interview upon hearing that their participation in the study was not meant to harm them and they can opt-out anytime they want and will be provided with a bottle of water, nose mask, alcohol-based hand sanitizer,

and snack. None of them was forced or compelled to be part of this study. They all willingly consented to participate in the study. The finding of this study is a result of the preparedness of the study participants. Participants were interviewed at an office inside the diabetes unit of GARH. It was their clinic day with so much background noise with many patients in attendance. The noise was well controlled to prevent disruption during the interview sessions. This was ensured as one nurse controlled the patients to reduce the noise. The environment created some kind of fear to the participants as patients attending the diabetes clinic were many but they were counseled and strict Covid-19 preventive measures were followed as each participant was provided with nose masks and ensured proper wearing of the masks. The researcher made sure the room or place where the participant was interviewed was well ventilated, cleaned, and disinfected surfaces frequently and thoroughly especially frequently touched areas such as door handles, table surfaces, phone screens, pens, etc. Social distancing was maintained at least a one-meter distance between the researcher and the participants. All participants were given alcohol-based hand sanitizers and were used frequently during the time of the interview. Some of the participants felt comfortable to provide the researcher their real experience with diabetes self-care so that they could be given some sort of counsel or advice in areas they fell short whilst other thought by giving the researcher their real experiences, the researcher might report them to her fellow nurses it may be used against them so such participants were reluctant, to tell the truth about their self-care practices in DM management. The researcher established rapport with the participants before interviews were conducted.

The researcher explained to them the findings of the study will help improve the self-care practices of the diabetes patients attending GARH diabetes management. Participants were given sufficient information on the study and all their questions were answered in the language they can understand. The main challenge during data collection was the coronavirus

pandemic as there was so much phobia and participants were afraid of contracting the disease. The researcher counseled them that with the strict adherence to the preventive measures they were safe. Reach and in-depth responses were elicited from participants as face to face interview was done by the researcher and the interview guide was open-ended questions that were used to explore participants' experiences on self-care practices of T2DM. Reflecting on the experiences of the study, the researcher admonished health professionals to render patient-centered care to diabetes patients as well as engage with them through effective communication to identify the problems that is preventing them from adhering to diabetes self-care practices so that the appropriate intervention can be given.

4.17 Researcher Reflexivity on the study

The findings of this study have motivated the researcher to pay critical attention to diabetes management more particularly self-care practices since effective self-care practices help diabetes patients stay healthier and have improved quality of life by preventing complications, reducing frequent hospital admissions, reduces healthcare costs on patients, and relatives and healthcare burden on health professional, etc. Before the study, the researcher had the notion that due to the age of the study population, will not show knowledge on self-care practices in diabetes management and that accounted for their frequent admission to hospital. But for those with adequate information about their condition and self-management, adhere to self-care recommendations and do better coupled with other factors such as social support.

However, after the study, elderly patients living with diabetes must be given enough support in managing their condition. The study revealed most of them lacked peer and community support but literature reveals the relevance of these support in diabetes management. Again, the barriers stopping elderly patients from engaging effectively in self-care practices should

be addressed more importantly the issue with financial hardship. If possible, NHIS be made free in managing the disease.

4.18 Summary of Finding

This study made use of twelve (12) participants to study the self-care practices among elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital.

Participants used for the study were between the ages of 60-76 years. Using thematic content analysis, four (4) main themes were developed with nineteen (19) sub-themes.

From the study, participants have good knowledge of type 2 diabetes and have been diagnosed. The participants also revealed varying knowledge on a healthy diet for diabetes patients. Many participants are careful what they eat and some have stopped eating certain things to help their condition.

On knowledge on physical activities, the study revealed that while some participants know that engaging in physical activities helped their condition, others do not know and thus, do not engage in any physical activity.

On self-regulated practices in diabetes management, the study revealed that participants adhered to their diet plans and ensured that they ate the right foods. Participants also revealed that taking medication on time was essential and they ensured that it was done, though some indicated that they forgot sometimes. The testing of the blood glucose level of participants was also done regularly as revealed by the study. On the issue of physical activities, the study revealed that some participants either walked around, with or without their spouses or visited exercise centers to exercise. Some participants, however, did not engage in any physical activity due to their dress code, high cost of fitness centers, and absence of recreational centers such as a sidewalk, wellness centers in the communities in which they live.

With regards to barriers that affect the management of diabetes, the study revealed that inadequate financial support was a major barrier as hospital and medical bills were not easy to pay by the participants. Another barrier revealed from the study was the language barrier where nurses and doctors communicate more in English and at times local dialect (Twi and Ga) making it difficult for some participants to understand. The study also revealed that cultural norms affect the practices and perception of diabetes patients. Some participants indicated that due to their love for traditional food, they found it difficult to stick to a strict dietary plan to help their condition. Another participant indicated the displeasure of not being able to go to the gym because her attire does not fit the dress code because she is a Muslim. The study also revealed that there are limited nurses, doctors, and health facilities in their communities to attend to them.

Finally, the study revealed that whiles some participants have certain support systems they rely on in the management of diabetes, others do not. Some participants have support from their immediate family in meal preparation and taking their anti-diabetic medications. One participant was supported by the church financially to aid in the purchase of diabetes medication and foodstuff. The study revealed that though some diabetes patients received help from their peers who are also in the same condition in terms of education on diet, others do not get support from their peers. It was revealed again that majority of the participants did not receive support from the communities in which they live.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter focused on the discussion of the findings of the study. The study sought to explore the self-care practices among elderly patients with Type 2 diabetes Mellitus at the Greater Accra Regional Hospital. The theory that underpinned this study was the Social Cognitive Theory developed by Albert Bandura (Bandura, 1986). The discussion is done based on the major themes of the study namely Knowledge of diabetes self-care, Self-regulation practices in diabetes management, Barriers that affect the management of diabetes, and the Support system relied on for the management of diabetes which is in line with the objectives of the study. In this chapter, a discussion of the demographic characteristics is dealt with first then the themes and subthemes follow.

5.2 Demographic Characteristics of the participants

The age groups of the participants used for the study were between 60 to 76. This depicts the "elderly" population serving as the focus of the study. The age range is consistent with studies done by other researchers in this field (Borba et al., 2019; Hailu et al., 2019; Kassahun et al., 2016; Lima et al., 2016; Shams et al., 2016). An older population thus, helped the study to focus on its objective of using elderly people for the study.

Based on the religion of participants, almost all the participants, nine (9) were Christians with three (3) being Muslims. Thus, Christianity is wild spread in Ghana as noted by the Ghanaian census and also as documented and Muslims can engage in effective foot care practices as it is expected of them to wash their feet five times daily (Botchway et al., 2021; Indrayana et al., 2019).

Participants rooted in religion may affect positively their support system in the community and aid in the way they manage diabetes (Botchway et al., 2021; Karimy et al., 2018).

With regards to education, most of the participants had only Basic and Junior High School (JHS) education with about five (5) participants with no formal education; only one (1) participant had Senior High School (SHS) education. This perhaps determined the language barrier between participants and health professionals who normally spoke English (low schooling) and expected the participants to understand (Borba et al., 2019; Joo & Lee, 2016; McBrien et al., 2017). Also the reason for the inadequate knowledge of the few participants on diabetes self-care practices and noncompliance to diabetes management recommendations from their health care providers (Kugbey et al., 2017; Kulhawy-Wibe et al., 2018).

