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CHALLENGES OF NURSES IN MANAGING TYPE II DIABETES MELLITUS AT THE HOLY FAMILY HOSPITAL, TECHIMAN B/A.

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PHILOSOPHY IN NURSING DEGREE.

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DECLARATION

I, Gyimah Emmanuel hereby declare that; this thesis is my own piece of work, except for other people's works which were used and have been duly acknowledged at the reference section.

This thesis therefore, has never been presented to this university or any other university for the award of any degree.

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DEDICATION

This research work is dedicated to my beautiful wife Mrs. Doris Asamoah Gyimah and our wonderful daughter Samuella Ampomah Gyimah for their love, immense support and encouragements throughout the period of this thesis.

The study is also dedicated to the management team and the entire nurses at the Holy Family Hospital, Techiman who made this work a reality, especially those who participated in this research work.

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LIST OF ABBREVIATIONS

HFH	Holy Family Hospital
SN	Staff Nurse
SM	Staff Midwife
SSN	Senior Staff Nurse
SSM	Senior Staff Midwife
NO	Nursing Officer
MO	Midwifery Officer
PNO	Principal Nursing Officer
PMO	Principal Midwifery Officer
NMC	Nursing and Midwifery Council
DM	Diabetes Mellitus
FBS	Fasting Blood Sugar
RBS	Random Blood Sugar
PPP	Public Private Partnership
MPHIL	Master of Philosophy
ART	Antiretroviral Therapy
HIV	Human Immunodeficiency Virus

AIDS	Acquired Immune Deficiency Syndrome
NHIS	National Health Insurance Scheme
IDF	International Diabetes Federation

ABSTRACT

Diabetes is a chronic metabolic disease that occurs when the human body is not able to produce enough of the hormone insulin or because cells do not respond to the insulin that is produced. It is estimated that 6.3% Ghanaians are affected with diabetes of which 90 – 95% are with Type II diabetes. In Ghana however, there are limited trained staff as well as inadequate equipment to provide quality care to people living with diabetes. This study therefore explored the challenges of nurses in managing Type II diabetes patients and ways to improve the care rendered to these patients. The study sought to identify the problems nurses face in managing patients living with Type II DM, to determine what nurses do to deal with these challenges, to determine the perceived effects of these challenges on Type II DM patients, to explore nurses' role in DM management, to identify factors that motivate nurses to manage DM patients and to identify ways to improve DM care. An exploratory descriptive research design was used to conduct this study at the Holy Family Hospital, Techiman, B/A. A semi-structured interview guide with six main questions was used to conduct 14 in-depth interviews for registered general nurses. All interviews were conducted in English language between November 2015 and March 2016 and lasted between 8 and 26 minutes. The data gathered was analysed with Creswell approach to qualitative data analysis and the key findings were: lack of glucometers, bad glucometers, high cost of diabetes care, lack of nurses' knowledge in diabetes care and patients' non-adherence to treatment regimen. The study has shown that, nurses encounter difficulties in providing care for patients living with diabetes and these compromise quality care. It has also revealed ways to improve care for diabetes patients to be considered by policy makers to ensure the provision of quality care and prevent complications associated with diabetes. It is recommended that, further research on the challenges of nurses in managing diabetes patients should be conducted at multiple sites for generalization of findings.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Diabetes is a group of metabolic diseases characterized by increased levels of glucose in the blood (hyperglycemia) resulting from defects in insulin secretion, insulin action, or both (American Diabetes Association [ADA], 2009a). This situation leads to hyperglycaemia or high blood sugar level. High blood sugar level therefore produces symptoms of frequent urination, increased thirst and hunger as well as body weight reduction (International Diabetes Federation, 2013).

There are three main types of diabetes; these are Type I, Type II and Gestational diabetes.

Type I diabetes results from the body's failure to produce insulin as a result of an auto-immune process with very sudden onset. People with this type of diabetes need insulin therapy to survive. This form of diabetes was previously referred to as insulin-dependent diabetes mellitus (IDF, 2013).

Type II diabetes results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. This form was also previously referred to as non-insulin-dependent diabetes mellitus. It can go unnoticed and undiagnosed for a long time. People who are affected by diabetes may be unaware of the presence of the condition as well as the long term damage being caused by the disease (IDF, 2013).

Gestational diabetes occurs when pregnant women without a previous diagnosis of diabetes develop a high blood glucose level; it can lead to serious risks to the mother and her infant and increase the risk for developing Type II diabetes later in life (Department of Health, 2008).

The risk factors and markers that contribute to gestational diabetes include; advancing age, obesity, excessive weight gain during pregnancy, a family history of diabetes, a history of stillbirth or infant with congenital abnormality and glycosuria during pregnancy (Guariguata, Linnenkamp, Beagley, Whiting, & Cho, 2014).

Pregnancy itself is diabetogenic because during this state insulin antagonists such as human placental lactogen, progesterone and cortisol inactivate insulin produced by the pancreas (Department of Health, 2008). This process gives rise to high blood sugar levels in pregnant women. Previously undiagnosed Type II Diabetes Mellitus may also play a role in gestational diabetes (Guariguata et al., 2014) as well as insulin releasing inhibiting enzyme called insulysin or insulinase.

All types of diabetes should be treated under a close collaboration between patients and healthcare providers in order to prevent long term complications such as damage to the eyes, kidney, feet and heart (IDF, 2013).

Diabetes is one of the most common metabolic disorders in the world and the prevalence of diabetes in adults has been increasing in the last decades (Whiting, Guariguata, Weil, & Shaw, 2011).

Globally it is estimated that 382 million people suffered from diabetes with a prevalence of 8.3% in 2013 and this number is expected to rise to 592 million by 2035 (IDF, 2013). In 2013, North America and the Caribbean were the regions with the highest prevalence, 36,755 people with diabetes (11%) followed by the Middle East and North Africa with 34,571 people with diabetes (9.2%). Western Pacific regions, with 138,195 people with diabetes, was the region with the highest number of people with diabetes, however its prevalence was 8.6% (IDF, 2013).

Most people with diabetes live in low and middle-income countries and these countries may experience the greatest increase in cases of diabetes over the next 22 years (Shaw, Sicree, & Zimmet, 2010). This may occur due to changes in lifestyle of society that promote urbanization and modernization with greater access to highly processed energy dense foods and decreased physical activity (Guariguata et al., 2014).

The World Health Organization (WHO) projects that, diabetes will be the 7th leading cause of death in 2030 (WHO, 2011). Mortality attributable to diabetes in 2013 in Sub-saharan Africa was expected to be over half a million with three quarter of these deaths occurring in those less than 60 years (IDF, 2013).

It is noted that, in the Sub-Saharan Africa where diabetes was once rare, there has been a surge in the condition. Type II diabetes prevalence among 20 – 79 year olds was 4.9% with the majority of people with diabetes being less than 60 years old; the highest proportion (43.2%) was in those aged 40 – 59 years (Guariguata et al., 2014).

Figures for diabetes cases in the Sub-Saharan Africa are projected to increase with the numbers rising from 19.8 million in 2013 to 41.5 million in 2035, representing a 110% absolute increase (IDF, 2013).

There is an apparent increase in diabetes prevalence with economic development in Sub-Saharan Africa with rates of 4.4% in low-income, 5.0% in lower-income and 7.0% in upper-income countries. In addition to development and increases in life expectancy, there is the likely increase in risk for people to develop Type II diabetes (IDF, 2013).

In Ghana, a total of 440,000 adult (20 – 79 years) cases of diabetes were diagnosed in 2013 with a prevalence of 3.35% and 8,529 deaths. The number of cases of diabetes in adults that were also undiagnosed in Ghana was 330,380 (Guariguata et al., 2014). The factors that contributed to undiagnosed Type II diabetes or late detection of Type II diabetes included; under-performing health systems, low awareness among the general public and health professionals, and the often slow onset of symptoms or progression of the disease (Beagley, Guariguata, Weil, & Motala, 2014).

The prevalence of undiagnosed diabetes remains too high at 50.7% and was much higher in low-income (75.1%) compared to lower and upper middle-income Africa countries (46.0%). This highlights the inadequate response of local health systems, which need to provide accessible, cheap and best care for diabetes (IDF, 2013).

In the year 2012, the total number of diabetes patients who reported at the diabetes clinic at the Techiman Holy Family Hospital was 2,212 and 71 new cases were diagnosed in the year 2013 (Holy Family Hospital Annual Report, 2014).

With the increase in prevalence rate of diabetes and its co-morbidities globally, there is the need to give much attention to prevent its occurrence, manage and prevent complications associated with it. Nurses are usually considered as the first health care professionals to interact with patients and use their specialized knowledge, training as well as skills to educate and motivate patients with diabetes (Levich, 2011). They also teach patients how to inject themselves with insulin and other treatment procedures as well as practical ways to achieve target goals or outcomes. Specialized nurses are those who have been trained with the skills to provide this care to people living with diabetes (Levich, 2011). Nurses can also play an active role in educating patients about

the nature of Type II diabetes, how it progresses and the need to start intensive care early (Burden, 2003).

Diabetes educators are mostly considered as the first health professionals to provide information and assistance for people living with diabetes and are therefore placed in a position to effectively encourage physical activity and other management interventions to improve care for diabetes patients (Gleeson-Kreig, 2006).

Major international intervention studies have shown that, intensive management of blood glucose levels (BGLs) such as regular medicine reviews, setting targets of blood glucose levels and blood pressure (BP) for patients as well as other care to suit patient's requirements (Dunning, Sinclair, & Colagiuri, 2014) reduce the risk of microvascular complications (Hemmingsen et al., 2011).

Several weight loss studies and lifestyle modifications have also shown a reduction in the progression to Type II Diabetes Mellitus in those with pre-diabetes (Kosaka, Noda, & Kuzuya, 2005). In addition, several randomized controlled trials (RCTs) among diabetes patients have shown that, lifestyle interventions provided to patients with diabetes by nurses have immensely reduced glycated haemoglobin (HbA_1c) (Stone et al., 2010), improved lipids (Piatt et al., 2006) and blood pressure (Hiss, Armbruster, Gillard, & McClure, 2007).

People living with diabetes have usually reported receiving less support, education and encouragement to perform physical activities than for other lifestyle modifications or interventions and progress in this area is limited (Gornall, Lévesque, & Sigal, 2008). The promotion of physical activity for patients with diabetes is generally insufficient (Kirk, Barnett, & Mutrie, 2007).

Although nurses and diabetes educators are trying to address physical activity with their patients, the majority of nurses and diabetes educators do not feel confident to encourage their patients to

engage in physical activities (Dillman et al., 2010; Gornall et al., 2008; George, Stevenson, Harris, & Casazza, 2006). The diabetes educators feel that they lack sufficient knowledge, skills, training and experience to effectively and efficiently educate patients about physical activity, diet, medication and self-management (Dillman et al., 2010; Gornall et al., 2008; George et al., 2006) and have also reported anxiety about promoting physical activity among diabetes patients due to fears of increasing risk (Bowman & Foster, 2007; Gornall et al., 2008).

1.1 Statement of the Problem

Diabetes management has been ineffective at the Holy Family Hospital in the Techiman municipality over the years as observed by the researcher. This is because most patients with Type II diabetes come for review with their blood glucose targets not met or their blood sugar levels at the extreme ends as it has been observed by the researcher. This may be due to ineffective health education on diet, physical activities, self-monitoring of blood glucose and medication usage as well as different languages spoken by nurses and patients with diabetes. For instance, some of the diabetes patients speak only one language (Hausa, Dagaaba and other dialects) whereas most nurses speak English and Twi and this makes communication between the patients and the health professionals difficult. Patients' non-adherence to treatment regimen may also contribute to their blood sugar targets not being met.

Health professionals, particularly nurses assist in several ways in the management of diabetes through diabetes education, nutritional counselling, eyes and feet examinations, weight reduction and lifestyle modification in general. The researcher having worked in the hospital for twelve (12) years observed that, the nurses at the HFH managing patients living with Type II diabetes have inadequate education and training in diabetes management and therefore may lack the necessary skills and knowledge to manage and educate patients on physical activities, medications, diet, self-

monitoring of blood glucose and complications of diabetes mellitus to mention a few. Similarly, nurses in the hospital also do not get access to current information on the care of Type II diabetes patients and therefore may not be abreast with its management. This is so because, the hospital does not have a library or reference books for staff particularly nurses to update their knowledge on the management of chronic diseases such as Type II Diabetes Mellitus.

The researcher has also observed that, workshops and in-service training on the management of diabetes patients have not being organised for nurses in the hospital since 2007. There is also lack of materials especially glucometers which are needed by the nurses for the monitoring of blood glucose levels of diabetes patients at the HFH diabetes clinic and wards.

A study conducted in the United States revealed that, nurses played a major role in managing people with diabetes. There were also differences identified between nurses and physicians and that were; Nurses educated patients better, spent more time with patients, were better listeners, and they knew their patients better than physicians (Siminerio, Funnell, Peyrot, & Rubin, 2007).

Similarly, Graue, Dunning, Hausken, and Rokne (2013) also conducted a study in Norway on the challenges in managing people with diabetes. It was revealed in their study that, there were differences between the levels of expertise among nurses in providing care for diabetes patients. The differences were due to unavailability and lack of access to new information, inadequate support from family members as well as loved ones, lack of unity among health professionals, low confidence and autonomy.

The nurses at the HFH may not play a major role in managing people with diabetes. They may also not be giving better education as well as spending more time with diabetes patients as found

in Siminerio et al. (2007) study. This may be partly due to the fact that, they are not specialized nurses to be able to manage diabetes patients in the way they are supposed to.

The factors found in Graue et al. (2013) study are also likely to be identified in the current study because; nurses managing diabetes patients at the HFH diabetes clinic and wards are not specialized and may lack the skills and knowledge to educate the diabetes patients. They may also not have access to new information which is evidence-based in managing patients with diabetes.

1.2 Significance of the Study

Patients' education, monitoring and supervision are best done by nurses. Nurses among other health professionals are the ideal professionals to assist people living with diabetes and provide a system where care can be given in a more effective and convenient way to reduce the complications of diabetes mellitus (Siminerio et al., 2007). Patients' education is important in nursing practice and therefore patients are often more comfortable with nurses. This is because, nurses spend more time with patients and use their knowledge and skills to teach them to manage their diabetes properly (Siminerio et al., 2007).

Nurses therefore play important roles in the management of diabetes and need to be abreast with current practices (evidence-based) for managing it. For this reason, nurses must be adequately equipped with the requisite knowledge, skills and materials to manage effectively and efficiently people with diabetes and prevent the associated complications. This will ensure that, diabetes patients receive the best of care and also be involved in managing their own problems in relation to diabetes whenever they occur.

With the increased prevalence in diabetes globally, the study is designed to find out the challenges of nurses in managing Type II Diabetes Mellitus at the HFH, Techiman and to look for possible interventions to improve the work of nurses caring for individuals affected with Type II DM.

1.3 Purpose

The main purpose of this study was to explore the challenges of nurses in managing patients with Type II Diabetes Mellitus and identify ways to improve care for DM at the HFH, Techiman.

1.4 Specific Objectives

1. To identify the difficulties nurses face in managing Type II Diabetes Mellitus at HFH.
2. To determine what nurses do to deal with these challenges in managing Type II Diabetes Mellitus.
3. To determine the perceived effects of these challenges on Type II diabetes patients.
4. To explore the role nurses play in the management of Type II Diabetes Mellitus.
5. To identify factors that motivate nurses in the management of patients with Type II Diabetes Mellitus.
6. To identify ways to improve care rendered to patients with Type II Diabetes Mellitus.

1.5 Research Questions

1. What are the difficulties nurses face in managing Type II DM at HFH, Techiman?
2. What do the nurses do to deal with these challenges in managing Type II DM?
3. What are the perceived effects of the challenges on the Type II DM patients?
4. What role do nurses play in the management of Type II DM?
5. What factors motivate nurses in the management of Type II DM patients?
6. How can the care for Type II DM patients be improved?