Most of the participants were married (8) or once married (1) with only one (1) widow. All participants confirmed that they have children. Being married or having a family is an important source of social support required by patients with Type 2 Diabetes Mellitus, particularly older diabetes patients. Thus, having a family or children or being married will help patients receive support either emotionally or physically (Karimy et al., 2018; Kaya & Caydam, 2019). With employment, seven (7) out of twelve (12) participants had retired and were not engaged in any form of work that could bring them income and five (5) were in minor businesses. This probably accounted for the financial hardship experienced by the participants (Adu et al., 2019; Kulhawy-Wibe et al., 2018)The study disclosed that five (50 participants were of the Akan tribe, two (2) were Gas, another two (2) were Ewes, another two (2) from the Konkomba tribe and the last one a Dagomba. Regarding the duration of disease, seven (7) have had the disease for six to ten (6-10) years whiles two (2) have had it for eleven to fifteen (11-15) years, and the rest, two (2) participants less than five (5) years.

This may be the reason majority of the participants had knowledge in diabetes self-care practices which supports literature (Niroomand et al., 2016).

5.3 Knowledge of diabetes self-care

The study revealed that most elderly diagnosed with type 2 diabetes have knowledge of the condition in the area of the study. The study revealed that most of the participants had adequate knowledge of the condition and its management. The findings of this study are consistent with the findings of another study conducted among patients with type 2 diabetes which showed that most of the participants were knowledgeable about diabetes and diabetes self-care practices (Jackson et al., 2014). It is very important to know a condition that one is diagnosed with; not only does it help with the eventual treatment of the condition but it helps patients adjust and modify their lifestyle to suit the condition and live a healthy life. This is similar to the findings of Hariyono and Leo Yosdimyati (2020) who stated that a patient's knowledge of the condition is an essential component that can help patients manage the disease; more and more people will understand the disease better and know how to change their behavior towards positive results or outcome.

This finding is also similar to the finding of Jasper et al (2014) who said that it is known that when patients have information about their disease condition, they will be able to identify the dangers associated with the condition, and encouraged to go all length for the best treatment and become more responsible to manage it. Thus, the knowledge of participants revealed in this study is encouraging and maybe because the participants used for the study are old and have enough time on their side to learn about their condition.

Another study of diabetes patients by Pace et al (2006)looked at knowledge and illness management, as well as the relationship between knowledge and diabetes control. It found that having appropriate information was unrelated to glucose control.

Thus, having the knowledge or information and using this knowledge well are two different things. That is why it is important to know the practical self-care practices these participants undertake. The knowledge of diabetes self-care exhibited by most of the participants revealed in this study also implies that participants received continuous diabetes education from their care providers. This finding may be because diabetes education offered at the diabetes centers by health care providers serve as a channel to empower diabetes patients and caregivers to engage in recommended self-care activities for improved health status and quality of life. Comparing this finding to a study by Pace et al (2006) which also focused on elderly diabetes patients, facts were established that due to possible reading, writing, comprehension, or even speech challenges, low education levels can surely limit information access.

This disease can limit access to health-care-related learning opportunities, especially since adult patients are generally responsible for their daily care. This finding indicated the significance of education as education appears to be the most efficient and productive way to assist patients with type 2 diabetes mellitus (T2DM) achieve good glycemic levels and staying healthy (Shams et al., 2016). The knowledge aspect of diabetes self-care revealed in this study again seems to imply that participants based on the information on diabetes and its management knew what to do at each time to control their sugar levels and prevent or delay complications (Jasper et al., 2014). The study also revealed that some participants did not know self-care practices relating to diabetes management. This situation will make it difficult for these patients to follow doctors' instructions and for that matter diabetes self-care practices at home. Thus, diabetes patients without self-care knowledge highly expose themselves to developing hyperglycemia or hypoglycemia and leave room for other complications. It also shows that health professionals still have a lot to do in educating all diabetes patients.

This finding is similar to the findings of Jackson et al (2014) who stated that insufficient knowledge of self-care practices will cause poor glycemic control and eventually result in complications such as retinopathy, nephropathy, and heart problems like hypertension. Looking at the fact that others know self-care practices, this finding may be because participants do not put more effort into learning about their condition.

On knowledge of healthy eating, the study showed that participants have knowledge of their eating behaviors and how they should eat. This implies that patients are given the right information to help them self-direct themselves when it comes to diet as diabetes patients (Bossman et al., 2020). The study revealed that whiles some participants adhere to a strict diet, eat fewer carbohydrates, eat more vegetables and eat more fruits, others reduce the number of meals per day, eat all meals on time, stop chewing sugarcane, dilute coke before drinking, avoid sugar and drink coconut every day. These are varying ways to engage in prudent healthy dieting and imply that patients have been well coached by health professionals on healthy eating as this will aid patients to manage diabetes well (Dinesh et al., 2016).

This finding is similar to the findings of Lima et al. (2016) which indicated that a modified lifestyle that includes eating healthy foods, routine physical activity as well as strict compliance to their physicians' instructions regarding their treatment helped in the management of diabetes. The finding is also similar to the study in Ghana which indicated that patients referred to diet as a core component of their diabetes self-management practice and almost all of the patients were aware of dietary practices and believed that eating healthy had a positive impact on their blood glucose levels. Even though the majority of the participants in this study had adequate knowledge of healthy eating, few of them had inadequate knowledge of healthy eating. These findings are congruent with the findings of another study conducted among patients with diabetes which showed that few of the

participants were not knowledgeable about healthy eating (Chourdakis et al., 2014). This is also similar to the finding in a study by Dinesh et al. (2016) which discovered that poor food habits made it difficult for the participants to achieve good glycemic levels. This finding may be because participants are addicted to certain foods over years and are finding it difficult to change their diet to suit their condition.

On medication knowledge, the study revealed that participants knew diabetes medication. They also knew how and when to take their anti-diabetic medications. Diabetes patients are expected to take medications regularly in other to put their condition in check. Thus, participants having this knowledge is critical. This authenticates the findings of Mekonnen and Hussien (2021) who stated that the best self-care practice of diabetes patients includes adherence to medication and Dinesh et al (2016) indicated that nearly half of the patients took their medications regular on daily basis.

However, Mikhael et al (2019) findings revealed that only 14 participants (7 on insulin and 7 on tablets) knew when to take their anti-diabetic medication. However, two participants (7 on insulin) did not take their medication half an hour before a meal because they were hungry. This is in line with the findings of this study as it was disclosed that few of the participants did not have enough knowledge of their medication and were skipping their anti-diabetics.

The study also focused on the knowledge of physical activities of diabetes patients. The study revealed that whiles some participants had knowledge of physical activities and how it helps diabetes patients Mikhael et al. (2019), the majority did not have knowledge of that and as such, did not engage in these physical activities. Some too did not know that walking, engagement in house chores, and swimming was forms of physical activities. This contradicts the findings of Mikhael et al. (2019) where the participants knew the benefit of physical activity and could mention walking, house chores, etc. as forms of physical activity and many

more except for aerobics and resistance exercises. However, this is similar to the study of Kugbey et al. (2017) which stated that lower health literacy was significantly associated with less diabetes knowledge, higher glycated hemoglobin (HbA1c) level, less self-control of glucose level, and less physical.

Furthermore, the study sought to explore participants' knowledge of self-monitoring of blood glucose levels. The findings revealed that few participants had insufficient knowledge of self-monitoring of blood glucose (SMBG). They knew the importance of SMBG but went to the pharmacy or hospital to check because they do not have their own and lacked the knowledge on how to use a glucometer (Dinesh et al., 2016; Kassahun et al., 2016; Mekonnen & Hussien, 2021; Mikhael et al., 2019). Having knowledge and the ability to check your blood glucose level is very important to a diabetes patient. This could help in many ways to prevent any eventuality and help patients adjust treatment appropriately. Thus, the level of self-monitoring knowledge was low and efforts need to be put in constantly to educate diabetes patients.

With regards to foot care practices, the study revealed that participants took that seriously. For a diabetes patients, it takes a longer time for diabetic wounds to heal and as such, taking care of their feet is essential (Dinesh et al., 2016). This finding contradicts the findings by Chiwanga and Njelekela (2015) in a study in Tanzania which found out that most diabetes patients did not practice foot care including those at risk of getting foot ulcers, this study revealed that participants had knowledge of foot care practices and engaged in them. Whiles some of the participants wore slippers regularly to avoid sore, others had a no walking barefooted policy and wearing of boots to avoid foot wound (Bossman et al., 2020). Again, the study revealed that to protect themselves from developing wounds, participants did not cut their nails with blades or scissors but rather file their nails. This finding is also different from the findings of who stated that in Tanzania, most diabetes patients never engaged in

regular foot inspection and were cutting their nails with razor blades and knives It is important to note that foot care practices correlate with increase DSME positively thereby preventing diabetes-associated foot complications (Hailu et al., 2019; Shams et al., 2016), as such, it is encouraging to note that participants practiced foot care. The difference in the findings may be due to the level of education participants have in the case Ghana as against the case Tanzania. The current study also revealed that few of the participants did not have adequate knowledge of self-care practices relating to diabetes management. This finding is in tandem with the findings of another study which indicated that the participants had poor knowledge of diabetes self-care practices (Saleh et al., 2012).

5.4 Self-regulation practices in diabetes management

The study revealed that many self-regulation activities that participants engaged in (Chuman & Hatamochi, 2021; Inzlicht et al., 2021). The study revealed that some participants adhered to a strict diet. Others were not eating foods that will affect their blood sugar level. This finding is similar to the findings of Marchini et al. (2018) which stated that some participants reported that diabetes regulatory behaviors such as healthy eating gave them an immediate feeling of bodily well-being, which positively influenced their motivation for continuing this behavior. The ability for participants to change their diet shows that will power is needed for self-regulation practices.

This is in line with the finding of Olson and McAuley (2015) who revealed that diabetes patients cannot change their health habits through willpower alone but also motivation, self-regulation, and skills. Participants were able to follow strict diets such as eating sugar-free diets, reducing the consumption of carbohydrates and eating fruits to balance their diets supports the findings of Chuman and Hatamochi, (2021) which revealed that the intervention group had more reduction in their carbohydrate intake than the control group after receiving education on self-regulation techniques.

For compliance to medication, the study revealed that medication adherence was important to diabetes patients. Some of the participants stated that they take their prescribed anti-diabetics on time and try not to forget them. Some also indicated they set an alarm as a reminder in order not to forget their medications. This is similar to the findings of Getie et al. (2020) who stated that four hundred and sixty-four (464) participants took their prescribed medications every day of the week. Though the number of participants used in the study by Getie et al. (2020) is more than this study, the findings are similar and this may be because diabetes patients are tutored on the effects or dangers of not taking their medication on time and regularly. The finding implies that these patients take their medication and test seriously (Kassahun et al., 2016). Comparing this finding to the study in Ghana by Afaya et al. (2020), revealed that age was found to be positively associated with medication non-adherence in this study.

In comparison to older patients, younger patients were more likely to be non-adherent (70 years and above). Although the study by Afaya et al. (2020) used the qualitative method, it discovered similar findings just like this study that used the qualitative method. The findings of this study again confirm the meta-review meta-analysis conducted by Wilson et al. (2020) which found that self-efficacy intervention enhanced improvement in medication adherence among type 2 diabetes patients although the intervention was an education on self-efficacy in diabetes self-management. However, the literature suggests that self-efficacy and self-regulation correlate with self-care practices in managing diabetes (Olson & McAuley, 2015).

The study also revealed that the majority of the participants engage in checking their blood glucose levels. Few participants ensured that it was checked regularly by themselves with a glucometer. Others however either visited the hospital or pharmacy close to them to check their blood glucose levels.

The participants ensure that their blood glucose level is checked serves as good self-regulatory behavior. This attitude will ensure that the right intervention is given at the right time when necessary (Tavakolizadeh et al., 2014). This finding confirms the findings of Chuman and Hatamochi (2021) who stated that the levels of blood glucose remained normal after patients received knowledge and skills on diabetes and took a decision to set goals and worked towards achieving the targeted goals.

The study also revealed that few of the participants did not adhere to self-monitoring of blood glucose. This is in line with Getie et al. (2020) study which indicated the majority of the participants, three hundred and ninety-seven (397) did not use the recommended self-monitoring of blood glucose method. The similarity of this finding to that of Getie et al. (2020) done in Ethiopia may be because, in both Ghana and Ethiopia, there is limited continuous education on regular self-monitoring of blood sugar levels. It may also be because in Ethiopia, as in the case of Ghana, many of the participants did not have personal glucometers and had to always visit the hospitals/pharmacies to check their sugar blood level; this may discourage patients who may leave a little far aware from these hospitals/pharmacies.

It is also important for health professionals to encourage all diabetes patients to keep personal glucometer and be trained on how to use it Brewer-Lowry et al. (2010). This study again is in line with (Miller et al. (2020) whose study admonished adolescent patients living with Type 1 diabetes mellitus (T1DM) to be actively engaged in self-regulation tasks such as monitoring their blood sugar regularly and have enough T1DM devices in case of hypoglycemia or hypoglycemia.

The study again revealed that some participants engaged in physical activities to help them stay fit. Those who engaged in physical activity such as walking around their house, performing house chores, and participating in group exercises such as 'keep fit' indicated improvement in their condition resulting in good health and improved quality of life (Choi et al., 2014). This finding is similar to studies by Tavakolizadeh et al. (2014) and Olson and McAuley, (2015) which revealed that diabetes patients after receiving training engaged in physical self-regulation realized notable improvement in their physical activity and condition.

However, some participants also indicated that certain barriers prevented them from exercising even though they knew about the importance of physical activity on their health as diabetes patients (Shultz et al., 2001). Some participants were not engaging in physical activity because they are unaware of the benefits. This implies that these patients have not received enough education about exercise and its benefits in diabetes management. This also agrees with Brewer-Lowry et al. (2010) who stated that it is essential for nurses and diabetes educators to offer consistent and intensive knowledge on self-care behaviors and hands-on training including diet, exercise, self-monitoring of blood glucose levels, etc. since older adults want detailed and structured information and practical teachings. The difference in this finding may be because, in the study by Tavakolizadeh et al. (2014) and Olson and McAuley (2015), there was training done on the need and importance of physical activities for diabetes patients (six months of training and was eight weeks respective) as compared to this study where no training was given.

5.5 Barriers that affect the management of diabetes

The study revealed that financial support was inadequate for participants. Diabetes patients require constant medication, check-ups, good food, and blood glucose test devices to manage the condition effectively as well as live a good healthy life. Diabetes patients also need regular check-ups which involve money to pay bills.

For the elderly, funding these can be difficult, more particularly if there is no support financially from others. It was also revealed in this current study that despite the partial coverage of the National Health Insurance Scheme (NHIS) assisting with their medical care needs, there were still high financial demands on them in controlling the condition medically and requested the government makes diabetes care free for older adults.