1.6 Operational Definitions

Challenge: Difficulty to overcome a task or an activity.

Nurse: A person who has qualified in the art and science of nursing and meets certain prescribed standards of education and clinical competencies to provide care to the sick persons. He or she must be registered with the Nursing and Midwifery Council (NMC) of Ghana to practice.

Diabetes mellitus: A medical condition that is characterized by high level of blood sugar due to poor insulin production or the body's inability to use up glucose produced in the blood.

The ensuing section deals with the Literature review.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section focuses on some scientific literature which is discussed under the following headings; challenges in managing Type II DM, what nurses do to deal with these challenges, the perceived effects of these challenges on Type II diabetes patients, nurses' role in the management of Type II DM patients, factors that motivate nurses in the management of Type II DM and improving the care of Type II DM patients.

A search of literature for this study was done through Science Direct, Taylor and Francis, Sage online, PscyINFO, CINAHL, PubMed and MEDLINE databases as well as google scholarly. Related articles or journals on the topic that were published from January 2003 to May 2016 were used for this literature review. Key phrases used in the search were; challenges in managing Type II diabetes, nurses' role in Type II diabetes management, motivation in diabetes care, how nurses overcome the challenges of managing Type II diabetes, factors that affect Type II diabetes management, challenges nurses encounter in diabetes management and effects on patients and improving diabetes management.

2.1 Challenges in managing Type II Diabetes Mellitus

Diabetes as a chronic disease has several challenges in its management as found in Graue et al. (2013). In Graue and colleagues (2013) study on challenges in managing elderly people with diabetes, they sampled 16 health care professionals of which 12 were registered nurses and 4 been nursing assistants.

Their study was qualitative in nature and data for the study was collected through focus-group interviews. The interviews were transcribed afterwards and analysed with content analysis which revealed differences between the levels of expertise among the participants in providing quality care to patients (Graue et al., 2013). The differences in the levels of skills in providing care were due to unavailability and lack of access to new information in managing diabetes by some nurses, inadequate support, lack of unity among health professionals, low confidence and autonomy (Graue et al., 2013).

Graue et al. (2013) concluded that, nurses lacked confidence and autonomy to manage elderly people with diabetes in municipal care settings. Lack of information, support, and professional teamwork also made the roles of nurses in managing diabetes patients challenging.

Similarly, in a descriptive correlation study on diabetes management unawareness, a total number of 2,250 registered nurses working in a health care center were selected for the study (Modic et al., 2014). The participants completed 20 questions assessment which was administered pre and post attendance at a 4 hour diabetes management course and the data gathered were analysed using the Statistical Package for Social Sciences (SPSS) version 19.0 (Modic et al., 2014).

After the analysis using a paired *t* test, Modic and his colleagues found that there was a significant increase in scores from the pretest value of 11 to posttest value of 20 of the diabetes management course. It was also found that, nurses did not feel comfortable and were not sufficiently prepared to make decisions or provide skill education for patients with diabetes in the hospital due to their low knowledge in diabetes management (Modic et al., 2014).

They concluded that, nurses' knowledge of diabetes management principles of the hospitalized patient was low and this may partly be due to the nurses' inability to keep up with the rapidly changing technologies and drug regimens (Modic et al., 2014).

Furthermore, a study on assessing nurses' knowledge levels in the nutritional management of diabetes was conducted by Mogre, Ansah, Marfo, and Garti (2015). They used a cross-sectional design and sampled 200 nurses who completed a 21- item nutritional management of diabetes knowledge test. The data collection instrument of the 21- item nutritional management of diabetes knowledge was developed based on the American Diabetes Association (ADA) and World Health Organisation (WHO) guidelines for the nutritional management of diabetes with Cronbach's alpha reliability of 0.62 (Mogre et al., 2015).

The data was analysed with descriptive statistics of mean and standard deviation and at the end of the study, it was detected that, over 70% of the nurses said diabetes patients could exclude any of the major nutrients from their meals. Almost 90% of the nurses did not know the recommended daily caloric intake of carbohydrates for diabetes patients.

The researchers concluded that, nurses' knowledge in the nutritional management of diabetes was poor and that raised concerns about the adequacy of nurses' knowledge in the nutritional management and the quality of dietary information provided to patients (Mogre et al., 2015).

They then recommended that, curricula of nurses' training could be revised to improve nurses' knowledge in nutrition during training as well as continuing education through workshops and refresher courses for nurses already in service to improve their knowledge in nutrition (Mogre et al., 2015).

In a related study conducted by Alotaibi, Al-Ganmi, Gholizadeh, and Perry (2016) on diabetes knowledge of nurses in different countries which was a systematic review, they conducted a search

for English language peer reviewed publications of any research design via CINAHL, Medline, EMBASE and Education Research Complete databases from 2004 to 2014.

At the end of the search, they found 374 articles and upon removal of duplicates and quality appraisal, 25 studies were included in the review and synthesised based on study characteristics, design and findings (Alotaibi et al., 2016).

After the review it was found that, there was a wide-spread serious and sustained deficiencies in nurses' knowledge of diabetes and diabetes care. The researchers then suggested that, there was the need for development and evaluation of effective strategies to improve nurses' knowledge about diabetes and its management and the impact of knowledge acquisition on nursing practice and patients' outcomes (Alotaibi et al., 2016).

Similarly, a cross-sectional survey conducted by Daly, Arroll, Sheridan, Kenealy, and Scragg (2014) on diabetes knowledge of nurses providing community care for diabetes patients in Auckland, New Zealand revealed that, nurses identified excess body weight and elevated plasma glucose levels or glycosylated haemoglobin as major risk factors related to complications of diabetes. However, major cardiovascular risk factors were less well identified, particularly smoking. Cardiovascular complications, particularly stroke,were also less known than microvascular complications.

They concluded that, in general, nurses had better knowledge of overweight as a risk factor for Type II Diabetes Mellitus and elevated plasma glucose levels as a risk factor for diabetes related complications compared with knowledge of cardiovascular risk factors, particularly smoking (Daly et al., 2014).

Furthermore, a descriptive exploratory study on Kenyan nurses' involvement in managing hospitalized diabetic patients was also conducted by Mutea and Baker (2008). In their study, they sampled 15 registered nurses and collected data through interviews which lasted less than an hour.

The data was analysed using a grounded theory approach and the content analysis of the in-depth interview revealed adequate nurses' knowledge of diabetes mellitus and limited care to broader involvement (Mutea & Baker, 2008).

It also revealed that, nurses had adequate basic knowledge about diabetes and nursing actions required to manage patient care. The quality of nursing care offered to hospitalized patients however, was limited by inadequate hospital resources, conditions in the hospital environment and patient characteristics such as illiteracy, denial and poverty (Mutea & Baker, 2008).

The researchers concluded that, a nursing partnership model was offered as a method to provide primary and secondary prevention for hospitalized diabetic patients; but the shortage of nurses, patient illiteracy and poverty, and inadequate resources prevented the implementation (Mutea & Baker, 2008).

In another study on the challenges of diabetes management in immigrant Korean Americans which was qualitative in nature, five focus groups with 23 Korean Americans living with Type II diabetes (30 – 75 years) were conveniently selected for the study (Nam, Song, Park, & Song, 2013).

Data for the study was collected with discussions of open ended questions which were semi-structured and focused on previous experiences in living with diabetes (Nam et al., 2013). The data was analysed using content analysis and it was found that; diabetes self-management was not always a top priority for Korean Americans over other family obligations or financial stability in their busy immigration lives (Nam et al., 2013). Many Korean Americans also experienced

conflicts with family members in managing diabetes or would not request support from family members for their diabetes care. Furthermore, lack of English proficiency limited access to mainstream health care for many Koreans (Nam et al., 2013).

They concluded that, Korean American immigrants with Type II diabetes had various challenges living with it. Therefore provision of diabetes education at the community level was important to raise public awareness of diabetes and to eliminate social stigma (Nam et al., 2013).

Alhyas, Nielsen, Dawoud, and Majeed (2013) also conducted a qualitative study on factors affecting the motivation of healthcare professionals providing care to Emiratis with Type II diabetes.

They recruited nine (9) healthcare professionals from diabetes centers for the study and used semi-structured interview to collect data. The data was analysed using thematic analysis and factors that served as key barriers to motivation were grouped under patient, healthcare professional, organization and culture (Alhyas et al., 2013).

Patient related factors included; non-adherence to treatment plan, lack of awareness of diabetes and its complications, misunderstanding the role of diabetes educators, patients' preference to receive the entire management of their disorder from the diabetes specialists, unwillingness to spend time with healthcare professionals and fear of attending appointments with podiatrist (Alhyas et al., 2013).

Attitudes and beliefs about Type II DM as well as heavy workload and interruptions were the factors under healthcare professionals and organization of care respectively (Alhyas et al., 2013).

The researchers found that, cultural related factors that served as barriers to motivation in caring for Type II diabetes patients were; health behaviours and beliefs, and language differences between healthcare professionals and patients (Alhyas et al., 2013).

Alhyas et al. (2013) concluded that, awareness of the Emirate culture and its impact on health should be disseminated to healthcare professionals providing care to Emiratis with diabetes; greater emphasis should be placed on educating and involving Emiratis with diabetes in the management of their disorders and finally, factors that influence the adherence of Emiratis with Type II diabetes to medications should be identified.

Subsequently, another study was conducted by Sharma, Kalra, Dhasmana, and Basera (2014) on poor adherence to treatment regimen which was considered as a major challenge in diabetes management.

The researchers used a cross-sectional research design to study the adherence of patients to anti-diabetic treatment regimens. The study was done over a period of eight months spanning from June 2009 to January 2010 at the Doon Government Hospital, Dehradun, Uttarakhnad, India.

In their study, a total of 600 Type II diabetes patients who met their inclusion criteria were interviewed to get information regarding their socio-demographic characteristics, income, frequency of drug intake, and reasons for non-adherence to both pharmacotherapy and non-pharmacological therapy (exercise and dietary restriction) by using a preformed questionnaire. Adherence was also assessed with a four-question preformed questionnaire, the Morisky's instrument which has high reliability and validity (Sharma et al., 2014).

The researchers used simple percentage to describe the various variables and chi-square test was also used to assess the significance of association between the groups. It was found that, 16.6% of

the patients adhered to their treatment regimen whiles 83.3% of them were considered non-adherent.

The study also found the following to be some of the reasons why patients did not adhere to their treatment regimen: dietary restriction was difficult to maintain, lack of time for exercise, self-monitoring of blood glucose cumbersome, too many drugs, not aware of the consequences of missing the doses, multiple dosing, missed the drug very often, self-discontinuation of prescribed anti-diabetic drugs, shifted to alternative treatment after self-discontinuation of prescribed anti-diabetic drugs and side effects of medication (Sharma et al., 2014).

It was also noted that, majority of patients who did not adhere to the treatment regimen were from the lower economic strata who also possessed a poor educational background and/or literacy levels, were self-employed or held low-income designations in work places (Sharma et al., 2014).

Sharma et al. (2014) concluded that, Type II Diabetes Mellitus being a chronic disorder requires multiple therapeutic approaches including dietary and lifestyle modifications. In view of the adverse effects of hyperglycaemia leading to severe morbidity and increased mortality among the diabetic subjects, a tight control of blood glucose level is mandatory. Therefore, patient education and motivation are important components of diabetes care regimen.

Baumann, Opio, Otim, Olson, and Ellison (2010) also conducted a study on self-care beliefs and behaviors in Ugandan adults with Type II diabetes.

The reseachers conveniently sampled 340 adults with Type II diabetes from two outpatient settings in Kampala, Uganda. Data for the study was collected using interview and the gathered data was analysed with the Statistical Package for Social Sciences (SPSS version 15.0) (Baumann et al., 2010).

The study found that, self-care challenges included limited access to appropriate food, diabetes medications, blood glucose testing equipment, and educational materials. The researchers then concluded that, improving diabetes care will require systems level interventions to provide access to basic resources as well as social support and educational interventions (Baumann et al., 2010).

The cost of diabetes care has also been found to be a challenge in the management of patients with diabetes. In a systematic review on cost of illness studies of diabetes mellitus conducted by Ng, Lee, Toh, and Ko (2014), the researchers search for journal articles reporting the cost of Type I and/ or II DM that were published in English from 2007 to 2011 from MEDLINE and Scopus. The search yielded 5,493 studies, from which 1,502 duplicates were removed. Out of the remaining 3,991 articles, 429 passed the first level of screening and 400 of those were excluded at the second screening, leaving 29 articles for data extration. One article was found manually that met the selection criteria and was included in the review making the total articles 30 (Ng et al., 2014).

The cost of diabetes was converted to US dollars in their review and it was revealed that, the estimates for the total annual costs of DM ranged from US$ 141.6 million to US$ 174 billion. Direct costs ranged from US$ 150 to US$ 14,060 per patient per year whereas indirect costs ranged from US$ 39.6 to US$ 7,164 per patient per year. In-patient cost was the major contributor to direct cost in half of the studies that included in-patient costs, physician services and medications (Ng et al., 2014).

Soewondo, Ferrario, and Tahapary (2013) also conducted a literature review study on challenges in diabetes management in Indonesia. They conducted a comprehensive literature review together with a review of unpublished data from the Ministry of Health and a public health insurer. Studies presenting evidence on prevalence, incidence, mortality, costs, complications and cost of

complications, treatment, and outcomes were included in their analysis. The study revealed limited data available on direct costs and no data on indirect costs of diabetes.

They found in a local study that, the costs of diabetes of 100 diabetic patients at Kodya hospital Yogyakarta was estimated with monthly mean of US $ 19.97 direct cost. Most of the direct medical costs identified were spent on drugs (96.4%). A similar local study was conducted at the Dr. Sardjito hospital in Yogyakarta and the average direct cost per month for diabetes treatment was US $ 21 of which 59.5% was spent on drugs, followed by 31% on diabetes related complications (Soewondo et al., 2013).

2.2 What Nurses do to deal with these Challenges

Nurses are often the first healthcare team members to interact with patients and are being called on to apply their specialized knowledge, training, and skills to educate and motivate patients with diabetes about insulin use and practical ways to achieve treatment goals (Levich, 2011).

Diabetes educators are often viewed as the first health professionals to provide information and assistance for people living with diabetes and as such, are well placed to effectively encourage physical activity and lifestyle modifications (Gleeson-Kreig, 2006).

There are number of different barriers to effective blood sugar control which include lack of patient's understanding of glycated haemoglobin (HbA_1c), poor adherence to medication, diet, exercise and limited or poor communication between the patient and the doctor (Nesbeth, Orskov, & Rosenthall, 2009). Nurses are well placed to help overcome these barriers by providing advice, education and support to the patient (Nesbeth et al., 2009).

In a study which was qualitative in nature on patients' expectations of the health advice: conversation with the diabetes nurse practitioner, eight (8) patients with Type II diabetes were selected (Grund & Stomberg, 2012).

Data for the study was collected with interviews which lasted for 10 to 15 minutes and were recorded. The data material gathered was transcribed and analysed using content analysis which revealed the following categories; accessibility to the diabetes nurse practitioner, access to group activities, knowledge about self-care and patients' empowerment (Grund & Stomberg, 2012).

It was found that, by providing easy access to the nurse practitioner, the patients experienced an increased sense of security and support. The patients wanted to feel that, they have support and the chance to easily speak to the diabetes nurse when needed as well as their questions answered (Grund & Stomberg, 2012).

The participants also stated that, they would like the nurses to organise and lead their group discussions and alternate between theory and practice instead of them listening to lectures from the nurses (Grund & Stomberg, 2012).

2.3 Perceived Effects of the Challenges on Diabetes Patients

The challenges in managing Type II Diabetes Mellitus affect the successful control of blood glucose in people living with diabetes and this may cause complications like nephropathy, retinopathy, renal disease and heart diseases (WHO, 2006; Amos, McCarty, & Zimmet, 1997).

Some of the challenges in diabetes care include; poor patient adherence to diet, physical activity, medication and blood glucose monitoring, patient resistance to initiate or intensify anti-

hyperglycaemic therapy, poor understanding of disease, its progressive nature and the associated complications and financial issues (Canadian Diabetes Association, 2013).