Comparing this finding to that of Arabia et al., (2017) done in Saudi Arabia using a quantitative method, the findings stated that patients with little income have a harder time accessing healthcare services and purchasing specialized equipment. Low income or financial constrain, can also be used as a proxy for life stress, which has been linked to higher morbidity and mortality among diabetes patients. Though the two studies used different methods in different locations, the finding is the same. Thus, the inability to financially provide for the things they need serves as a strong barrier. This finding is similar to findings from Kulhawy-Wibe et al. (2018) concerning diabetes patients in Alberta First Nations communities in Canada and the findings of Adu et al. (2019) where financial hardship was one of the barriers to diabetes self-care of the participants; meeting the cost of some clinical investigations which were not covered by the health insurance as well as the purchasing of devices such as glucometer and strips render them financially incapacitated and request financial backing from their governments (Adu et al., 2019; Kulhawy-Wibe et al., 2018).

Again, one major barrier revealed by the study was the language barrier between health professionals and diabetes patients (McBrien et al., 2017). Health professionals and diabetes patients and for that matter, other patients must communicate well. Patients need to understand what nurses and doctors ask of them to be able to follow diligently. More so, because people's lives depend on what doctors and nurses say, health professionals must communicate with diabetes patients in a language they can speak and understand.

They must as well communicate to patients in simple and in clear terms so that they can understand and follow effectively health instructions given to them. This finding is similar to the findings of Joo and Lee (2016) in the United States of America who stated that the language barrier was identified to be preventing Korean-American elderly immigrants from engaging effectively in self-care activities and was stressing most the elderly diabetes patients. The similarity in the findings may be because English is not the native language of these participants in Ghana and as such, they will find it difficult to understand fully just like in the case of the Korean-American elderly immigrants in the USA in the study by Joo and Lee in 2016.

Again, the results of the study revealed that some participants indicated not having quality diabetes education served as a barrier. For diabetes patients, it is cardinal that they have education on their condition and learn self-care practices. This education, however, needs to be of quality as their lives and health depended on it. As such, it needs to be done and taken with all seriousness and intention. Participants noting that diabetes education was not of a quality to them showed that health professionals themselves need to be more knowledgeable about the condition and its management and become abreast with current treatment options and new trends in diabetes management.

Most of the participants showed that even though they have some form of knowledge on the condition and its management, health professionals can do more such as delivering diabetes education in other formats such as video, leaflets, and written formats just to mention a few. This is similar to the finding of Kulhawy-Wibe et al. (2018) who stated that it has been proven that the lack of quality diabetes education for diabetes patients serves as an impediment to controlling T2DM. Most of them were not informed of any education service and some too were not pleased with the education given to them in the communities.

Furthermore, this study revealed that some cultural and social expectations made it difficult for diabetes patients to adhere to certain instructions that are meant to control their condition (Alghafri et al., 2017). First, the study revealed that some diabetes patients were unable to refrain from eating some traditional foods which have been noted to affect their blood sugar levels because they were culturally drawn to these foods and found it difficult to stop eating them. Banku and fufu were some of the traditional foods some patients disclosed they found it very difficult to stop enjoying due to cultural reasons (Sohal et al., 2015). Comparing this finding to a study by Arabia et al. (2017), similar findings were recorded which stated that in terms of diet, the majority of participants said they ate a healthy diet three or more days per week, but only a minority said they followed an ideal diet seven days per week. This demonstrates how difficult it is to maintain a balanced diet in Saudi Arabia, where social ties are strong and people are expected to attend all social functions where traditional food is served. Though both the study was done in Saudi Arabia, it has similar findings with this study and this may be due to the fact that both destinations value their cultural or traditional foods.

Secondly, some diabetes patients were unable to visit gyms or engaged in physical activities outside because culturally, their religion does not allow them to wear certain outfits for exercise and gyms find it difficult to accept their form of dressing in the gyms. This corroborates with the findings of Alghafri et al. (2017) in South Asian (Pakistan and Indian) British population and some Arabic countries like Qatar which indicated that obeying cultural norms and societal expectations concerning safety, security, and traditional dressing mostly women prevented them from engaging in physical activities in the gym. Thus, diabetes patients are limited in this case and it was a serious barrier. This finding may be because Ghana is a predominantly traditional nation and people love their culture, thus, it becomes

difficult to submit to change easily just like in the study of Alghafri et al. (2017) in South Asia.

Others also did not engage in physical activities because they were unaware of its benefits to diabetes patients. Diabetes patients need support and education on self-care practices and for that matter, any practice that can help manage their condition. A study by Wang et al. (2019) in China stated that when patients are attempting a tough self-care behavior such as exercise, diet modification, or smoking cessation, greater support should be provided. It is thus clear that diabetes patients need all the support and knowledge to help them in their self-care practices.

The study again revealed that limited diabetes health facilities and personnel were another main barrier that affect the management of diabetes. The results revealed that nurses and doctors were not enough to take care of all the diabetes patients. Thus, these patients spend very little time with doctors or wait a long time to be able to be attended to by a doctor or nurse. This finding is different from what the National Diabetes Support Team (2008) in England opined which stated that diabetes patients should stay active, talk to their doctors, and see their pharmacists stay healthy. This is not so in Ghana due to the limited number of doctors and nurses (Jelley, 2008).

Also, due to their age, participants preferred home visits by health professionals, however, this looked impossible due to the deficiency in the number of health professionals. Similarly, this finding is relatable to the findings of McBrien et al. (2017) who stated that diabetes patients experience short visit duration during a consultation with their physicians and dietitians due to an inadequate number of staff serving as a barrier to diabetes self-care. Diabetes is a delicate condition and needs attention from health professionals, thus, the inadequacy of health professionals is an alarming issue that needs to be fixed.

When this is fixed, it will help patients receive health care from home. This finding also corroborates with the finding of Joo and Lee, (2016) who stated that most elderly patients travel long distances to seek health care from doctors who are not even diabetes specialists. This situation led to poor quality of care and low patient satisfaction. This finding is similar to that of this study and this may be because both study areas lack adequate hospital infrastructure and as well as health workers (doctors and nurses).

Lastly, the results of the study revealed that there are limited community-level resources for diabetes patients to take advantage of, especially well-equipped gym facilities or spacious parks for exercise. Being fit is one of the important self-care practices diabetes patients can do to help their condition. As such, it is important to have well-equipped gyms and space to exercise around. This motivates them to exercise and keep their boys fit. The unavailability of this is thus, a problem. This confirms the findings of (Manaf, 2013) who found out that elderly patients who were inactive lived too far from recreational centers, sidewalks, parks, or fitness centers that serve as a motivation for them to engage in exercise such as walking. This finding may be because, in Ghana, elderly persons turn to move out of the busy towns to live in peaceful villages and have to travel back to visit the hospitals in the busy towns where most hospitals are located.

5.6 Support systems relied on in the management of diabetes

The study revealed that there are some support systems available for diabetes patients in their management process. The support system is very essential in every patient's life as it goes a long way to help their recovery and management processes (Rad et al., 2013). The study revealed that diabetes patients received support from their families. While some families financially help diabetes patients to pay bills or buy medicines, others help them to take medicines and remind these patients to eat the right foods (Rad et al., 2013).

Family support is very important as it helps diabetes patients in their late ages to be able to manage the condition (Kaya & Caydam, 2019).

The support gives a sense of security to the patients and constantly sends a signal that they are loved and belong to a family. This finding is similar to the findings of Sharoni et al. (2018) who stated that most patients are motivated to carry out self-care activities due to influence from family, especially among older adults. This is because it helps them cope with the control and management of the condition. The finding in this study may be linked to the fact that the Ghanaian society cherishes family ad for the matter extended family and as such, diabetes patients may have various forms of support from family be it extended or nuclear.