These challenges were also in congruent with findings from a systemic review done by Nam and colleagues in 2011. In their study, it was revealed that poor glycaemic control or self-management of diabetes was affected by patient factors (Poor adherence, culture/ethnicity/language, attitude, beliefs, finances and knowledge about diabetes) and health care provider factors (Beliefs, attitudes and knowledge, patient–provider interaction and communication and health care system) (Nam, Chesla, Stotts, Kroon, and Janson, 2011). The researchers concluded that, there was substantial evidence that, both patients and health care providers had multiple barriers for diabetes management (Nam et al., 2011).

In another qualitative study on doctors' and nurses' views on patient care for Type II diabetes conducted by Noor Abdulhadi, Al-Shafaee, Wahlstrom, and Hjelm (2013) in Oman, they sampled 26 health care professionals of which 19 were doctors and 7 nurses.

They used semi-structured interviews to collect data from participants and the data was analysed with qualitative content analysis. The researchers found at the end of their study that, organisational barriers as well as barriers related to patients and health care providers affected the management of Type II diabetes. These included workload and lack of teamwork approach (Noor Abdulhadi et al., 2013).

Poor patients' management adherence, influence of culture on patients' attitudes towards illness, language barriers, providers' frustration and aggressive attitudes towards patients were also identified (Noor Abdulhadi et al., 2013).

They concluded that, the importance of recruiting diabetes specialist nurses in the Omani health care setting should be emphasized and clearly defined professional roles and education to support patients to be able to play a key role in their own care could be useful as the next step to develop diabetes services at primary care level in Oman (Noor Abdulhadi et al., 2013).

Furthermore, a study on challenges of self-management when living with multiple chronic conditions; systematic review of qualitative literature was also conducted by Clare, Valerie, and Karina (2014).

In their study, they searched for articles from the MEDLINE, EMBASE and CINAHL databases using relevant keywords like chronic disease, co-morbidity, multi-morbidity, multiple chronic conditions, self-care, self-management, perspective and perception (Clare et al., 2014).

A thematic synthesis method was used to analyse the articles and their findings were reported using Hudon and colleagues four dimensions framework as a guide. The four dimensions were; patient as person, biopsychosocial perspective, therapeutic alliance and sharing power and responsibility (Clare et al., 2014).

Under patient as person, the researchers found that, people with multiple chronic conditions experienced a great deal of suffering from physical and emotional symptoms and these prevented patients from performing normal daily activities including tasks required to appropriately and successfully self-manage condition or disease (Clare et al., 2014).

Three key themes related to biopsychosocial were identified. These were; the effect of cognitive approaches, the complexity of social support and lack of financial resources. Many patients believed that, changing their cognitive approach to their illness was the best way to deal with physical and emotional symptoms and limitations. Lack of social support was described as a

barrier; however, social support was also seen as a barrier to self-management when family or friends interfered with treatment plans or independence (Clare et al., 2014).

Patients reported that, lack of insurance for care including the need to pay for medications and associated financial strains of expensive medications hindered self-management of condition (Clare et al., 2014).

The main theme found under therapeutic alliance was that, the doctor-patient relationship was not always therapeutic. Patients stated contradictory knowledge, poor access and challenges with medication as barriers to care (Clare et al., 2014).

Clare and colleagues concluded their review by stating that, there were many complexities to the delivery of care for people with multiple chronic conditions (Clare et al., 2014).

In another study on hypoglycemia and clinical outcomes in patients with diabetes hospitalized in the general ward conducted by Turchin et al. (2009), they aimed to determine whether hypoglycaemic episodes are associated with higher mortality in diabetic patients hospitalized.

The researchers conducted a retrospective cohort study on 4,368 admissions of which 2,582 patients were diabetics from a period between January 2003 and August 2004. Data for the study was obtained from the research patient data registry comprising; patient demographics, dates of death, admission and discharge dates, laboratory data, billing codes, discharge summaries, and outpatient physician notes (Turchin et al., 2009).

The data was analysed with a multivariable analysis and it was found at the end of the study that, each additional day with hypoglycemia was associated with an increase of 85.3% in the odds of

in-patient death and 65.8% in the odds of death within 1 year from discharge. The odds of in-patient death also rose threefold for every 10 mg/dl decrease in the lowest blood glucose during hospitalization. Length of stay increased by 2.5 days for each day with hypoglycemia (Turchin et al., 2009).

The researchers concluded that, hypoglycemia was common in diabetic patients hospitalized in the general ward. Patients with hypoglycemia had increased length of stay and higher mortality both during and after admission and hence recommended that, measures should be undertaken to decrease the frequency of hypoglycemia in this high risk patient population (Turchin et al., 2009).

Similarly, in related study on the management of hyperglycaemia in hospitalized patients conducted by Smiley and Umpierrez (2010), they aimed to give an overview of the evidence for tight glycemic control (blood glucose targets <140 mg/dl), the evidence against tight glycemic control and the updated recommendations for the in-patient management of diabetes in the critical care setting and in the general wards.

The researchers stated in their review that, the importance of hyperglycemia also applied to non-critically ill patients admitted to general medicine and surgery services and in such patients, the presence of hyperglycemia is associated with prolonged hospital stay, infection, disability after hospital discharge, and death (Smiley & Umpierrez, 2010).

2.4 Nurses' Role in the Management of Type II DM Patients

Nurses are considered to be the first health professionals to interact with patients apply their specialized knowledge, training, and skills to educate and motivate patients with diabetes on their medication use and other treatment protocols as well as practical ways to achieve treatment goals.

They are particularly well placed to close the gap between patients and other health professionals and improve efficiency by assisting patients to start insulin and self-management. (Levich, 2011).

In a qualitative study on US nurses' perceptions of their role in diabetes care, the researchers sampled 51 general nurses, 50 diabetes specialist nurses, 166 general physicians and 50 diabetes specialist physicians (Siminerio et al., 2007).

Data for the study was collected from the diabetes health care professionals with structured interviews which was done face-to-face or on telephone and lasted between 30 to 50 minutes (Siminerio et al., 2007).

The study found that, specialist nurses played more advanced and active role in facilitating both self-management and medication management than general nurses. General Nurses therefore reported that, they acted as intermediaries and facilitated patient appointment keeping. Specialist nurses talked to patients about self-management, taught medication management, had a higher level of involvement in medication prescribing, and were more willing to take on additional responsibilities than general nurses. Nurses in general also provided better education, spent more time with patients, were better listeners and knew their patients better than physicians (Siminerio et al., 2007).

In a related study on diabetes management: optimizing roles for nurses in insulin initiation conducted by Levich (2011), the researcher used the following keywords; insulin, diabetes, diabetes educator, hypoglycaemia, diabetes counselling, insulin clinic and insulin pens to do the search for articles.

It was stated in the study that, nurses can intervene and help patients identify and change to therapies that are more flexible, simple, convenient, and well appropriate to their patients'

lifestyles so that adherence and quality of life are maximized. Clinical nurse who have specialized in diabetes and trained to understand the behavioural aspects of living with chronic illness, are well positioned to provide the patient with education and training necessary to promote diabetes self-management (Levich, 2011).

Levich (2011) also noted that, nurses can use motivational interview to create rapport to explore the patient's beliefs about insulin therapy and gradually begin to reposition insulin in a positive light. Nurses are to make follow-ups to help patients control and maintain their diabetes over the long term. They are also to encourage patients to maintain recommended levels of blood sugar, blood pressure, micro-albumin, and cholesterol through diligent adherence to therapy. They are to promote lifestyle changes such as planning of meal and mild to moderate physical activities for patients with Type II DM and also establish a timely routine screening for diabetes related complications (Levich, 2011).

Furthermore, nurses are to empower patients with all the information, tools, and training needed to successfully manage their diabetes at home and reinforce the importance of the patient as the key decision maker in his/her own care (Levich, 2011).

In an article written by Nyenwe, Jerkins, Umpierrez, and Kitabchi (2011) on management of Type II diabetes: evolving strategies for the treatment of patients with Type II diabetes, it was noted that, the general management of diabetes patients consisted of education, nutritional therapy, physical activity, oral hypoglycaemic agents and insulin. They also noted that, education of patients with either pre-diabetes or diabetes should include the following content areas that are based on assessed needs: disease process, treatment option, nutritional plan, exercise plan, knowledge of diabetes medicine prescribed, blood sugar monitoring, knowledge of acute and

chronic complications, psychosocial issues and individual strategies to promote health (Nyenwe et al., 2011).

2.5 Factors that motivate Nurses in the Management of Type II DM

Motivation of health professionals who manage people with Type II DM is a complex issue and is considered as a collective term covering many matters such as the health professionals' interest and intentions when providing diabetes care (Maclean et al. (2002) as cited in Alhyas et al., 2013).

In Alhyas et al. (2013) study, the factors that facilitated motivation of the healthcare professionals were grouped as patients', healthcare professionals and organization related.

Under patients' related factors, the researchers found that, health professionals were motivated when patients cooperated with them to achieve therapeutic targets, complied with treatment plans and were aware of diabetes and its associated complications. The health professionals were also motivated by patients appreciating their role in the care provided, patients providing them with positive feedbacks and patients' characteristics such as age, gender and educational level (Alhyas et al., 2013).

Factors that were related to healthcare professionals and motivated them in the care of the Type II DM patients included; good communication skills and good time management skills. Organization related factor that motivated health professionals was satisfaction regarding pay (Alhyas et al., 2013).

The researchers concluded that, to improve the motivation of healthcare professionals in the management of diabetes and the quality of diabetes care, the role of primary healthcare in the management of Type II DM should be reinforced and strengthened, privacy of consultations should be protected and regulated, and awareness of the Emirate culture and its impact on health

should be disseminated to healthcare professionals providing care to Emiratis with diabetes (Alhyas et al., 2013).

In a related study conducted by Lambrou, Kontodimopoulos, and Niakas (2010) on motivation and job satisfaction among medical and nursing staff in a Cyprus public general hospital, they sampled 67 doctors and 219 nurses.

Data for the study was collected with an instrument developed for measuring motivation based on Maslow's and Herzberg's theories. It consisted of 19 items, 7 items under job attributes, 4 items under remuneration, 5 items under co-worker and 3 items under achievements. The data was analysed with SPSS version 15.0 (Lambrou et al., 2010).

Findings of the study were that, achievements were ranked first among the four main motivators followed by remuneration, co-workers and job attributes. Achievements factor referred to intrinsic motivators such as pride, appreciation, respect and social acceptance. Both nurses and doctors ranked achievements as the strongest motivator (Lambrou et al., 2010).

2.6 Improving the Care of Type II DM Patients

Physicians are able to provide complete care to patients with diabetes through close interaction with other health professionals, particularly nurses and dieticians who are experienced and committed to diabetes care (Hiss et al., 2007).

In a randomized controlled trial study conducted by Chao et al. (2015) on the effect of integrated health management model on the health of older adults with diabetes in Nanjing, China, the researchers selected hundred older adults with Type II diabetes and randomly put them into either management group or control group with fifty participants in each group (ratio 1 : 1).

The management model had the following components: health record establishment, health evaluation and health management. The health management which comprises dietary advice, psychological aspects of health, education or skills training on health self-management, a tailor-made exercise program, regular blood glucose monitoring, group lectures on health and diabetes, individual telephone consultation and long-term diabetes drug monitoring were provided to diabetes patients in the management group. The control group therefore received usual care (Chao et al., 2015).

The management and the control group were both followed for 18 months and after that measurements were taken. Outcome measurements included; weight and height, Body Mass Index (BMI), waist and hip circumferences, blood pressure, fasting blood sugar and blood triglyceride, diet, health knowledge score and physical activity duration (Chao et al., 2015).

The data gathered was analysed with *t*-test and X^2-test performed in SPSS version 13.0 and mixed model. The results from the study revealed that; all outcome measurements for the management group improved better than the control group. The days of hospital admissions also reduced by 1.74 days for the management group whilst it increased by 2.88 days for the control group in the preceding 6 months (Chao et al., 2015).

The researchers concluded that; the integrated health management could improve the health of the older adults with diabetes (Chao et al., 2015).

Similarly, in a mixed methods study on the impact of an intervention for nurse prescribers on consultations to promote patient medicine taking in diabetes conducted by Latter et al. (2010), the researchers purposively sampled 20 nurses from 7 trust hospitals for the study but 14 of them completed the study.

The nurses were given four series of eight hour workshops designed to facilitate skills acquisition and behaviour change in the nurse prescribers. This was based on key theoretical concepts predictive of effectiveness in promoting medicine taking in patients and changing nurses' practice in consultations. The importance of the intervention was to promote nurses' self-efficacy to explore medication beliefs with patients (Latter et al., 2010).

Latter et al. (2010) recorded each nurse prescribers' consultations with diabetes patients and collected baseline data at one week, three months and six months after the intervention. The nurse prescribers were then interviewed at one month and six months post-intervention which were audiotaped and transcribed verbatim.

Nurse prescribers' interview data was analysed using framework analysis and changes in medicines discussion and participation in consultations were also analysed using MEDICODE. MEDICODE is a validated consultation analysis tool, designed to produce a structured analysis of medication discussions during routine consultations, including a quantifiable assessment of content and participation (Latter et al., 2010).

The researchers found an increased attention to patients' medication beliefs and adoption of patient-centered skills by nurses at the end of the study. The intervention designed to influence nurse prescribers' exploration of medicines beliefs in diabetes was also successful at increasing patient initiative in discussion of medicines, as well as discussion of concerns about medicines, consequences of non-adherence, attitudes to medication and patient opinions about medicines (Latter et al., 2010).

Furthermore, in a retrospective cohort study conducted by den Engelsen, Soedamah-Muthu, Oosterheert, Ballieux, & Rutten (2009) on improved care of Type II diabetes patients as a result

of the introduction of a practice nurse, the researchers recruited 397 Type II diabetes patients from five general practices in Netherlands.

They used process and outcome measures as measurements in the study. Process measures were the performance of an annual check-ups, laboratory assays (HbA_1c and lipid profile) funduscopy, foot examination, blood pressure measurements and calculation of Body Mass Index (BMI). Outcome measures were actual levels of HbA_1c, systolic blood pressure, lipid levels and BMI (den Engelsen et al., 2009).

The data about process and outcome measures were collected for three different points in time from the patients' electronic medical records. Time 'A' referred to the last annual check-up performed in 15 months before the introduction of the practice nurse in 2004. Time 'B' referred to the annual check-up in 2005 to measure the effects of the practice nurse on diabetes patients and time 'C' was the most recent annual check-up between March 2006 and June 2007 after the launching of the renewed diabetes guideline in March, 2006 (den Engelsen et al., 2009).

The researchers collected data about cardiovascular medication and smoking status at each of the three points. Process and outcome measures were also collected. All laboratory assays were performed under standard methods and in the same laboratory (den Engelsen et al., 2009).

The data was analysed using SPSS version 11.5 and analyses were performed both for the total diabetes population at the three different time points as well as for the cohort of the patients during the whole study period. Paired *t*-test was used for all continuous variables and McNemar's chi-square test was also used to compare paired proportions (den Engelsen et al., 2009).

The findings of the study revealed that, at time point 'A', 260 patients had their diabetes controlled and this figure increased to 319 at time point 'B'. This figure further increased to 340 at time 'C'.

All process measures improved over the study period with the exception of funduscopy. Foot examination increased from 44% to 75% and 83% at time point 'A', 'B' and 'C' respectively. Annual check-ups also increased from 49% to 84% and 92% (den Engelsen et al., 2009).

The researchers concluded that, an introduction of a practice nurse was followed by an improvement in diabetes care and therefore a practice nurse can provide high quality diabetes care. They further stated that, delegating diabetes care from a general practitioner to a practice nurse might be a solution to deliver high quality diabetes care in an era where care becomes more complex and time consuming (den Engelsen et al., 2009).