Again, the study revealed that diabetes patients receive some support from health professionals. Health professionals help diabetes patients throughout the testing stage and diagnostic stage and through their management process. The help from health professionals is immediately therapeutic as it helps patients know that there are people to help them in their condition; educating them and helping them leave a healthy lifestyle. As such, it is encouraging to note that some diabetes patients feel that form of support from health professionals. This authenticates the findings of (Boström et al., 2012) that stated that health professionals (doctors, dietitians, nurses) educate diabetes patients on their condition, associated complications, test results, and the need for lifestyle modification.

However, this current study also indicated that some diabetes patients indicated they do not receive expected support from health professionals. This is expected as the number of health professionals is reported to be inadequate. Thus, supporting all patients adequately will be a challenge. This finding is also similar to the findings of Hendrieckx et al. (2020) which revealed that some health professionals may not have a supportive relationship with diabetes patients. The similarity between this study and that of Boström et al. (2012) and Hendrieckx

et al. (2020) may be because the ratio of health workers (doctors and nurses) to patients in these areas is inadequate.

Furthermore, the study revealed that many diabetes patients do not receive support from their community and peers with the same conditions. Only a few of the diabetes patients used for the study revealed some form of community and peer support. The support that the community gives to these patients is important (Hunt et al., 2012). When your immediate community or society supports you when you are sick, it sends an emotional sense of belongingness and that goes a long way to help these patients and respond to a speedy recovery. As such, a lot has to be done in terms of education or creating awareness to help communities understand the challenges diabetes patients go through.

This will help them devise ways to support them. When this is done well, it can build the confidence of these patients and help in their weight loss and increase physical activities (Karimy et al., 2018). The study did not reveal much peer support except in a few cases. At their age, these elderly diabetes patients respect the support of their age mates in the same condition and any support from them will aid in their management process.

Thus, it will be important for health professionals to guide other diabetes patients on how to offer peer support to others. This will go a long way to help diabetes patients. This is in line with the findings of Shen et al. (2013) who stated that peer support is appreciated by older adults in diabetes care. The study conducted in China also found out that peer group activities organized for elderly diabetes patients allowed them to interact, found role models, received consolation, and compare their conditions with those also living with diabetes. If this is well developed and implemented in Ghana, this will help all diabetes patients to learn from their friends how to cope with their conditions.

5.7 Evaluation of the Theoretical Framework

The theory used for this study was the Social cognitive theory developed by Albert Bandura in 1986. Based on this theory, the objectives and research questions were developed. The theory of Social Cognitive is made of four parts: Knowledge (Personal or Cognitive factor), Self-Regulation (Behavioral factor), Barriers (Environmental factor), and Social Support (Environmental factor). This theory was chosen for this study because first, the study is a social experiment. Secondly, the theory fits the aim of the study on investigating the elderly with diabetes on the self-care practices they engage in.

The knowledge (Personal or Cognitive factor) component of the theory focused on how persons know a particular issue or factors affecting them. In this case, it focuses on the knowledge base of diabetes patients on the condition they have.

The study revealed different forms of the knowledge base of diabetes by the patients. This helped the patients to learn how to self-manage the condition. This outcome completely agrees with the theory as the knowledge of diabetes patients help them learn self-care practices. However, there is more room for improvement as more education can be one to increase the knowledge base of patients.

The next component of the theory is Self-Regulation (Behavioral factor). This component focuses on how people regulate their behavior through control and reinforcement to achieve goal-directed behavior that can be maintained over time. The outcome of the study strengthens this component as the findings point to the fact that diabetes patients can self-regulate their condition through behavioral controls such as being on a strict diet, stopping eating foods that will increase their blood glucose level, etc. The outcome of the study points to the fact that many barriers affect the smooth self-care practices of diabetes patients some of which include financial, communication barriers, etc.

This strengthens the Barriers (Environmental factor) component in the Social cognitive theory and justifies why this component is important to the theory.

The last component of the Social Cognitive theory is Social Support (Environmental factor). This component touches on the fact that people have support systems that in various ways and this theory context, help them when they are sick. The analogy is that; diabetes patients rely on a certain support system to help them through their self-care practices. The outcome of the study agreed with this component and indicated various support systems available to diabetes patients such as the family, health professionals, peer groups, and community. Thus, the Social Cognitive theory supports this study in every component.

5.8 Conclusion

There are many ways diabetes patients engage in self-care practices in other to manage their circumstances. The results show that a healthy diet, physical exercise, an apt medication plan, and good foot care practices are some of the ways diabetes patients manage their condition. The study shows that many barriers block the smooth self-care practices of diabetes patients which include financial difficulties, communication barriers, insufficient health care professionals, etc. Lastly, diabetes patients receive support from families but peer group support is not forthcoming.

CHAPTER SIX

SUMMARY, IMPLICATIONS, LIMITATIONS, AND CONCLUSION

6.1 Introduction

This chapter focuses on the summary of the study, its implication for clinical practice, nursing research, nursing education and policy formulation, limitations of the study, recommendations, and lastly the conclusion made on the study. This chapter is the last chapter of this research work.

6.2 Summary of the study

Diabetes has become a rising global health problem that requires continuous self-care practices to prevent acute and chronic complications. The rise in the prevalence of diabetes has been linked to increasing levels of physical inactivity, excess body weight, unhealthy dietary habits, and an aging population. Self-care practices among older adults living with type 2 diabetes are suboptimal making them highly exposed to diabetes-associated complications including premature death. Therefore, the need for health care professionals, family members, stakeholders, government, health institutions, and community leaders to assist elderly patients in effectively following recommended diabetes guidelines from their care providers to reduce regular admissions, complications, and premature death, and promote a healthy life and improved quality of life.

For this reason, this research was conducted to explore self-care practices among elderly patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital (Ridge Hospital). An exploratory descriptive design of qualitative research was used for this study. Purposive sampling technique was used to recruit twelve (12) participants (older adults who were sixty years and above, diagnosed with type 2 diabetes mellitus for at least a year and can give relevant information on their diabetes self-care practices as well as attended Specialist

Diabetes Clinic at GARH was the inclusive criteria for the study. A semi-structured interview guide was used to collect data from participants after an explanation of the study and its objectives in the language they understood and consented to be part of the study. Bandura's Social Cognitive Theory was used as a guiding framework that defined the research objectives for the study. A face-to-face interview was done and audiotaped. Transcriptions of the collected data were done verbatim.

The thematic content analytical technique was used to analyze the data received**.** Four (4) themes emerged from the data analysis**.** These were knowledge on diabetes self-care, self-regulation practices in diabetes management, barriers that affect the management of diabetes, and support systems relied on for the management of diabetes. All four themes were in line with the constructs of the chosen model. Subthemes also emerged from the themes which also answered the research questions.

Knowledge of self-care practices of elderly patients living with diabetes in this study was insufficient even though some of them knew what to do to manage the condition. This means that health professionals need to do more in educating and coaching diabetes patients in diabetes management especially self-care practices that are done at home. Some of the patients iterated that they knew how to self-monitor their blood glucose either before food, after food, or before bedtime to detect changes in the blood glucose. Again, some knew the right kind of foods they should eat and what they should avoid to control diabetes. Some could even mention the names of anti-diabetics and the dosage they are on. However, some of the patients as a result of inadequate knowledge showed limited knowledge of self-care practices and for that matter were not adhering to their care provider's instructions.