In Hiss and colleagues (2007) randomized controlled trial study on the nurse care manager collaboration with community-based physicians providing diabetes care conducted in southeastern Michigan, the researchers wanted to test the hypothesis that; close collaboration at the office level of a nurse care manager with community-based primary care physicians would lead to improvement of important clinical outcomes for adult patients with Type II diabetes compared to outcomes achieved by the physician working alone.

The researchers recruited 220 patients for the study of which 23 were Type I diabetes patients and 197 were Type II diabetes. Patients with Type II diabetes received a comprehensive evaluation of their diabetes and the results were communicated to both patients and their primary care physician. This was considered by the researchers as the basic intervention received by all recruited patients. Randomly, half of the patients were additionally assigned to individual counselling, problem identification, care planning and management recommendations by a nurse care manager and this was defined as the individualized intervention (Hiss et al., 2007).

The patients who received only the basic intervention served as the control group for those who received the individualized intervention in their study. The components of the comprehensive evaluation received at study entry and post-intervention for all patients were; diabetes and general medical history, current diabetes program, diabetes care profile, height, weight, blood pressure, foot and neuropathic examination, glycated level, serum C-peptide, serum creatinine, lipid profile and micro-albuminuria (Hiss et al., 2007).

The researchers selected four outcome measures for analysis of pre and post-intervention status of patients. The selected outcome measures were; glycated haemoglobin (HbA_1c), serum cholesterol, systolic and diastolic blood pressure. These selections were made base on the extensively recognized importance of these factors in the pathogenesis of micro and macrovascular complications of diabetes (Hiss et al., 2007).

The hypothesis of their study was analysed using the four outcome variables. A change of each variable was defined as the value at post-intervention data collection minus that at baseline. Two-tailed paired *t*-tests were used to test whether the mean changed between baseline and the end of study within each group. The mean changes between the two groups were compared by a 2-sample *t*-test (Hiss et al., 2007).

At the end of the study, it was revealed that; there was a significant improvement in the mean systolic blood pressure of all Type II diabetes patients in the individualized intervention group but not in the basic intervention (control) group. There was also a statistically significant improvement within the individualized intervention group but not within the control group. The glycated haemoglobin improved significantly for both the individualized intervention group and the control group but was greater in the former than the latter. However, the improvement was not significant.

Diastolic blood pressure improved for only the patients who had more than two contacts with the nurse. There was no significant changes in cholesterol between the intervention group and their subsets (Hiss et al., 2007).

The researchers then concluded that, the results of their study supported the hypothesis that; the addition of a diabetes nurse care manager to the office practice of community-based primary care physicians not affiliated with a managed care organization would enhance care provided to their patients with Type II diabetes compared to outcomes achieved by the physicians working alone (Hiss et al., 2007).

Pick (2008) also conducted a study on using participation groups to improve diabetes care. The researcher used several methods including patient satisfaction survey, questionnaire for health professionals who run the groups and three additional semi-structured interviews for data collection.

The qualitative data from the patients and group leader questionnaires was analysed with Burnard's (1991) 14-step approach for qualitative data analysis (Pick, 2008).

The study found that, diabetes groups helped patients make changes to diet and exercise patterns and provided users with more information, knowledge and social network. It was also noted that, diabetes group helped 67% of the patients to get more out of their diabetes check-ups and 62% were able to manage their condition better (Pick, 2008).

A study on the effect of nurse-directed diabetes care in a minority population in two Los Angeles county clinic was also conducted by Davidson (2003). The researcher randomly selected diabetes patients from clinic 'A' and 'B' and each clinic had 252 patients.

The objective of the study was to determine whether diabetes care directed by nurses following detailed protocols and algorithms and supervised by a diabetologist results in meeting evidence-based American Diabetes Association (ADA) process and outcome measures more often than care directed under usual care in a minority population (Davidson, 2003).

The diabetes patients in clinic 'A' received nurse-directed diabetes care and those in clinic 'B' received usual care. The 252 diabetes patients in clinic 'A' who were referred by their primary care providers were matched with the other 252 diabetes patients in clinic 'B'. The nurse-directed care in clinic 'A' was discontinued due to administrative reasons and therefore was reestablished in clinic 'B'. The patients who received the nurse-directed care in clinic 'B' were randomly selected from a teaching clinic (Davidson, 2003).

The researcher assessed the following process and outcome measures in the study: number of visits, diabetes education, nutritional counselling, glycated haemoglobin (HbA_1c), lipid profile, eye examination, foot examination, renal evaluation and Angiotensin Converting Enzyme (ACE) inhibitor therapy in appropriate patients (Davidson, 2003).

The study found that, patients who received nurse-directed diabetes care in clinic 'A' had their glycated haemoglobin (HbA_1c) levels decreased by 3.5% (from 13.3 to 9.8%) in 120 patients who were followed for at least 6 months as compared to 1.5% decrease (from 12.3 to 10.8%) in patients who received usual (physician-directed) care in clinic 'B' (Davidson, 2003).

Davidson (2003) concluded that, specially trained nurses who follow detailed protocol and algorithms under supervision of a diabetologist can markedly improve outcomes in diabetes care in minority population.

SUMMARY CRITIQUE OF THE LITERATURE REVIEW

The literature review was done based on the specific objectives of this study which were; (a) challenges in managing Type II diabetes, (b) what nurses do to deal with these challenges, (c) the perceived effects of the challenges on the diabetes patients, (d) nurses' role in the management of Type II DM patients, (e) factors that motivate nurses in the management of Type II DM and (f) improving the care of Type II DM patients. The literature revealed that, health professionals, particularly nurses encountered many challenges whiles providing care for people living with diabetes. These challenges therefore affected the quality of care that was supposed to be provided to the diabetes patients.

It was also noted that, most of the studies reviewed were conducted in the western world where socio-economic factors are different from what is in Ghana. Out of the 33 studies reviewed, including the challenges nurses face in managing Type II diabetes, most of them were surveys in nature. It seems also that, no study on the challenges faced by nurses in the management of Diabetes Mellitus has been done in Ghana. In my search for literature, there was none found and this seems to suggest the need to do this study in Ghana using a qualitative approach.

It is therefore imperative to do a study to find the challenges nurses encounter in managing patients with Type II DM using a qualitative design which may give an in-depth information about the challenges nurses face in managing diabetes.

CHAPTER THREE

METHODS

3.0 Introduction

This chapter provides information on the study setting, study design that was used, sampling technique/sample size, instrument that was used for data collection, data analysis and ethical issues that were considered in this study.

3.1 Setting

Holy Family Hospital (HFH) is the biggest hospital in the Techiman Municipality and provides healthcare services to people from far and near. Techiman municipality shares boundaries with Nkoranza on the east, Sunyani on the west, Wenchi on the north and Akomadan on the southern corridors of Ghana.

The hospital was established in 1954 by the Medical Mission Sisters with bed capacity of eight (8) for in-patients and provided dispensary services as well.

It is now a primary level health facility offering the following services: General OPD, In-patient, Operative, Physiotherapy, Diagnostics, HIV/AIDS and ART programmes, T. B control, Reproductive and Child Health (RCH), Pharmaceuticals and Mortuary. Specialist services provided in the hospital include: Obstetrics and Gynaecology (O & G), Orthopaedics, Paediatrics, Ophthalmology, Ear, Nose and Throat (ENT), Dental, Internal medicine and Surgery.

In 2004, the Ghana College of Physicians and Surgeons accredited the hospital to start the training of medical house officers which is currently on going.

The hospital currently has a bed capacity of 252 and staff strength of 518 of which 128 are registered nurses and midwives.

The hospital was chosen for this study because, it has a diabetes clinic which was established in 2007 and it is this area that the researcher has also identified problems in relation to diabetes management.

Section of Ghana map showing Techiman, Brong-Ahafo.

3.2 Study Design

An exploratory descriptive research design was used for this study due to its appropriateness. This is because, it aims at gaining new insights, discover ideas and for increasing knowledge of the phenomenon in question as well as providing rich flavour for issues and circumstances (Kruger, 2003). This research design allows one to capture the subtle nuances of a situation and present information in a way that the general population can relate to (Kruger, 2003).

In this type of design, open ended and emerging data is collected with the primary aim of developing themes (Creswell, 2005). The design is important for this study as little is known about this area of study in the Ghanaian context. As a descriptive study in nature, it also involves direct exploration, analysis and description of the particular phenomenon in question (Creswell, 2012).

This exploratory descriptive design was therefore able to unearth the challenges of nurses in the management of patients with Type II Diabetes Mellitus at the HFH, Techiman.

3.3 Study Population

All registered nurses at the Techiman HFH were the target population for this study. Creswell (2005) described population as a group of people who are the focus of a research study and to which the results would be applied. It is also the group on which the researcher would like to make inferences to.

3.4 Inclusion Criteria

Inclusion criteria were all registered nurses who have worked a year and more at the HFH, Techiman. This was because these nurses were considered to have fair idea and knowledge about

the challenges in managing Type II diabetes patients and also might have had ample time and opportunity to participate and observe well in interactions with these patients at HFH.

3.5 Exclusion Criteria

Exclusion criteria were registered nurses who have not worked up to one year and those on rotation at the HFH. These criteria were used because these nurses were considered not to have experienced the identified problems in managing Type II diabetes patients at the HFH.

3.6 Sample Size and Sampling Technique

For this study, a purposive sampling technique was used to select participants who the researcher believed could provide more in-depth information on the challenges in managing Type II diabetes patients at the HFH, Techiman.

Sampling is the investigation of a part of the whole population to draw conclusion that may be generalised to the whole population in which the sample was drawn (Leedy & Ormrod, 2005).

The sample size was therefore obtained based on evolving responses and when participants' responses reached saturation point. This implies that, successive participants gave similar or same responses with no new subthemes or themes emerging. Fourteen (14) participants were therefore used for this study.

3.7 Data Collection Tool

Data collection is the process of gathering research information from participants (Hatch, 2002). In this study, a semi-structured interview guide (Appendix A) with open-ended questions was used to collect data. The guide was made up of two sections; A and B. The first section (A) considered the demographic characteristics of the participants and the essence was to establish rapport with

the participants. The second section (B) considered the specific questions on the challenges in managing Type II diabetes, how nurses deal with these challenges, the perceived effects of these challenges on the diabetes patients, the role nurses play in the management of Type II Diabetes Mellitus, factors that motivate nurses in the management of patients with diabetes and ways to improve care rendered to patients with Type II diabetes. However, follow-ups or probing questions were also asked based on participants' responses to the questions that were generated from the above statements.

The interviews were audio taped with permission from the participants and field notes were taken as well.

3.8 Piloting

Piloting is where the data collection tool is tested on a small number of the people whose characteristics are similar to those that will take part in the actual study. This is aimed at identifying misinterpretations and items that are missed out so that modifications can be made to the data collection tool before the full study is carried out (Goodman & Evans, 2006).

The interview guide for this study was therefore piloted at Holy Family Hospital (HFH), Berekum. Berekum HFH was chosen for the piloting because, it provided similar health services to that of HFH, Techiman and categories of staff in the two institutions were almost similar.

The interview guide was piloted with three (3) nurses at the Berekum HFH and some modifications were made to two questions in the interview guide after the piloting due to ambiguity and improper wordings. These were; (i) in your daily work as a nurse, what do you do to deal with challenges you face in the management of patients with Type II diabetes? Modified to read as; please what

do you do to deal with the challenges you face in the management of patients with Type II diabetes? And (ii) what are some of the factors that influence how you manage patients with Type II diabetes? Was also modified to read as; what are some of the factors that motivate you to manage patients with Type II diabetes?

3.9 Data Collection Procedure

The data gathering procedure describes the method of obtaining the study information (Leedy & Ormrod, 2005). Ethical approval for the study was sought from the Institutional Review Board (IRB) of Noguchi Memorial Institute for Medical Research (NMIMR) University of Ghana, Legon.

A copy of the ethical approval letter (Appendix C) and permission letter (Appendix B) were sent to the administrator of the HFH, Techiman to seek for permission to use the hospital and the nurses as participants for this study. The study participants were informed about the purpose of the research; procedures and benefits were also explained to them and those who agreed to participate and met the inclusion criteria were given the consent form to sign.

Participants who consented to participate in the study were then scheduled for interviews at their own convenient time and place of their choice to ensure privacy. Permission was sought from the participants to record the interviews. Twelve of the interviews were done in the researcher's office at the hospital and the remaining 2 at the homes of participants.

The duration of the interviews lasted between 8 and 26 minutes. This depended on the responses that were provided by the participants. All the interviews were conducted in English language since all the nurses in the hospital could speak the English language fluently.

3.10 Data Analysis

In this study, the data was analysed concurrently with data collection using Creswell (1998) approach to qualitative data analysis. That is, applying the techniques of thematic content analysis in which similar codes were aggregated to form major concepts and themes (Creswell, 2009). The major feature of qualitative research is that, there is a simultaneous collection and analysis of data for the purpose of each of them shaping each other (Sandelowski, 2000).

The recorded interview for this study was transcribed verbatim while listening to the audio recordings. After the transcription, the recordings were played over repeatedly to check for accuracy of the transcripts. These were typed into personal computer and an eight centimeter margin was created to make room for writing codes on the right side of the paper. The researcher read the transcribed interviews several times and grouped similar or same words, common phrases and sentences as well as statements together. These groups of words, phrases, sentences and statements were re-examined to detect similarities, and similar or same contents were grouped to form common files containing sub-themes. This process was applied to all the individual interviews. Finally, higher level groupings or second level categorizations were done by bringing common files together to form major or final themes.

The patterns and relationships between the emergent themes and sub-themes were examined and these patterns informed the conclusions and interpretations drawn from the data. The identified themes and sub-themes were read by my supervisor and colleagues to ensure reliability of the categorizations and coding. This cross-analysis helped in ensuring reliability of the results and eliminated researcher's biases and subjectivity as well as preconceived ideas.

3.11 Data Management

The data for this study will be kept under lock and key system and only the researcher and the supervisor will have access to the recorded interviews raw data. The researcher has also used storage devices like pen drives and personal computer with a password to store the data. The data will therefore be kept by the researcher for at least a period of five (5) years after the study. Following this period of time, the data will be discarded or destroyed.

Anonymity of participants was ensured by assigning codes and names as well as personal descriptive data was omitted in this study. Pseudonyms were used when quoting verbatim.

3.12 Rigour

To ensure rigour in qualitative research, a conscious effort should be made to follow the principles which serve to ensure credibility, transferability, dependability and confirmability of the findings (Crawford, Leybourne, & Arnott, 2000).

Credibility in research is making sure that there is confidence in the truth of the findings (Lincoln & Guba, 1985). Credibility makes sure that the findings are congruent with reality. In this study, it was ensured by having the audiotapes verified to confirm accurate transcription of interviews and field notes. Credibility was also ensured by using the direct quotations from the participants, so that their perspectives were clearly represented.

Transferability in research is the act of showing that the findings have applicability in other contexts. It is the extent to which findings of one study can be applied to other situations (Shenton, 2003). This was ensured by using a great deal of descriptive comments on the settings, participants and research processes so that readers will assess the applicability of the findings to other contexts.

Confirmability is also the degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest (Lincoln & Guba, 1985). To ensure confirmability, steps were taken to ensure that the research findings were the results of the experiences and ideas of the participants rather than the characteristics and preferences of the researcher. Confirmability was also dealt with by contacting some of the participants to confirm whether the themes expressed the essence of what they had told the researcher.

Dependability is the act of showing that the findings are consistent and could be repeated. It ensures that if the work was repeated in the same context, with the same methods and with the same participants, similar results would be obtained (Shenton, 2003). This was ensured by my supervisor reviewing the transcripts and the themes that were developed. The themes were compared and differences resolved through discussion until a consensus was reached.

3.13 Ethical Considerations

The researcher applied for ethical clearance from the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) which is responsible for issuing scientific certificates to researchers before the commencement of their research. A permission letter (Appendix B) and a copy of the ethical approval letter (Appendix C) were sent to the administrator of the HFH, Techiman to seek for permission to conduct the study in the facility.

The hospital administrator gave an approval (Appendix D) for the facility to be used as the setting for this research. The purpose of the research, benefits and all procedures involved were explained to the recruited participants and they were assured of confidentiality and anonymity to seek their consent for the study. Those who agreed to take part in the study and met the inclusion criteria where given the consent form to sign.

Anonymity was ensured by using codes to represents participants of this study and names were omitted as well. Pseudonyms were therefore used later when quoting verbatim in this study.

The interviews were conducted at a place and time convenient for the participants, either in their homes or in the office of the researcher at the hospital. This was done to ensure confidentiality.

Participants had the full right to withdraw from the study or continue with the study without any coercion. No participant however, refused to continue with this study. They were also informed that taking part in the study or not would not affect their employment in the hospital. The participants were given beverage drink (Malt) and meat pie as a token for participating in this study but some of them refused the token.

The next section deals with the findings of this study.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents the major findings of the study. The findings are hence presented under the objectives of the study and are grouped under 9 main themes with their corresponding sub-themes. The chapter will first describe the demographic characteristics of participants in the study and this will be followed by a presentation of the 9 main themes and the 25 sub-themes identified.

4.1 Demographic Characteristics

The total number of participants for the study was fourteen (n = 14) of which majority were females (8) and the minority being males (6). The age distribution of the participants was as follows: 26 years (1), 27 years (5), 28 years (3), 29 years (2), 31 years (1), 33 years (1) and 34 years (1).

One participant had Bachelor of Science in health science certificate, 2 were Bachelor of Science degree holders and 11 had diploma in registered general nursing. Six participants were staff nurses (SN), 4 were senior staff nurses (SSN) and another 4 had their grades as nursing officers (NO).

The participants had at least 2 – 8 years working experience.

All fourteen (n = 14) participants for this study were general nurses who were caring for Type II diabetes patients.

The ensuing section presents the pre-determined themes as well as the identified themes and their corresponding sub-themes. The presentation of the findings will be supported by verbatim quotes from the transcribed interviews. The themes and sub-themes are illustrated in Table 1 below.

Table 1: Themes and Sub-Themes

Themes	Sub-themes
Nurses' experiences with equipment for diabetes care	• Bad glucometers • Lack of glucometers
Cost of diabetes care	• Patients' financial constraints • Patients pay for dietary counselling
Nurses' knowledge in diabetes care	• Lack of knowledge
Patients' non-adherence to treatment regimen	• Language barrier • Difficult to stop eating desired food • Patients' beliefs • Patients' illiteracy
Dealing with the challenges in diabetes care	• Provision of health education • Support from social worker • Provision of anti-diabetics
Perceived effects of the challenges on diabetes patients	• Prolonged hospitalization • Complications of diabetes

Care for diabetes patients	• Monitor blood glucose and control
Nurses' motivation in diabetes care	• Improvement in patients' condition • Appreciation from patients • Patients' commitment to treatment • Reduce workload • Provision of quality equipment
Perspective of nurses to improve diabetes care	• Improvement in health insurance • Social support • Improved healthcare system • Staff's knowledge update • Public education

4.2 Nurses' Experiences with Equipment for Diabetes Care

One of the major themes identified in this study was nurses' experiences with equipment for diabetes care. This theme dealt with how nurses felt with the use of glucometers in the course of caring for patients with diabetes. Two sub-themes emerged from this theme and were; bad glucometers and lack of glucometers. These two sub-themes were among the challenges that nurses faced in managing the condition.

Nurses had various experiences with the use of the blood monitoring devices (glucometers) in the discharge of their duties to patients with Type II diabetes. These experiences with the glucometers

by the nurses in caring for patients suffering from Type II diabetes made them frustrated and this in a way negatively affected the care that was rendered to patients.

4.2.1 Bad Glucometers

The nurses for this study expected to have been working with good and quality glucometers when caring for patients with Type II diabetes so that values that will be read by the machines (glucometers) would be trusted.

The findings of this study revealed that, most of the glucometers that were used at the various departments in the hospital to monitor the blood sugar levels of diabetes patients were of poor quality and develop faults easily. This therefore was challenging for the nurses in caring for these patients.

This was a statement made in relation to bad glucometers by Nurse Isaac, a 27 year who had 2 years working experience:

> "*Most of the glucometers we are using; initially we were using the One-touch, and that one was durable but because the strips are expensive, they gave us the Accu-check and the Express and that one develop faults easily. Within 24 hours it just develops faults, so we find it very difficult in monitoring their sugar levels, so there is a problem with our glucometer, thus the machine*" ***(Isaac)***

This nurse observed that, the One-touch glucometer which they were using in monitoring blood sugar levels of diabetes patients earlier was good and durable but the strips were costly. For this reason, other brands like the Accu-check and the Express were introduced by the hospital management to be used in monitoring blood sugar levels of patients but these ones developed faults easily. That made it very difficult for the nurses to use in monitoring the blood sugar levels of patients with diabetes.

Another nurse who was so eager to make a comment also had this to say;

> *"The glucometers that we're using to check their RBS and those stuff. Sometimes during the weekdays is better, but in the weekends whenever the glucometer develops any faults, then it becomes a problem. Because the stores are not there to provide and last month we had cases like that. Our own glucometer got spoilt, male medical, then female medical, then surgical, all at the same time; and it was weekend. We couldn't fall on any storekeeper to retrieve any new glucometer. So over the weekends we have to move to ER which is about 50 – 100 meters away from male medical for us to go and pick glucometer before we come and check. So imagine you are checking 30 minutes interval and you have to go up – down, up – down"* ***(Agyeman)***

This nurse also observed that, it was better when the glucometers developed fault during the weekdays, because they could then place an order to the hospital's store and they will be supplied with a new one. But during the weekends, because the store is closed, if a glucometer develops any fault, the nurse will have to rely on other wards to get glucometer to check patients' blood sugar levels.

He recounted an incident where their glucometer got spoilt as well as that of other nearby departments at the same period and for that matter he had to walk about 50 to 100 meters from the medical ward to the Emergency Room (ER) to pick a glucometer during the weekends to check patients' blood sugar levels.

Similarly, another nurse who had worked for 7 years was asked whether there has been an instant where she picked a glucometer to check a patient's blood sugar level and it was not working. This was what she had to say:

> *"Not necessarily working, but it read low battery. So for that one you insert the strip and it will tell you low battery, you take it out, you insert it and then probably it works. Those times I just: I will be thinking that is this, if I get the value will it be the normal value. And then when it reads low battery and you come to the lab, they tell you they don't have battery so you have to make do with what you have"* ***(Florence)***

The experience this nurse had with the glucometer made her have some doubts about the values that were displayed by the glucometer she used. She anticipated that because the machine had

warned that the batteries' power was low, any value that will be displayed by the machine will not be a correct value for her to rely on to provide any intervention to the patients.

The study also found that, when glucometers are damaged or get spoilt, it takes too long a period before they are replaced for the nurses to use them in checking patients' blood sugar levels. This was an observation of a 26 year old nurse with 3 years working experience:

> *"There are at times that the glucometer gets spoilt and replacing it becomes a bit difficult, it takes time. There are at times that a week or two before is replaced; so within this time that it is spoilt, is like we are unable to monitor their glucose levels"* ***(Selina)***

Similarly, another nurse also had this to say on the prolonged period for replacing spoilt glucometers:

> *"The instruments and other things, example glucometer that we use to measure the sugar level of the person; because of maybe improper monitoring of the systems, when they breakdown we don't really get them replaced in time"*
>
> ***(Richard)***

It was noticed that when the glucometers get damaged, it takes quite a period of time before they are replaced for use by the nurses. Within the period that the glucometers have not been replaced, the patients' blood sugar levels will not be checked for interventions to be made and this made the control of the blood sugar levels very difficult which eventually hindered the quality of care rendered to diabetics.

4.2.2 Lack of Glucometers

Another important sub-theme that emerged from the main theme; nurses' experiences with equipment for diabetes care was lack of glucometers. The study found that, glucometers which are key equipment needed in the care of diabetes patients were not enough at the wards where diabetes patients were cared for and therefore was a challenging situation for nurses.

The following quote was an observation of a 29 year old nurse in relation to lack of glucometers whilst caring for diabetes patients.

> *"We don't have enough equipment, is a challenge: because looking at our department we have a lot of patients but we have only two meters. So when it happens like that, if you have about six patients then we are supposed to monitor them and we have other emergency cases, is a little bit difficult"* ***(Rose)***

The above statement was made when the nurse was asked whether there was enough glucometers in the ward for monitoring blood sugar levels of diabetes patients. The nurse noted that there were not enough glucometers and the insufficiency of the glucometers in the ward made the monitoring of patients' blood sugar levels a bit difficult or cumbersome.

Similarly, another nurse also made this statement with emphasis;

> *"There is only one glucometer in the whole ward, yea. Sometimes we go to other wards to borrow their glucometers to check the sugar"* ***(Florence)***

The lack of glucometers in the wards was also emphasized by Nurse Peter who had 4 years working experience. This was what he had to say:

> *"The key instrument needed for checking the blood sugar which is the glucometer, currently we have one at our ward. When nurses tend to search around for these machines like the glucometer, like the strips, it obviously affects the management of the condition or influence it in a bad way. Because it's not all nurses who will run around looking for these things just to check the glucose levels of these patients"* ***(Peter)***

Peter, a 28 year old nurse has observed that, some nurses do not border to look for glucometer or test strips from other wards to check their patients' blood sugar levels when they are not available in their wards. This therefore negatively affected the blood sugar monitoring of such patients.

Another participant also stressed that;

> *"The emergency unit has three sides or I can even say four; the triage, the surgical side of the ER, the medical side of the ER and the immediate resuscitation. Most of the time we are all using the same glucometer, so when you want to make use of it for your patient at your side, another person will also be taking it elsewhere or there will be a patient at triage, and because the nursing strength to patients isn't*

> *that much, you turn to go and do other things and later come back and check on that one. Sometimes we tend to forget or you are busy with other things such that you will later recall that you refused to or you didn't get the apparatus to recheck and hence if you had checked earlier and had intervened, maybe your patient would have been fine. Only for you to check in other hours to realize that, blood sugar level or the glucose level is shooting high because you didn't check earlier for your intervention"* ***(Margaret)***

Nurse Margaret, 28 years with 5 years of working experience also has observed that, the pressure on one glucometer in their ward coupled with limited staff sometimes made them forget to check patients' blood sugar levels. If they therefore realized it later to check, it will be noticed that the blood sugar level has risen because it was not checked earlier for the necessary interventions to be given.

Furthermore, another participant had this to say in relation to the lack of glucometers:

> *"The glucometer with strips; sometimes you go to the stores to take them and they are not there, that one I must be frank, they are not there. And if they are not there, I mean who suffers: is the patient. So that one makes our monitoring difficult"* ***(Felix)***

Felix, 34 year old participant has also noticed that, if the glucometer and the strips are not available in the ward and they go to the hospital's store for supply, they do not get them. This therefore made the blood sugar monitoring quite difficult and hence quality care was compromised.

Finally on this sub-theme, another participants highlighted that;

> *"We have one that is shared by the male and female wards. So it makes even the timing for monitoring their glucose levels challenging. Because is really mostly monitored either two hourly or four hourly, but there are times that when the time is up, it will be used at the other department and it will prolong our time to check our patients' glucose levels"****(Selina)***

The lack of glucometers at the various wards in the hospital as expressed by the nurses made the care for diabetes patients quite challenging or problematic. Nurses did not get easy access to glucometers to monitor diabetes patients' blood sugar levels and this negatively affected the control of patients' blood sugar which subsequently impeded care that was rendered to the patients.

4.3 Cost of Diabetes Care

The cost of diabetes care as identified in this study as a main theme dealt with the cost incurred in caring for patients with diabetes. The two sub-themes that emerged from this theme were; patients' financial constraints and patients pay for dietary counselling. The high cost of treating patients with diabetes was identified in this study to impact negatively on the care provided by nurses. This was also a challenge for the nurses in caring for the diabetics.

4.3.1 Patients' Financial Constraints

Patients' financial constraints as a sub-theme under the main theme; cost of diabetes care in this study was where patients with Type II diabetes were unable to provide certain materials that were needed for their care due to lack of money or fund. It was noted that, the hospital was practicing public private partnership (PPP) policy and therefore some diabetes patients were unable to afford their drugs and syringes needed in their care. This subsequently made the control of blood sugar levels of such patients difficult for the nurses who were caring for them.

In relation to this, one of the nurses who participated in the study made the statement below when asked about some of the challenges in managing Type II diabetes;

> *"They are unable to also afford the medication especially the insulin. And at the work place, the challenges is now with the PPP. Because they pay for most of the things, they are often unable to afford and sometimes it delays in the care. Because if the patient is not having the insulin and there is no ward stock; but even if there is the ward stock, the patients have to get their own syringe and some of them delay in buying them which also affects the treatment"* ***(Achiaa)***

This nurse noted that, because of the public private partnership (PPP) which was being practiced in the hospital and mandated patients to make part payment of their drugs and syringes, care for patients who could not afford was delayed.

This was emphasized by Nurse Rose, 29 years who stated that;

> *"It's not every drug that the insurance covers and even if the insurance covers the drug, they will have to pay top-up and some people find it very difficult to add the little amount to get the drugs"* ***(Rose)***

Furthermore, other nurses made statements that affirmed the inability of diabetes patients to afford their drugs, strips and syringes which hindered their care. The inability of the patients to afford the needed materials for their care was attributed to ineffective health insurance scheme.

One of the participants had this to say;

> *"Because most of the drugs are now cash and carry, the patients are not able to buy them"* ***(Isaac)***

Isaac, 27 years has noticed that most of the drugs for the diabetes patients were cash and carry and therefore some of the patients could not afford them. The statement above was emphasized by another participant who stated that:

> *"Health insurance you know Holy Family now is a kind of cash and carry. It's a PPP: private, public, partnership or whatever. So anything that you will do, you will have to give a top-up or you'll have to pay*. N*owadays, anytime we go in to check RBS, if say; if maybe hyperglycaemic patient comes and he is to be managed with the Alberti's regimen; 30 minutes, hourly, 2 hours, 3 hours, 4 hours. We have to prick the person in order to check the RBS, now every prick here is say 3 to 5 Cedis. Some of these patients are also from a very poor background. So financially they become challenged and they will tell you that, ooh I cannot afford to pay more so it means that, you cannot come and check the RBS to know how the sugar level is and hence it will compromise the care"* ***(Agyeman)***

Similarly, Florence placed emphasis on the above statement and this was what she had to say;

> *"If someone is admitted with say high glucose level, financially is a problem; because we want to know the amount of sugar at every point in time. If the sugar is more than 18, we are supposed to check the sugar every hour and they buy the strips. So sometimes you go and the person does not have the strips, what do you do? Just leave it like that and when it's available you go for it. Insurance does not cater for it"* ***(Florence)***

4.3.2 Patients pay for Dietary Counselling

Dietary counselling plays a major role in the management of diabetes. During the counselling sessions, patients with diabetes are taught how to change their eating habits, thus the type of meals to eat, the quantity and at what time to eat them and other lifestyle modifications.

The nurses noted that, diabetes patients who were being managed at the hospital were paying for each counselling session they had with the nutritionist and this became a burden for the patients. The diabetes patients were initially not paying for the counselling sessions and therefore did not deem it important to pay money just to listen to a talk. They therefore ate any kind and quantity of food they had at any time and this made the controlling of their blood sugar levels quite difficult for the nurses.

The nurses made these statements concerning the payment for dietary counselling by diabetes patients:

> *"The dietary counselling the patients were not paying, but now they have to pay and most of them if you don't pay, the counselling will not be done. You ask them to go and pay the 5 Cedis, there is no money for them to pay, meaning the counselling cannot be done, and once they can't do that dietary counselling is difficult to also control their sugar"* ***(Isaac)***

The diabetes patients were to pay five Ghana Cedis (GH₵ 5) which was equivalent to $ 1.28 for every session of dietary counselling they had with the nutritionist or the dietician. This increased their financial burden and some of them could not continue with it and therefore the control of their blood sugar levels was compromised as stated above by Isaac.