Self-regulation in diabetes care is an important element required in diabetes management. The study revealed that some patients due to their knowledge of diabetes self-care were

empowered and motivated to set targets and achieved them. These achieved goals of these knowledgeable patients for example exercising two hours every day motivated them to engage in continuous physical activity and lived healthy than those who did not engage in physical activities or exercise. Some too received support from family members as well as health professionals which motivated them to adhere to dietary and medication recommendations from the doctors and dietitians. Studies disclosed that elderly patients who did not engage in self-regulation practices were limited in their knowledge of self-care activities, and lacked confidence and social support in managing their condition.

It was evident that diabetes patients were confronted with barriers or challenges which prevented them from engaging in diabetes self-care practices. However, financial hardship was one of the main barriers disclosed by the patient. It was revealed that despite the support of NHIS in diabetes care, elderly diabetes patients still have to pay for some medications, clinical investigations, and purchasing of test strips and glucometers among others which were not covered by the NHIS. This overwhelmed and stressed them as most of them had retired and were financially unstable. So, a request was made by them for government intervention to make diabetes carefree for all elderly Ghanaians.

Among the other barriers, the language barrier also came up and patients acknowledged that for them to comply with self-care recommendations, health professionals should communicate to them in the language they understand and also in simple terms without the use of medical terminologies and ask for feedback if they could produce what was communicated to them. The study again, revealed some sources of support elderly diabetes patients relied on for the management of the disease. It was disclosed that family support especially spousal support and support from children were valued and appreciated by elderly patients. It was evident that patients who did not receive adequate social support engaged in diabetes self-care. Most of them missed doctor's appointments, skipped medications, did not

foot care practices, made unhealthy choices about diet, and so on. The study again disclosed that patients did not receive adequate support from their peers as well as the communities except one who received financial support from his church. This means that health professionals should create awareness and the importance of peer and community support to enable diabetes patients to enjoy the benefits of these sources of support and to aid the control of the disease.

6.3 Implications

The findings of this study have implications for the following: clinical practice, nursing education, nursing research, and policy making.

6.4 Implications for nursing practice

Every health care incident (contact) with older people with diabetes by health professionals (diabetologists, nurses, dietitians) should be viewed as an opportunity to educate both the patient and family members. This should include a review of self-management skills, metabolic targets, avoidance of hypoglycemia, and nutrition. By doing this, their challenges will be identified and tackled appropriately. Identified family members and other nonprofessional people responsible for providing care for old adults require an assessment of their abilities and skills to provide safe and effective diabetes care.

All patients and caretakers should receive adequate educational advice about proper self-care practices for effective management of diabetes in diabetes care centers to correct the lack of insufficient knowledge among this group and to avoid regular hospital admission. Healthcare professionals in diabetes care should receive specialist training to deliver person-centered diabetes care as well as effective consultation skills for people with diabetes.

Doctors and nurses working at diabetes clinics, centers, units, and wards must receive periodic training, seminars, and workshops to improve their skills and knowledge of diabetes

to improve patient care. With controlled levels of blood glucose, chances of hospitalization will reduce, the workload on healthcare providers will go down, and pressure on the healthcare institutions will also reduce which will, in turn, lead to a reduction of burden on the nation in terms of expenditure on healthcare and medical cost. Diabetes education by health professionals should also include patient empowerment and culturally sensitive approaches that will be accepted by individuals with diabetes.

6.5 Implications for nursing education

Diabetology should be added to the specialty nursing programs have more so that we can nurses and midwives train and become experts in the area of diabetes and render effective and efficient nursing care to patients living with diabetes. To prevent health problems such as diabetes in the older population, a multi-dimensional approach is important. One of these approaches is the training of more nurses in geriatric and gerontological nursing and giving attention to the health needs of older adults such as elderly diabetes patients as a nation. Expert diabetologists in clinical settings must be willing to impart their knowledge in diabetes care to medical students as well as nursing students during clinical practicum.

Nurses working at diabetes centers must develop their skills and knowledge in diabetes through participation in workshops, seminars, and training tailored to diabetes and its management. Our tertiary institutions must offer a Postgraduate training program in diabetology where health professionals can specialize and become experts in diabetes care. Nurse managers and diabetes nurse educators at diabetes clinics, centers, and wards must supervise and engage new staff as well as student nurses and midwives to acquire the necessary skills and knowledge and to become experts in the management of diabetes patients.

6.6 Implications for nursing research

The use of theoretical models and constructs in diabetes research is important for understanding behavior change and guiding the development of effective interventions. Developing theory-based approaches to care for individuals with diabetes can create a more progressive, coherent body of knowledge to assist healthcare providers in effectively teaching patients diabetes self-care. Further research can be done quantitatively to examine the self-care practices among elderly patients living with T2DM. This study focused on elderly T2DM patients who are 60 years and above. However, further research can focus on self-care practices among T2DM who are less than 60 years. Again, the study was done at the Greater Accra Regional Hospital, but further studies can be done in other hospitals in Accra or other parts of the country to examine the self-care practices of T2DM elderly patients.

6.7 Implications for policy formulation

Stakeholders (hospitals, health professionals, health programmers, etc) of this group must ensure that there are extensive follow-up visits by nurses to patients' homes (home visits) and patients to the health facility (check-ups/ review), interactive participation of patients and regular support throughout the follow up to enhance vigorous self-care participation. This will help identify barriers to self-care practices as revealed in the study findings and appropriate interventions employed. Some of the participants of this study demonstrated insufficient knowledge of diabetes self-care practices.

It is beneficial to increase diabetes awareness campaigns and encourage self-management practices in rural and urban settings through mass media and education campaigns. Media campaigns should highlight and promote the special requirements and needs of elderly diabetes patients and diabetes management. Authorities of health facilities should collaborate or liaise with community leaders to create or form diabetes supportive groups such as community support groups and peer groups to offer assistance and education to improve the

behavior and self-care of diabetes patients through the guidance of health professionals. Under the surveillance of the government, communities can be specially developed to address barriers such as inadequate diabetes health facilities and lack of access to resources such as inaccessibility of sidewalks, exercise facilities, and recreational centers among others to encourage exercise in controlling diabetes. The government through its Ministry of Health must establish policies that will implement effective diabetes management national guidelines, particularly self-care practices for patients with diabetes in the country.

The Ministry of Health should subsidize the cost of diabetes treatment for elderly patients with diabetes in all health delivery centers (both private and government hospitals) across the country or include it under National Health Insurance Scheme (NHIS) so that DM patients may be given on review or discharge. Most participants in this study are financially challenged due to the high cost of DM treatment. The cost of glucometers should be subsidized by the Ministry of Health for elderly DM patients and readily available for purchase. This will help them check their blood glucose levels regularly as recommended. This will facilitate and strengthen the social support system in families and communities to ensure better self-care practices and avoid the early development of complications.

6.8 Limitation of the study

The study was done in Greater Accra Regional Hospital where the study findings might be different when conducted in another setting even though the findings may be transferable. Again, the study participants recruited were from only one hospital in the region. Generalization of the findings is a challenge as it is with the nature of qualitative research. Also, some of the data in the local language were translated into the English language which can affect the trustworthiness of the study because words without exact meanings in the English language are given the nearest expression.

Another limitation faced was the presence of Coronavirus Pandemic (Covid-19), participants were reluctant to participate in the study during the collection of data.