In respect to patients having to pay for the dietary counselling, Agyeman emphasized that;

> *"You know when they go for nutritional counselling, here; they collect 5 Cedis. So whereby the patient financially he's down, it means that he wouldn't go for the nutritional management and that will not help the management of the DM"* ***(Agyeman)***

The money that patients with diabetes had to pay for every session of nutritional counselling they had with the nutritionist or dietician prevented them from attending the counselling. This subsequently made the control of their blood sugar levels very difficult for the nurses.

4.4 Nurses' Knowledge in Diabetes Care

Another main theme that was identified in this study was nurses' knowledge in diabetes care. This theme focused on the skills and training nurses had to care for diabetes patient. The study found that, nurses who cared for diabetes patients did not have the requisite knowledge to care for such patients and this hindered the care that was rendered to the diabetics.

The only sub-theme that emerged from this theme was lack of knowledge which was considered as a challenge in managing patients with diabetes.

4.4.1 Lack of Knowledge

Knowledge about diabetes and its management is a key component and plays a pivotal role in caring for patients with diabetes. The study found that, the nurses who were caring for diabetes patients did not have the required knowledge to care for them and this impeded quality care.

One of the nurses had this to say in relation to the lack of knowledge in caring for diabetes patients:

> *"Sometimes if the person on duty is not well vest with diabetes, the person will not be able to educate the patient on Type II diabetes that; this and this is what you are supposed to do, so that your sugar level will be maintained at the constant"* ***(Rose)***

The above statement by this nurse suggests that, if the nurse caring for diabetes patients does not have adequate knowledge on diabetes, he or she might not be able to educate the diabetes patients on exactly what to do to maintain their blood sugar levels within the acceptable range.

Similarly, another nurse had this to say to emphasize on the lack of knowledge:

> *"By knowledge aspect I mean nurses' deficit knowledge; deficit knowledge in the management of diabetes or in the total knowledge in the Type II diabetes itself. The*

> *knowledge deficit: because most nurses they themselves do not know the various differences between the Type I and the Type II, they classify all diabetes as one: as diabetes and do not differentiate between them. The dietary management, most nurses don't know the diet aspect of the management of Type II diabetes"* ***(Peter)***

Florence also commented on the lack of knowledge in caring for diabetes patients and recounted an incident that occurred in her ward. This was what she had to say:

> *"I also remember at the ward when; like the sugar monitoring I talked about, you know the sliding scale we have the Albertis' sliding scale and the other one. So we checked somebody's sugar and it was 23 point something, so this means that in an hour's time we have to check it again. So I came with a junior nurse and I asked, have you checked the person's RBS? She told me it's not up to four hours. So even for the nurses they lack in that, they don't know how many hours they are supposed to check and all that"* ***(Florence)***

Florence noted that, some of the nurses do not know that the time interval for checking diabetes patients' random blood sugar (RBS) levels depends on the value or figure recorded by the glucometer.

Therefore they just stick to the routine time interval (4 hourly) to check the RBS due to their deficient knowledge about diabetes and its management and this affected patients' care.

4.5 Patients' Non-Adherence to Treatment Regimen

Patients' non-adherence to treatment regimen was the fourth main theme that was identified from the transcribed interviews. This theme dealt with patients' unwillingness to follow treatment plan as prescribed by the health professionals. Language barrier, difficult to stop eating desired food, patients' beliefs and patients' illiteracy were the sub-themes that emerged from this theme. The nurses noted that, these were challenges for them in providing care to diabetes patients.

Non-adherence to treatment regimen in diabetes care was found to be a key factor which made the control of blood sugar levels of diabetics difficult.

4.5.1 Language Barrier

Language plays an important role in the management of patients. Language barrier therefore hindered effective communication in the course of nurses caring for patients with Type II diabetes at HFH.

This study found that, different languages that were spoken by nurses and some patients made it very difficult for the patients to understand the health education that was provided to them by the nurses. The patients therefore could not adhere to the treatment regimen in their care as prescribed by the health professionals.

One of the nurses had this to say in relation to language barrier;

> *"We have patients who have been coming from Burkina and those stuff. The problem has been the language, sometimes they normally understand Hausa and it's not easy finding a Hausa person to interpret it for you. So sometimes the communication is another problem"* ***(Isaac)***

The above statement was emphasized by another nurse who also had this to say;

> *"There is the language barrier; yes there are people who really don't understand a simple and a common language around, so it becomes difficult to have a very effective education"* ***(Richard)***

The hospital attends to patients from far and near Techiman and because of this, nurses had it difficult communicating with patients who came from Burkina and other parts of the country and could not speak nor understand English and Twi languages. The difference in languages made it challenging for the nurses to educate such patients on their condition and the need to follow the treatment plan. It was also difficult for the nurses to get an interpreter to explain the condition and its treatment plan to the patients and therefore adhering to the treatment plan to meet their blood sugar targets was compromised.

4.5.2 Difficult to Stop Eating Desired Food

The second sub-theme that emerged from patient's non-adherence to treatment regimen was; difficult to stop eating desire food. The study found that, because patients with diabetes were used to certain meals (favorite food) before they were diagnosed for diabetes, it became difficult for them to stop or reduce the intake of such meals. Therefore they did not pay heed to the dietary counselling that was provided to them by the nutritionist to help manage their condition. This subsequently made the control of their blood sugar levels difficult for the nurses.

One of the nurses made the statement below in relation to this sub-theme;

> *"When it comes to diet, something they like so much and you are telling them that they shouldn't eat it again, it becomes difficult so they sneak and eat. They eat what they are not supposed to eat when nobody is watching"* ***(Achiaa)***

The above statement was emphasized by Felix who had this to say;

> *"Yes you know the dietary counselling also goes a long way to help in controlling the Type II diabetes. But you know also that sometimes they also say that, even dietary management alone can help to get it down, yea. But most often they don't stick with the dietary regimen"* ***(Felix)***

Felix with 8 years of working experience has observed that, dietary management alone helps in bringing the blood sugar levels of people with diabetes down, but some patients did not follow the dietary regimen as provided to them by the nutritionist or dietician. This therefore made their blood sugar levels difficult to be controlled.

Similarly, another participant placed emphasis on the above statement and this was what he had to say;

> *"How to adhere to the dietary management is also another problem. Sometimes they go and do it but they do not adhere to it and you see that the sugar keeps on rising"* ***(Isaac)***

4.5.3 Patients' Beliefs

Patients' beliefs was the third sub-theme which emerged from the main theme; patients' non-adherence to treatment regimen. The diabetes patients had some misconceptions on the causes and management of their condition and this impacted negatively on the control of their blood sugar levels as well as the general care. The diabetes patients, according to the nurses believed that, their diabetes was caused by witchcraft and therefore will resort to spiritual interventions like prayers or consult the priest for cure of their diabetes.

The nurses noted that, patients with diabetes who had this beliefs did not take their hypoglycaemic agents as prescribed by the physician and also refused to go for reviews or check-ups.

The study therefore found that, patients' beliefs was a challenge for nurses who cared for diabetes patients at the HFH.

In relation to patients' beliefs as a sub-theme under patients' non-adherence to treatment regimen, one of the participants made this statement;

> *"There are some patients, per our sitting there are some patients who are holding on to some beliefs and some cultural; something like they believe in witchcraft and they are not ready to commit themselves in the care. They are not ready to actually help in the management of the condition"* ***(Agyeman)***

Nurse Agyeman, 27 years noted that, some patients with diabetes had the belief that, their diabetes was caused by witches and therefore orthodox medicine and care rendered to them by the health professionals will not control their high blood sugar levels. These beliefs that some of the diabetes patients had therefore made them reluctant to adhere to the treatment plan for their condition.

Another nurse also noted that, some diabetes patients believed the anti-diabetics may let them grow fat and also become impotent when they take them. Therefore they refused to take their drugs as

prescribed and this made their blood sugar levels a bit difficult to be controlled. This was what the nurse had to say;

> *"Is like mostly, most of them have heard some misconceptions about the drugs that we use in managing diabetes. That they may grow fat, others also say they may be impotent and so they mostly do not cope with taking their medications. And some also associate it with spiritual factors and so is like we try our best to educate them but is like they also have their minds so it makes caring for diabetes patients a bit difficult"* ***(Selina)***

4.5.4 Patients' Illiteracy

Patients' illiteracy was the fourth sub-theme identified under patients' non-adherence to treatment regimen. The literacy level of the patients impacted on their care. Patients who were illiterate did not understand the health education that was provided to them by the nurses, especially with respect to their diet and the need to take their drugs as prescribed. They also did not know which value of their FBS or RBS was alarming for them to report immediately to the health facility for prompt intervention. This made it challenging for the nurses to manage and control the blood sugar levels of these patients since in most cases they reported to the hospital with complications. However, patients who had some level of formal education adhered to their treatment plans and had good outcomes of their condition as noted by the nurses.

In relation to patients' illiteracy as a sub-theme, nurses Achiaa had this to say;

> *"Those who are not educated, sometimes they resort to herbs and they eat anyhow and they always come with complications, but the educated ones always adhere to the advice they are being given at the hospital"* ***(Achiaa)***

Achiaa noted that, the diabetes patients who had some formal education adhered to the treatment regimen than those who were illiterates. Patients who were illiterates also used herbs most of the times and reported to the hospital late with complications of diabetes.

The above statement was also emphasized by another nurse and this was what he had to say:

> *"For the literates they make the work simple for you but the uneducated, it's difficult for them to understand. We have a patient, she was a DM; when we were taking over in the morning, the patient was taking porridge. Around 10, I saw the patient eating Kenkey. So I told her for your condition, you are not supposed to eat this full ball of Kenkey. She said once she's not satisfied, she has to complete the food. I explained it to her, still this patient resisted. So those who are little bit literate, it's simple for them to accept the education but the uneducated it's difficult"* ***(Isaac)***

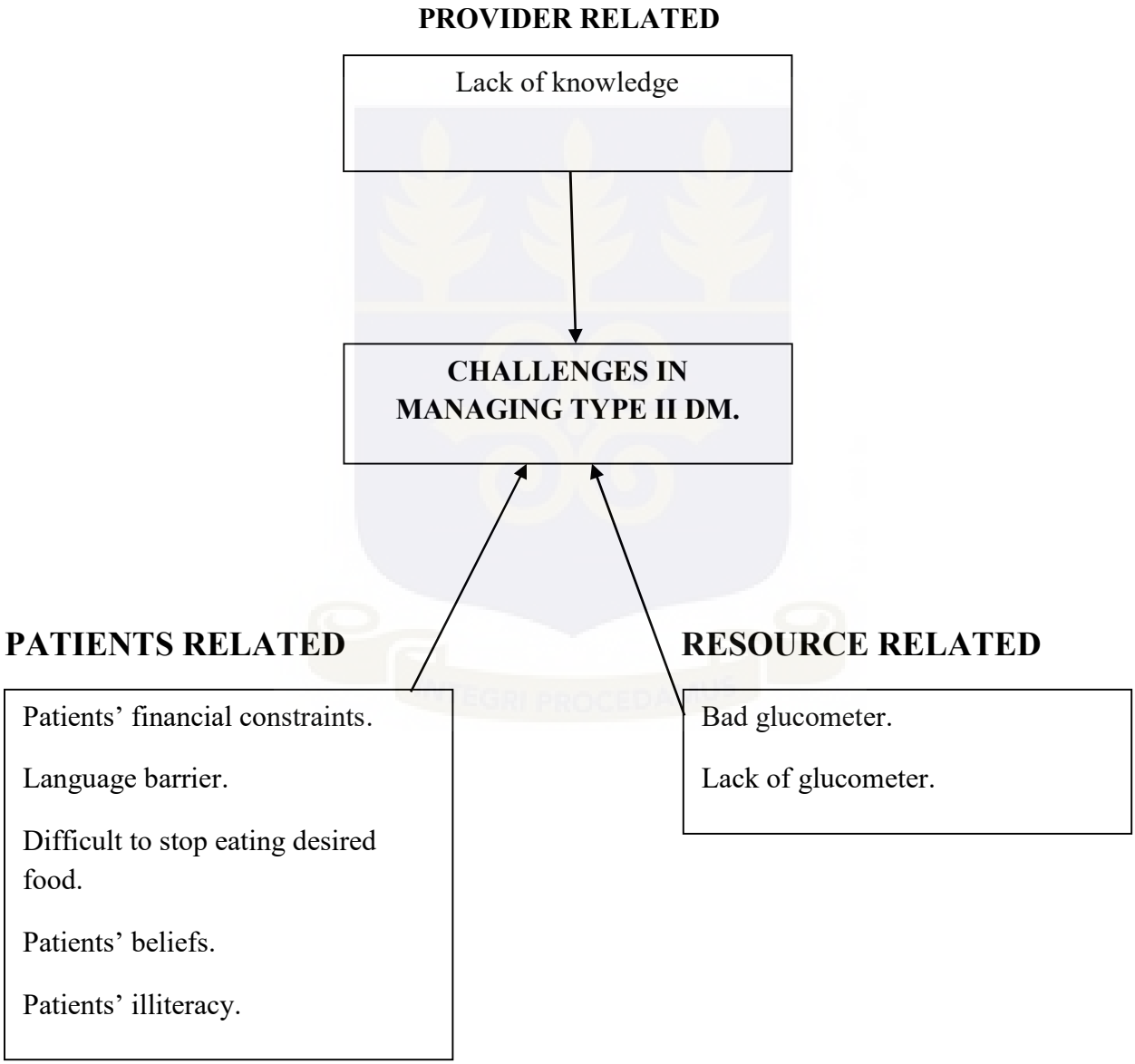
Subsequently, Richard also noted that, some diabetes patients who were illiterates could not make any meaning out of the value of their blood sugar levels after being checked.

This was what he had to say;

> *"You see the illiteracy level is very high in our type of setting here. Sometimes there are certain things that look I mean simple for people to understand but it becomes difficult, yea. Example there are people who can't actually even read and write, so the ranges; telling them even from this to this is not normal or this to this is high, they don't really understand what you are trying to put across"*
>
> ***(Richard)***

FIGURE 1: DIAGRAMMATIC SUMMARY OF THE CHALLENGES IN MANAGING DIABETES

From the themes and sub-themes (Table 1) above, the challenges in managing diabetes Type II as found in this study have been categorized into three; (a) provider related, (b) patient related and (c) resource related. These are presented in the diagram below.



4.6 Dealing with the Challenges in Diabetes Care

The fifth main theme that was identified in this study was; dealing with the challenges in diabetes care. Out of this theme were three sub-themes namely; provision of health education, support from social worker and provision of anti-diabetics.

This theme focuses on how nurses resolved or what they did to address the challenges that they encountered in the course of managing patients with Type II diabetes.

It was noted in this study that, nurses used varieties of approaches (health education, social and financial support, supply of hypoglycaemic agents, etc.) and other means (moving to other wards to look for glucometer) to deal with the challenges that they were exposed to in managing Type II diabetes patients.

4.6.1 Provision of Health Education

Health education plays a major role in the delivery of healthcare and therefore its importance cannot be under estimated. The nurses in the Holy Family Hospital who participated in this study resorted to educating the diabetes patients and other nurses who were not abreast with the management of Type II diabetes to address some of the challenges.

The study found that, nurses educated patients on their condition for them to know how to detect the signs and symptoms of hypoglycaemia as well as hyperglycaemia so that they can report early enough to the hospital for prompt attention. Patients with diabetes were also educated on the need to have their own glucometers to check their blood sugar levels whiles at home.

Nurses also organised ward conferences to share new knowledge in diabetes management among themselves and this placed them in a position well equipped to provide quality care for diabetes patients.

These were some statements made by the nurses when they were asked about how they deal with the challenges in managing Type II diabetes:

> *"We also encourage them to buy their own glucometers so that even in the house, at home and even when on admission, they can use those glucometers" (**Agyeman**)*

Similarly, Nurse Margaret had this to say;

> *"So I try to talk to them, educate them on the fact that; it's going to be a manageable disease, it's not going to be curable as they assume and therefore want to use other means" **(Margaret)***

Margaret, 28 year old participant has noticed that, some diabetes patients believed their condition was curable and therefore wanted to use herbs and spiritual means to get cure for their diabetes. The nurses therefore educated such patients to clear their minds about this notion for them to adhere to the treatment regimen.

Subsequently, another participant placed an emphasis on the above quote and this was what he had to say;

> *"We also have to clear the client's misconceptions on the condition just as we said, people try to read some spiritual meanings into the condition" **(Richard)***

Some nurses who also had knowledge deficit in respect to managing diabetes patients were also taking through presentations during ward conferences to discuss the management of diabetes. This was done to fill the knowledge deficits of these nurses managing diabetes patients and positioned them well to provide quality care to the patients.

With regards to this, one of the participants had this to say;

> *"Normally we do presentations in our department, especially in the emergency department. We do presentations every time to help the nurses be abreast with what to tell the patients"* ***(Rose)***

The above statement was emphasized by Peter who also stated that;

> *"We as nurses try to organise various workshops and then through these workshops, we are able to teach nurses on the management of Type II diabetes"* ***(Peter)***

4.6.2 Support from Social Worker

The second sub-theme that emerged from the theme; dealing with the challenges in managing Type II diabetes was: support from social worker. The study found that, patients with diabetes who could not afford the cost of their treatment whilst on admission or after discharged were given some financial assistance by the hospital's social worker from their sick and poor. Diabetes patients who had financial constraints were referred to the social worker by the nurses for the needed assistance to be provided. The nurses used this channel to address patients' inability to acquire their drugs and other materials needed in their care.

In relation to this sub-theme, this was what Achiaa had to say;

> *"In case of very needy patients we bring in the social worker who assist them financially. For example; now if we dress a wound, it depends on the size of your wound. We have gauze packs, one is 5 Cedis so depending on the size of your wound; so if your wound is small it means you will pay 5 Cedis daily. Some of them are unable to; so in those cases the social worker comes in and we dress for them for free"* ***(Achiaa)***

Achiaa noted that, each pack for wound dressing cost GH₵ 5.00 and therefore patients who were unable to pay were given financial support by the social worker for the wound dressing to be done for these patients.

Similarly, peter also emphasized that;

> *"When patients don't cooperate with the purchase of insulin syringes and then other items needed in its management. What we do is to refer such patients to the social worker for help"* ***(Peter)***

Peter also noted that, patients who could not buy their drugs and other materials needed in their care were referred to the social worker for assistance.

4.6.3 Provision of Anti-Diabetics

The diabetes patients who had some financial constraints also had it difficult to obtain their drugs for their management. In order for the diabetes patients to get their anti-diabetics for their care, nurses had to liaise with the pharmacist to supply such patients with drugs that will last for 24 hours or 48 hours. Some of the nurses who participated in this study had to sometimes guarantee for patients who could not afford their drugs for the pharmacy department to serve them and payment made later by the patients.

One of the nurses with reference to provision of anti-diabetics had this to say;

> *"Sometimes we write notes at our own level: we write notes with our names, paste them at the back of the folder to tell the pharmacist that, this patient for now cannot afford for this and that drug and I being a nurse, I suggest that you provide maybe first 24 hours or 48 hours to help them so that later when they get money they will come and pay"* ***(Margaret)***

The above quote was also emphasized by Prince who said;

> *"We try to tell the pharmacy in-charge about the state and sometimes they have to give it to them and indicate on them that, ooh we've served this but is not paid"*
> ***(Prince)***

Other means that were used by the nurses to deal with diabetes patients who were unable to purchase their drugs, syringes and strips were; to use ward stocked drugs for those patients and also borrowed from other patients who had them for later replacement.

These were statements made by two of the participants in relation to the above statement:

> *"Like the glucose strips for example, that one sometimes there are others that may have the strips, so we go to them, beg them for the strips to check then later when the patient buys them, we replace it"* ***(Florence)***
>
> *"We have the ward stock that the hospital gives to the ward. So we pick from the ward stock and give to them"* ***(Margaret)***

Margaret spoke passionately about the use of ward stocked drugs for diabetes patients who were unable to buy their medications.

4.7 Perceived Effects of the Challenges on Diabetes Patients

Perceived effects of the challenges on diabetes patients was the sixth main theme identified in this study. The challenges nurses encountered in managing Type II diabetes had a negative impact on the care that was provided and this subsequently affected the patients.

Under this main theme was an emergent of two sub-themes which were; prolonged hospitalization and complications of diabetes.

4.7.1 Prolonged Hospitalization

The challenges in managing patients with Type II diabetes that were identified in this study made the control of blood sugar levels quite difficult for the nurses. Nurses were not getting glucometers and the test strips to check the blood sugar levels of patients and therefore could not intervene as and when necessary. This caused some patients to get into either hypoglycaemia or hyperglycaemia. Nurses also used their discretions to provide interventions for patients based on the signs of hypoglycaemia or hyperglycaemia presented by patients due to the lack of equipment.

Furthermore, the patients' inability to adhere to the treatment regimen made it difficult for their blood sugar levels to be controlled and this prolonged their stay in the hospital.

The following statements were made by some of the nurses in relation to prolonged hospitalization:

> *"Yes when these managements are not taken into consideration very effectively, the person will have to be hospitalized. In that case the person will have to be in the hospital for a longer time and other thing that's supposed to be catered for in the house has to wait"* ***(Richard)***

According to Richard, patients who did not take their management serious were frequently hospitalized and they stayed for longer periods at the facility. This subsequently delayed certain activities that could have been done by the patients in their homes.

Peter also had this to say;

> *"They stay long at the ward and normally their prognoses are bad. They don't improve rapidly. I'm from the surgical ward and then most of these diabetic patients who come to the ward come with diabetic foot ulcers. When the diabetes or the blood glucose is not well managed it has an effect on the wound healing, so they tend to stay longer in the ward"* ***(Peter)***

Furthermore, Isaac noted that;

> *"Because they've defaulted for a longer time, controlling the sugar also becomes a problem for us"* ***(Isaac)***

Similarly, the above quote was emphasized by Felicia who had this to say;

> *"It becomes difficult controlling it, yeah. So mostly when they come, either they've defaulted or when they even go home, because they don't follow the right treatment; let's say their diet, they go and sometimes in a week's time you see them here again. So is like they come regularly"* ***(Felicia)***

The diabetes patients who defaulted in the course of their management had an increase in their blood sugar levels. This took a while for the nurses to bring it under control during hospitalization and hence their stay in the hospital was lengthened or prolonged.

4.7.2 Complications of Diabetes

The second important sub-theme that emerged from the perceived effects of the challenges on the diabetes patients was complications of diabetes. The nurses observed that, because the blood sugar levels of diabetes patients were not well controlled due to the challenges identified in this study, patients developed complications as a result.

Some of the perceived complications that the Type II diabetes patients reported with as a result of the challenges nurses encountered in managing them were; Diabetes Ketoacidosis (DKA), retinopathy, renal failure and amputations.

With regards to diabetes complication, this was what Agyeman had to say;

> *"It's DKA; DKA and then retinopathy. Diabetic retinopathy"* ***(Agyeman)***

The quote above was emphasized by most of the participants in this study. These are two of them:

> *"They may come with DKA, that's diabetes Ketoacidosis and that one too managing it is very; they keep long on the ward, yeah. And sometimes they may come with problems with their eyes, not able to see well; that's blurred vision and the rest. Then when they have small wounds instead of them seeking for treatment early, when they come is complicated and mostly amputation is the next resort"*
> ***(Felicia)***

> *"There are complications that set in when the challenges come. Example we can talk about diabetic ketoacidosis which is a complication of diabetes. The challenges can also have a permanent disability on the person, example the person can be amputated from a DM gangrene"* ***(Richard)***

> *"Sometimes the patient comes with DKA, they come with that high sugar level"*
> ***(Rose)***

However, Vida noted that, patients who were newly diagnosed with diabetes reported with DKA. This was what she had to say;

> *"A newly diagnosed patient with its effects will go and come back with DKA"*
> ***(Vida, 27 years)***

4.8 Care for Diabetes Patients

Care for diabetes patients was the seventh main theme that was identified in this study. This theme dealt with the role nurses played in the management of patients with Type II diabetes during the admission period of such patients. The only one sub-theme that emerged from this main theme was; monitor blood glucose and control. This was the approach that was basically used by nurses at HFH, Techiman to care for diabetes patients.

4.8.1 Monitor Blood Glucose and Control

One important sub-theme that was identified under the care for diabetes patients was monitor blood glucose and control. The nurses who cared for diabetes patients were general nurses and therefore could not provide any specialized care like eye, skin and feet examinations. The only care they provided was monitoring the blood sugar levels of patients with diabetes and also providing interventions necessary to control it in order to prevent complications.

In relation to this, Nurse Rose had this to say;

> *"We monitor the sugar level every 30 minutes, or hypo or hyperglycaemia we monitor the sugar level every 30 minutes until it comes up or it comes down every 30 minutes. Then we change it to hourly, 2 hourly and then 4 hourly as and when the sugar level is better. Our routine in managing these patients is to monitor the RBS, sorry, monitor the random blood sugar"* ***(Rose)***

The levels of the patients' blood sugar determined the time interval or the frequency for rechecking the blood sugar levels. If a patient came with hypoglycaemia (low sugar level) or hyperglycaemia (high sugar level), the blood sugar level was checked every 30 minutes. This is then changed to every 1 hour, 2 hours or 4 hours depending on the value of the blood sugar level until it falls within the acceptable range.

Another nurse also emphasized that;

> *"We do the monitoring of the sugar and the controlling"* ***(Isaac)***

Most of the participants in this study made similar statements to emphasize how they cared for diabetes patients in the hospital.

Some of the statements are as follows;

> *"We do check the RBS which is very key, that is the basic. That gives the ranges for you to know whether the person still falls in the normal range or not. That really give a clue as to how the management should be tackled"* ***(Richard)***
>
> *"Usually we the nurses our job specifically is monitoring; we do monitoring of the RBS, I mean the random blood sugar and then the fasting blood sugar. And then secondary, we make sure that the patients take their drugs, the medication, the oral hypoglycaemic agents that has been prescribed, we make sure that they take it accordingly"* ***(Felix)***
>
> *"What we do at the ward is to monitor the glucose level of such patients as requested by the doctors. So if is 4 hourly, we make sure we manage or we monitor the glucose 4 hourly everyday and then if patients are kept on sliding scale, we make sure as we monitor we intervene accordingly. We make sure we serve diabetic medications as prescribed by our doctors"* ***(Peter)***

From the above quotes, nurses noted that, they usually monitored patients' blood sugar levels 4 hourly as a routine procedure and controlled or ensured that the levels of blood sugar were within the acceptable range

4.9 Nurses' Motivation in Diabetes Care

In this study, the eighth main theme that was identified was nurses' motivation in diabetes care. Nurses who were participants of this study were motivated in several ways to provide the best of care to diabetes patients. Under this main theme were five sub-themes namely; improvement in patients' condition, appreciation from patients, patients' commitment to treatment, reduce workload and provision of quality equipment.

4.9.1 Improvement in Patients' Condition

This is where patients got better during the course of their hospitalization as a result of the care provided to them by the nurses. Some participants of this study were motivated by the fact that, their patients' condition was seen to be improving whilst caring for them. It was noted that, nurses felt joyful and filled with amusement when they realized that, the patients who reported almost dead at the ward; under their care were coming out of their sick bed or had their condition improved.

In relation to this sub-theme, this was what a nurse had to say;

> *"I take pride when I see my patients well; that's my motivation, to see all my patients well"* ***(Achiaa)***

Similarly, Rose had this to say;

> *"If you treat the patient and the person gets well or gets better, I think it will be a motivation for you to continue taking care of the patient"* ***(Rose)***

Achiaa as well as Rose noted that, their source of motivation was to see their patients well after they have cared for them.

Subsequently, Asantewaa emphasized that;

> *"I think me seeing them improving motivate us not any other source. I think that is what will motivate me a lot; to see my patients improving"* ***(Asantewaa)***

Furthermore, Felix also had this to say;

> *"I mean as a nurse, the joy that I derive when a patient comes to the hospital and at the end of the day he is being discharged, I mean that is quite phenomenal I mean you feel joyous about it"* ***(Felix)***

Felix noted that, when a patient's condition improved after admission into the hospital and that patient is being discharged, he always will be in a happy moment and that has been his motivation.

4.9.2 Appreciation from Patients

Appreciation from patients was where patients showed gratitude to the nurses or acknowledge their efforts for the care that was provided to them. Nurses were motivated by the patients thanking them whilst providing care for them or even patients greeting nurses outside the hospital premises whenever they met. The study found that, nurses were encouraged and excited to provide the best care to patients who appreciated the little efforts made by them during the care process.

A nurse with regards to patients' appreciation stated that;

> *"Sometimes, some of them may even come in DKA. You see that this patient, you were able to take care of this patient, the patient was discharged, the patient will see you in town, sometimes they will call you, you don't even know. They will tell you oh, I came in this state and you were able to take care of me then I recovered. Some of them when they see you, they greet you"* ***(Isaac)***

The above statement was also emphasized by Felix who had this to say;

> *"When a patient comes to the ward and then you see that you've been, through your own action; you've been able to do something and at the end of the day the patient is discharged, he is going home. He meets you in town, I mean you will feel very very happy about it"* ***(Felix)***

Isaac and Felix noted that, they were motivated to provide care to patients after their effort in caring for these patients were appreciated during the discharged periods by patients.

4.9.3 Patients' Commitment to Treatment

Patients' commitment to treatment regimen was the third sub-theme identified under nurses' motivation. This dealt with patients' willingness to buy all materials needed in their care and also adhering to treatment regimen. Nurses were very comfortable working on patients who followed the instructions given by the health professionals regarding their treatment plans.

Patients' commitment to treatment made it easy for the nurses to care for them because, every material needed in the care was provided by the patients promptly and this reduced frustrations on the part of the nurses in the care process.

The following statements were made by some of the nurses in relation to patients' commitment to treatment:

> *"The other factors that motivate us are purchasing of their drugs. When patients don't tend to adhere to various orders given by the health professionals in the purchasing of their medications and the other things needed for the management; nurses tend to be not that motivated in working for or caring for these patients. Because at the end of the day, the things needed for their management, they are not buying them, so what is the point"* ***(Peter)***

Peter noted with mixed feeling that, when patients buy their drugs and other things needed in their care, nurses become motivated. One the other hand, if patients do not buy and adhere to treatment plans prescribed by health professionals, it demotivates the nurses in caring for such patients.

Similarly, the above quote was emphasized by Felicia when she stated that;

> *"When they come and mostly those who are well to do, who are from a very; let me say well to do family. When they come, you could see that their treatment goes on smoothly for us; yeah because if you tell them eat this food, do this, buy these things they follow it for us and we are able to help them"* ***(Felicia)***

Felicia noted that, patients who were from rich families always had their care very well, because they were able to buy materials needed in their management and also stick to instructions from health professionals. This made the care of these patients easier for the nurses.

4.9.4 Reduce Workload

Under nurses' motivation in diabetes care, the fourth sub-theme that was identified was reduce workload. Nurses were motivated by the fact that diabetes as a chronic disease may let the patients visit the hospital as many times as possible and therefore they needed to provide the best care for

diabetes patients to minimize the frequency of visits to the hospital. This in a way may reduce their workload.

With regards to reduce workload, Richard had this to say;

> *"So me for instance I do my best, yes in relation to the management; because when the person is being managed well, it reduces the attendance daily. See: the more the person comes to the hospital, in a way the more your responsibility increases. So in a way to reduce my work, I had that instinct motivation to do my best to let the person stay off the hospital for a longer time so that the workload somehow also reduces for me"* ***(Richard)***

Achiaa also stressed that;

> *"I don't want them to end up with the complications, because when they come, especially the wounds, they are so bad. When they come with very bad wounds, sometimes people are afraid to talk, even their own relatives. So we try to avoid those things, that's my motivation not just the wounds but the other complications associated with diabetes. When they are well, our work is less, our workload is lessened"* ***(Achiaa)***.