6.9 Conclusion

This research explored the self-care practices among elderly patients living with Type 2 diabetes mellitus at the Greater Accra Regional Hospital (GARH). The Social Cognitive Theory was used in exploring the diabetes self-care practices of these older adult populations. From the study, it was evident from the findings that some of the participants showed knowledge in self-care activities which facilitated their compliance to health professional recommendations whilst those with no or inadequate knowledge did not comply. Again, the findings showed that certain barriers acted as opposition to self-care practices in diabetes management preventing most of the participants to effectively engage and adhere to instructions from their care providers at home. Generally, it can be deduced from the findings that self-care among the study participants was suboptimal and needs health professionals' attention. Social support is vital in diabetes care but more importantly, support from peers and the community must not be underrated due to their relevance in diabetes management**.**

6.10 Recommendations

The recommendation was based on the findings from the study. This includes the Ministry of Health (MoH), Ghana Health Service, Nursing and Midwifery Council of Ghana, Health facilities/Institutions/ Diabetes clinics and units, and Patients and relatives.

Recommendation for Ministry of Health (MoH)

The Ministry of Health should:

- Work with the government to put up more health facilities to include diabetes centers or units in communities including rural communities to facilitate easy

access for diabetes patients. This will prevent DM patients to travel from afar to seek care in tertiary care settings.

- Work with government and local community leaders to develop and design exciting and convenient exercise facilities such as recreational centers, sidewalks, parks, and wellness centers among others that will encourage and motivate patients to comply with recommended physical activities. Government has a major responsibility for the development of health facilities.

- Work with the government to make National Health Insurance Scheme (NHIS) for elderly diabetes patients acceptable in all health facilities that are both public and private covering all medical bills (diabetes treatment, medications, diagnostics, reviews, and follow-ups) as well as purchasing of glucometer and test strips of older adults living with T2DM. This will reduce the financial hardship most of them are faced with as the findings of this study revealed and encourage regular monitoring of blood glucose levels at home.

- Work with the government and Pharmaceutical Society of Ghana to enact policies that will allow elderly patients living with T2DM to purchase anti-diabetics from any pharmaceutical company including drug stores through NHIS. This will assist patients to adhere to their diabetes medications.

- Collaborate with the government and establish post-graduate diabetes courses in both public and private universities to train more experts in diabetes care.

Recommendation for Ghana Health Service

Ghana health service should:

- Liaise with health institutions to ensure diabetes units/centers/clinics with adequate health personnel specialized in diabetes to render highly effective and efficient care to DM patients in all primary, secondary, and tertiary care settings.

- Work with health institutions to establish language services involving clinical consultations and educational materials by health professionals so that diabetes patients can gain knowledge and understanding concerning the condition and its management and can make informed decisions regarding treatment options.

- Liaise with health institutions and offer financial assistance to health professionals (doctors and nurses) at diabetes units interested in higher education to upgrade their knowledge and skills in diabetes care.

- Work with health institutions to intensify and strengthened follow-up strategies, and patient information dissemination strategies that will assist elderly diabetes patients to conform and obey instructions from health professionals.

- Work with health institutions and relevant stakeholders to create and promote appropriate support systems especially peer support in diabetes units as well as community support (community associations, church groups, keep fit clubs) with emphasis on the importance of these groups in diabetes management. This improves the behavior and attitudes of

- Collaborate with the Ministry of Health to increase diabetes awareness and encourage self-care practices in rural and urban settings through mass media and educational campaigns. Media campaigns should highlight and promote the special requirements and needs of elderly diabetes patients and diabetes management in general.

Recommendation for Nursing and Midwifery Council of Ghana

The Nursing and Midwifery Council of Ghana should:

- Include geriatric and gerontological nursing in the specialty programs in session to train nurses who have the passion and interest in providing holistic care to older adults.
- Include diabetology in the nursing curriculum to equip nurses with the relevant knowledge and skills to deliver competent care to diabetes patients.

Recommendations for Health Facilities and diabetes units

Managers of health facilities and heads of diabetes units should:

- Liaise with Ghana Health Service to develop culturally sensitive and community-tailored interventions to facilitate and enhance diabetes self-care practices.
- Liaise with Ghana Health Service and community leaders and create diabetes support groups at the community level.
- Work with Ghana Health Service to ensure adequate storage of diabetes devices such as glucometers and test strips in all health facilities for easy access by diabetes patients. This will encourage the monitoring of blood glucose levels by diabetes patients.
- Conduct frequent in-service training, workshops, and seminars for staff working at diabetes units to enhance their knowledge and skills and impact DM patients positively.

- Diabetes specialists and diabetes nurse educators must challenge and empower junior colleagues to upgrade their knowledge and skills by pursuing higher education and becoming experts in diabetes care.

Health care providers (doctors, dietitians, nurses)

- Expert diabetologists in clinical settings must be willing to impart their knowledge in diabetes care to medical students as well as nursing students during clinical practicum.

- should develop their skills and knowledge in diabetes through participation in workshops, seminars, and training tailored to diabetes and its management.

- should educate patients based on the American Diabetes Association Standards of care which highlights diabetes-related services such as eye examination every year, and physical assessment by a doctor at least every six (6) months by appointment (American Diabetes Association, 2017).
- Should raise awareness and promote the value of peer support to patients with diabetes and their caregivers.
- Should provide information and counseling on behavior modification, exercise, healthy eating, and foot care among others in other formats such as information leaflets, verbal, written, and video.
- Should provide treatment plans purposely for increasing patients' empowerment and social support especially peer support which may help in tackling barriers faced by these patients.

Recommendations for diabetes patients and their relatives

Patients

- Diabetes self-care is dependent on the patient. For this reason, they must act proactively in the control and management of the condition. They must exercise control and be in charge of their health by adhering to self-care recommendations from the care providers at home. This will help prevent or delay complications.

- Older adults who may be dependent to engage in self-care activities due to aging and its associated challenges must seek help from relatives, communities, and health professionals among others in the management of the condition. This will help them achieve good glycemic levels which will lead to improved health and quality of life.

Relatives

- Family support is highly crucial and recommended in diabetes management, particularly older adult diabetes and for that matter relatives of diabetes patients must be positive and offer them the necessary support they can to help them cope with the condition, control the disease so that they can equally live a healthy and quality life.

- Diabetes is hereditary or can be acquired through an unhealthy lifestyle. Relatives must adopt a healthy lifestyle modification by making healthier choices to avoid diabetes.

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APPENDIX A: Ethical Approval Letter

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Digital Address: GA-050-3303
Mob: +233-50-3539896
Tel: +233-302-681109
Fax + 233-302-685424
Email: ethics.research@ghsmail.org

My Ref. GHS/RDD/ERC/Admin/App /21/102
Your Ref. No.

19th April, 2021

Nanna Carls Amakye-Nyame
School of Nursing and Midwifery
University of Ghana
Legon, Accra.

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	GHS-ERC 029/03/21
Study Title	Self-Care Practices among Elderly Patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital
Approval Date	19th April, 2021
Expiry Date	18th April, 2022
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of a yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

You are kindly advised to adhere to the national guidelines or protocols on the prevention of COVID -19

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
Dr. James Ahmah
(Head, Ethics & Research Management Department)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

APPENDIX B: Introductory Letter

UNIVERSITY OF GHANA
SCHOOL OF NURSING AND MIDWIFERY

Ref. No.:.....*LD/10804066*.....

4th February, 2021

The Chairperson
Ethics Review Committee
Ghana Health Service
Accra.

Dear Sir/Madam,

LETTER OF INTRODUCTION – ETHICAL CLEARANCE

I write to introduce to you **Nonna Carls Amakye-Nyame,** an MPhil Nursing student in the School of Nursing and Midwifery, University of Ghana, Legon.

The Scientific Review Committee of the School has approved the thesis topic: **"Self-Care Practices Among Elderly Patients with Type 2 Diabetes Mellitus."**

As part of the School's requirement, the student is required to obtain ethical clearance before embarking on data collection.

I hope that the Committee will consider the proposal and grant her ethical clearance to enable her undertake the study.

Thank you.

Yours faithfully,

Charles A. Klutse
School Administrator

INTEGRI PROCEDAMUS

COLLEGE OF HEALTH SCIENCES

P. O. Box LG 43, Legon, Accra, Ghana.
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APPENDIX C: Participant's Information Sheet

Principal Investigator: NONNA CARLS AMAKYE-NYAME

Address: School of Nursing and Midwifery, Adult Health Department, College of Health Sciences, University of Ghana. P o box 43, Legon

Title of the study

Self-care Practices among Elderly Patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital (Ridge Hospital).

Introduction

I am a Registered Nurse and a Graduate student at the School of Nursing and Midwifery of University of Ghana, Legon. I am conducting a research on "Self-Care Practices among Elderly Patients with Type 2 Diabetes Mellitus at the Greater Accra Regional Hospital (Ridge Hospital) which is a requirement for my masters in philosophy (MPhil) research project.

Background

Diabetes, a rising global health problem, requires continuous self-care practice to prevent acute and chronic complications. The rise in the prevalence of diabetes has been linked to increasing levels of physical inactivity, excess body weight, unhealthy dietary habits, and an ageing population. Studies have shown that Ghana has been experiencing increased number in aged population which is likely to suffer from chronic diseases like diabetes and increase

demand of healthcare. Therefore, diabetes self-care practices among the elderly living with type-2 diabetes mellitus are very crucial in diabetes management as poor self-care results in complications.

Nature of research

Purposive sampling technique will be used to recruit 15 participants (older adults who are sixty years and above) who have been diagnosed with type 2 diabetes mellitus for at least a year and can give relevant information on their diabetes self-care practices and attend Specialist Diabetes clinic at the Greater Accra Regional Hospital (Ridge Hospital).

Participant Involvement

Duration: The entire study is a year duration. Each interview will be audio recorded and will have a time duration of forty-five (45) minutes to sixty (60) minutes. Collection of data will take at least four weeks.

Potential Risks: it is anticipated there will be no risk to participants of the study.

Benefits: the study will provide information to improve self-care practices of older adults with Type 2 Diabetes Mellitus. The findings will be shared with different stakeholders including hospitals, health professionals, health programmers etc. to link elderly patients with diabetes mellitus to support groups and improve knowledge through education. Findings may inform provision of new guidelines and protocols on diabetes mellitus which can be used on the wards to manage patients/clients diagnosed with diabetes mellitus.

Cost: the budget proposed for the entire study reveals the cost involved which will be taken care of by the researcher.

Compensation: Participants will be provided with nose masks and alcohol-based hand sanitizers so that infection prevention and control protocols can be maintained. Snacks and water will also be provided.

Confidentiality: the audio recordings and field notes will be kept in a secured locker. Again, the data that will be presented and the findings will be anonymized using identification codes and pseudonyms to ensure confidentiality and privacy of participants.

Voluntary Participation/ Withdrawal: Participants who willingly consent to be part of the study signs consent form or thumbprint but have the right to opt out of the study at any time during the research without any consequences.

Outcome and Feedback: Participants will be given feedback as well as member checking**.**

Appropriate Alternate Procedures and Treatment: All COVID-19 – 19 protocols and preventive measures will be strictly observed. Participants will be provided with nose masks as well as alcohol-based hand sanitizers. Physical distancing of at least one-meter distance will be maintained between the researcher and the participant during interview sessions.

Funding Information: the research is solely funded by the Principal Investigator for academic purposes.

Conflict of interest: The principal investigator declares no conflict of interest in this study.

Provision of Information and consent for participants: copies of the information sheet and signed consent form will be made available to participants**.**

Sharing of participants Information/Data: the principal investigator will own the data generated but will share with research supervisors and discard after five years**.**

Who to contact for Further Clarification: for any further information about the study, you can contact:

Nonna Carls Amakye-Nyame (the Principal Investigator).

Telephone number: 0266794630.

E-mail address: nonnanyame15@gmail.com.

Dr. Kwadwo Ameyaw Korsah (Supervisor)

Telephone number: 0243547317

Email address: korsahtalktalk@yahoo.com

Dr. Gwendolyn Mensah (Supervisor)

Telephone number: 0208127756

Email address: abusbaby2003@yahoo.co.uk

For Ethical issues or rights to participation, you can contact:

Nana Abena Apatu (Administrator, GHS-ERC).

Telephone number: 0503539896.

E-mail address: ethics.reseach@ghsmail.org.

APPENDIX D: **Consent Form**

STUDY TITLE: **SELF-CARE PRACTICES AMONG ELDERLY PATIENTS WITH TYPE 2 DIABETES MELLITUS AT THE GREATER ACCRA REGIONAL HOSPITAL (RIDGE HOSPITAL)**

PARTICIPANTS' STATEMENT

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

I voluntarily agree to be part of this research.

Participant's Pseudo Name……..

Participants' Signature ……...OR Thumb Print……

Date:…….

INTERPRETER'S STATEMENT

I interpreted the purpose and contents of the Participant's Information Sheet to the afore named participant to the best of my ability in the (……*name of language*) language to his proper understanding.

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

Name of Interpreter……

Signature of Interpreter…….. OR Thumb Print …….....

Date:…… Contact Details…….

STATEMENT OF WITNESS

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

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

Name: ……..

Signature……..... ……OR Thumb Print …….....

Date: ……..

INVESTIGATOR STATEMENT AND SIGNATURE

Brief statement or declaration that investigator has given enough information to participants to make informed decisions. (Example: I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.)

Researcher's name…….

Signature …….

Date…….

APPENDIX E: Interview Guide

UNIVERSITY OF GHANA

MPHIL THESIS RESEARCH: SELF-CARE PRACTICES AMONG ELDERLY

PATIENTS WITH TYPE 2 DIABETES MELLITUS AT THE GREATER ACCRA REGIONAL HOSPITAL (RIDGE HOSPITAL) SEMI STRUCTURED INTERVIEW GUIDE SECTION A: DEMOGRAPHIC INORMATION

Code number/ Pseudonym:

1. Age: 60 – 69 ( ), 70 – 79 ( ), 80 – 89 ( ), and 90 and above ( ).
2. Level of education: Primary ( ), JHS ( ), SHS ( ), Tertiary ( ), Nil ( ).
3. Gender…….
4. Duration of diagnosis of condition……
5. Occupation……..
6. Marital Status…….
7. Ethnicity/Tribe……..
8. Religion…….

SECTION B: GUIDING QUESTIONS

1. What do you know about diabetes self-care practices?

Probe:

i. What do you know about healthy eating in diabetes manage?

ii. What do you know about medication adherence? iii. What sample do you use to check or monitor your blood glucose level? iv. What do you know about the impact of physical activity in controlling blood glucose?

v. What do you know about foot care practices in diabetes care?

2. What do you do (self-regulation) in controlling your blood glucose level?

Probe:

i. How do you adhere to dietary recommendations?

ii. How do you obey your recommended medication regimen? iii. How do you comply to self-monitoring of blood glucose instructions?

iv. How do you ensure you obey your health professionals' recommendation on physical activity?

3. What barriers (not personal) prevent you from engaging in diabetes self-care activities effectively at home?

Probe:

i. Financial

ii. Diabetes education from health professionals iii. Language iv. Cultural norms

v. Health facilities and personnel vi. Community-level resources

4. What support do you receive in managing the condition?

Probe:

i. Family

ii. Health professionals iii. Peer iv. Community

5. Is there anything else you would like to share or tell me?