Richard as well as Achiaa noted that, in order to reduce workload, they try to provide the best care to patients so that the frequency of patients revisiting the hospital is reduced which subsequently reduces workload.

4.9.5 Provision of Quality Equipment

The last sub-theme under nurses' motivation in diabetes care was provision of quality equipment. The study found that, nurses felt comfortable when being provided with quality equipment by the hospital managers to work with. For instance they noted that, quality glucometers which were provided initially by the hospital managers for checking blood sugar levels of diabetes patients were durable, more reliable and easy to use.

In relation to this sub-theme, Agyeman had this to stay;

> *"The hospital's protocols like pertaining to the provision of equipment, the availability of glucometer and other vital sphyg and then sthes and those ones. They help us to know what is happening and hence give the appropriate intervention"* ***(Agyeman)***

Agyeman noted that, the supply of good equipment for nurses to work with served as a motivator. These equipment help nurses play their role as care-givers and enhance quick decision making to provide an intervention for the patients.

The study also found that, money was not a motivational factor for nurses in the management of diabetes patients. Almost all participants, with the exception of one stated that, money was not to be considered as a motivator in caring for patients. However, some participants felt that, if money was given to them as a token, it would have enhanced the care rendered to the diabetes patients. This money according to them could be used as a transport fare to visit the patients in their homes and monitor progress of the condition.

When the nurses were asked whether they will consider financial assistance from the hospital managers before they give the best of care to the Type II diabetes patients, this was what one of the participants had to say:

> *"For allowance for myself no, because I take it as that's what I'm paid to do so I have to do it"* ***(Florence)***

Similarly, another participant had this to say;

> *"I will say no and yes. No; on the ward it's my duty to care for the patients so I don't have any problem, but there are instances you have to do home visiting. If a patient is staying; say 10 or 5 kilometers from your home and you have to go there in and out, at least you will go with a car. Some of this if there are some incentives for nurses who are committed to doing some of these home visits, ensuring that DM patients on discharge comply with their medication and do effective monitoring in the houses; I believe if there are some incentives just to cater for their T and T, I mean is ok"* ***(Agyeman)***

Asantewaa also emphasized that;

> *"If is from the hospital or any other person, if it comes I will accept; if it doesn't come I will have no problem because my core aim is to help my patients improve not from the finances. When it comes; that one, I will accept"* ***(Asantewaa)***.

Agyeman and Asantewaa noted that, money was not to be considered as a motivator for nurses in caring for patients, however, if the money was not from the patients but from any other source, they will accept it.

However, Richard noted that, money can be used to motivate nurses to improve care provided to diabetes patients. This was what he had to say;

> *"I think when it becomes like you do this and attracts something, people will really make even extra times when the need be. People wouldn't mind go home, come back to work and take some responsibilities on top of that. So I think motivation in that sense also helps somehow to manage the condition"*
>
> ***(Richard)***

4.10 Perspectives of Nurses to Improve Diabetes Care

The ninth and final main theme that was identified in this study was perspectives of nurses to improve diabetes care. This theme dealt with suggestions made by the nurses to help improve the care provided to diabetes patients. The theme had five sub-themes that emerged from it. These were; expand coverage of health insurance, social support, improved healthcare system, staff knowledge update and public education.

4.10.1 Expand Coverage of Health Insurance

An important sub-theme identified from the main theme was expand coverage of health insurance. It was noticed from the study that, the hospital was practicing public private partnership (PPP) whereby patients were supposed to pay part of the cost of their treatment whilst the national health

insurance catered for the remaining cost. For this reason, patients with diabetes who had financial constraints could not even meet their obligation of paying part of the treatment cost incurred. The nurses therefore suggested that, the health insurance should be expanded to include more drugs particularly, hypoglycaemic agents and also cover for the whole or total cost of diabetes care. In relation to this, nurses Achiaa had this to say;

> *"So if the syringes can be captured under the NHIS too it will help. So that it will relieve the financial burden on the patients"* ***(Achiaa)***

Margaret also emphasized that;

> *"Their drugs should be covered by the insurance scheme if possible. Government should help, that is; whoever is responsible, who can, whoever can help, should help them because the people around you mostly those who default, those who don't follow their schedules keep complaining that; they don't have money to do the top-ups for their drugs"* ***(Margaret)***

Similarly, Isaac also had this to say;

> *"So now if the insurance will be effective for us, then most of our challenges will be solved. So our main problem is the national health insurance, if the premium will be paid, the buying of the drugs, the strips, the patient will no more pay for the what; the glucometer strips"* ***(Isaac)***

Furthermore, Selina also stated that;

> *"One of the roles is making the insurance effective; national health insurance very effective and free for diabetic patients. Because now is not effective and they buy their drugs so it looks like the poor cannot get good care"* ***(Selina)***

From the quotes above, most nurses noted that, for the care of the Type II diabetes patients to be improved, the National Health Insurance Scheme should be expanded to cover most drugs particularly hypoglycaemic agents. This will relief the patients with diabetes from their financial constraints.

4.10.2 Social Support

The second sub-theme that was identified under improving diabetes care was social support. For diabetes patients to have their condition well managed and prevent complications, the participants suggested that; government, Non-Governmental Organisations (NGOs) and other people who have money and are caring should show concern by providing certain basic materials like the glucometers and strips as well as drugs needed in the care of diabetes patients.

The participants suggested that, if government, NGOs and other people provide glucometers to diabetes patients free of charge, it will enable them to check their own blood sugar levels (self-management) in their various houses for early detection of any extreme value and for prompt interventions.

One of the nurses in relation to social support had this to say;

> *"The glucose strips and then self-monitoring of blood glucose, if the government can afford or NGOs or whatever; philanthropies, which ever people. If they can help them; like get the glucometer and the strips for them so that they can monitor their own blood glucose in the house"* ***(Florence)***

Other nurses also emphasized on the above quote and these were what they had to say;

> *"So if maybe the hospital can; let me say they come to their aid in subsidizing the cost of their medication for them or maybe NGOs or the government too can do the same"* ***(Prince)***

> *"I think government has a role to play in this regard. Government can assist various health facilities in the provision of these items I have listed for the management of the condition"* ***(Peter)***

However, Asantewaa, a 28 year old nurse also suggested that, to improve care for diabetes patients, nurses should encourage patients who can afford a glucometer to get their own and use in their houses. She noted that, patients who have their own glucometers prevent complications from setting in unlike those without.

This was what she has to say;

> *"Those who can afford the glucometer we should educate them to buy and then check their RBS in the house. Because some of the symptoms, they might not even know the symptoms and the signs; I mean the patients, so those ones we educate them that, if you check your RBS and you get these values, they are alarming so you have to come. Those ones, they are able to come before the complication sets in. But those ones without the glucometers, they will come in unconscious with very very high RBS. So I think if these patients by any way can get a glucometer it will be fine"* ***(Asantewaa)***

The above statement was also accentuated by Margaret. This was what she had to say;

> *"If possible, we should help our patients get glucometers. Because apart from few signs that sometimes tells the patients that the condition is getting out of hand, mostly it takes us to know the state of the RBS. For those who are rich sometimes don't have any physical sign but the person will walk up to you; madam I woke up this morning I check my RBS or my sugar level, my fasting sugar it was 18 or 19 so I decided to come to the hospital. You check immediately you start care and they're fine; sometimes they are even fine and discharged within the same day. But those who can't afford, sometimes when they even see a sign, they may ignore or they might not consider it anything serious. But when they see the values; because we explain things to them, they understand how alarming some of the values can be. When they get to know the values they walk up to the hospital. So if there is any means that we can help to get glucometers for some of them I think it will really really help"* ***(Margaret)***

4.10.3 Improved Healthcare System

An improved health system was the third sub-theme that was identified under the main theme improving diabetes care. An improved health system according to the participants is where there is a comprehensive or a total delivery of healthcare to the patients and availability of logistics in the health facilities.

The study found that, patients with Type II diabetes were not provided with a total care. The nurses therefore suggested that, for the care of diabetes patients to be improved, some components or aspects of healthcare delivery should be brought on board. They mentioned home visits, adequate

staffing, supply of quality equipment, provision of meals to patients, formation of diabetic groups and decentralization of diabetes clinics.

The following were statements made by the nurses with respect to improved healthcare system.

This was what Margaret had to say;

> *"So if we could do something about staff strength and as we do that we should concentrate more on the diplomas and degrees and upper"* ***(Margaret)***

The number of nurses caring for patients in the hospital should be increased and the focus should be more on the diploma and the degree nurses to help improve care rendered to patients as noted by Margaret.

Achiaa also had this to say;

> *"If the hospital could feed them too: here we don't feed them, if we are feeding them we can monitor what they eat but since we are not feeding them, whatever the relative can afford is what they bring"* ***(Achiaa)***

If hospital feeds the patients, it will prevent the patients from eating any food that may not help in the control of their blood sugar levels whiles on admission as noted by Achiaa.

Selina also noted that, there should be more than one glucometer in the wards to prevent unavailability since it could get spoilt at any time and also home visits should be encouraged to improve DM care.

This was what she had to say;

> *"Per our hospital setting I think we need more than one glucometer, because the number of patients are more and the glucometer is a machine that can get spoilt at any time. And also home visit too should be encouraged so that we can know what they also do in the house. For me, I think the home visit is something that I wish one day we will add it to our care"* ***(Selina)***

Rose also had this to say;

> *"I think that there should be a diabetic association; something that we have to create. Something like an association so that if the patients need a little assistance, they can also fall on them and they can meet to discuss the dos and don'ts in diabetes. The only thing that I will add, like as in the management for the patient, is to be checking on our patients. Home visiting, looking at this chronic cases they will need constant home visiting but we don't do that. We don't visit them to see how they're faring or to check on them. Even if not visit, we can call, we can get their numbers to call them and find out how they are doing"*
>
> ***(Rose)***

Visiting of patients in their homes for continuity of care was also stressed by Peter. This was what he had to say;

> *"I even feel that, patients with these conditions as and when they are discharged, should be handed over to the public health nurse to continue the management in the house"* ***(Peter)***

Agyeman noted that, decentralizing the diabetic clinic to the various villages or farming communities around Techiman will help prevent default in treatment. Patients will also be relieved from some financial constraints. This was what he had to say;

> *"The clinic should be decentralized. You know we have the clinic here; people are from Forikrom, people are from all the farming communities and they come here. If the person is not having money to travel down here to Techiman, he will not be able to receive his drugs and that will lead to default"* ***(Agyeman)***

4.10.4 Staff's Knowledge Update

Staff knowledge update emerged as the fourth sub-theme under the main theme improving diabetes care. Nurses did not update their knowledge in managing Type II diabetes as found in this study and therefore for the diabetes patients to receive an improved care, the knowledge of nurses in managing them needed to be updated. This, according to the participants will help nurses acquire the skills and knowledge needed to provide quality care to diabetes patients.

With reference to this, one of the participants had this to say;

> *"I will be happy if management will make it a point like; let's make it every month there will be a refresher course on the management of these cases for the staff just to refresh our minds. Because everyday and day out there is new management for those cases"* ***(Isaac)***

Similarly, another participant emphasized that,

> *"Of late the NMC arranged programmes are drawing almost all the nurses from ward going to do some specialties like Eye, Nose, Dental and others, leaving our patients on the ward. So I think if the condition has come to stay, then there should be a course on how we should manage them. So if there can be a programme or a post basic course to help us on how we should really manage our diabetic patients, I think it will help"* ***(Asantewaa)***.

Asantewaa has noted that, the post basic specialty programmes which have been instituted by the Nursing and Midwifery Council (NMC) of Ghana for nurses have taken a number of nurses from the wards into these programmes leaving a few. She suggested that, for the management of diabetes patients to be improved, there should be a post basic training for nurses on how to manage patients with diabetes.

4.10.5 Public Education

The fifth and final sub-theme under improving diabetes care was public education on diabetes and its management. Educating the public to have sufficient knowledge on the causes and predisposing factors of diabetes would help prevent the condition and improve its management.

With the myth or some misconceptions about the causes and treatment of diabetes, education to the patients with diabetes on the causes and its management was found in this study to help demystify or clear those ideas, hence improving the care provided to these patients. In the same vain, when the public is educated, it will help people to have a fair knowledge about diabetes and its management, according to the participants.

When the question was asked on how the care for Type II diabetes patients can be improved, the nurses who took part in this study made the ensuing statements with respect to education helping to improve diabetes care.

Richard stated that;

> *"The counselling and the education is key when it comes to the effort to improve on the patients care in diabetes. The education should be intensified, we have to really make people aware that, the thing is manageable and they shouldn't be I mean deceived by what they hear daily on radio and the spiritual kind of involvement people try to bring in when it comes to diabetes. So maybe radio advertisement will be possibly best when it comes to making people aware of the condition and also knowing the prognosis of the whole thing"* ***(Richard)***

Similarly, Agyeman also had this to say;

> *"We have a team that is always on the air trying to educate the populates on the diabetes and its management, that will help"* ***(Agyeman)***

Nurses Agyeman noted that, the hospital has a team of health professionals who educate the public on the management of diabetes and would improve the condition.

Felicia also emphasized that;

> *"We have to still continue with the education"* ***(Felicia)***

She noted that, the health professionals particularly the nurses should continue with the health education to patients to help improve the care.

The next section deals with the discussions of the findings of this study.

CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.0 Introduction

This chapter discusses the findings of the study in relation to the literature reviewed. The discussion was done under the main themes identified in this study. These themes are as follows: nurses' experiences with equipment for diabetes care, cost of diabetes care, nurses' knowledge in diabetes care, patients' non-adherence to treatment regimen, dealing with the challenges in diabetes care, effects of the challenges on diabetes patients, care for diabetes patients, nurses' motivation in diabetes care and improving diabetes care.

5.1 Nurses' Experiences with Equipment for Diabetes Care

The study found that, nurses had some difficulties using the glucometers to check diabetes patients' blood sugar levels. It was noticed that, the glucometers were not of good quality and also not adequate. The glucometers that were used to check the blood sugar levels of patients developed faults easily and sometimes displayed error on the screen and nurses doubted the values that were read afterwards. The nurses also did not get test strips in some instances to insert into the glucometer to check patients' blood sugar levels and this affected the care that was rendered to the patients with Type II diabetes at the Holy Family Hospital.

The inadequate glucometer for checking blood sugar levels of patients with diabetes found in this study concurred with the finding in Baumann, Opio, Otim, Olson, and Ellison (2010). In their study, it was found that, limited access to appropriate food, diabetes medications, blood glucose testing equipment and educational materials made self-care challenging. It was noted in their study that, the patients' inability to get access to blood glucose testing equipment (glucometers) made it

difficult for them to monitor their own blood sugar levels. This therefore negatively affected their blood sugar levels.

Though in Baumann and colleagues (2010) study the challenges associated with diabetes care were reported by patients, the central issue is that both nurses and patients are equally affected when there are limited access to equipment used for diabetes care. For instance if there is lack of glucometers and test strips, it will affect the patient in self-care management as well as the nurses in their care roles of managing the diabetes patients.

Similarly, Majikela-Dlangamandla, Isiavwe, and Levitt (2006) noted that, in some countries, glucometers were unavailable even for the diabetes patients who could afford to buy them. Glucometers and test strips were also expensive and only few people living with diabetes who were rich or had private medical insurance could afford them. This made self-monitoring of blood sugar levels and the control very difficult for diabetes patients.

The current study also found bad glucometers to be one of the challenges in managing diabetes. This finding is consistent with that of Essack et al. (2009). In their study, they compared 5 brands of glucometers in South Africa and they found that, only 3 out of the 5 brands of glucometers fulfilled the criteria suggested by the International Organization for Standardization (ISO). This means that 2 out of the 5 brands of these glucometers tested did not meet the criteria suggested by the ISO. It was also noted that, all the 5 brands of glucometers tested showed significant deviation from the American Diabetes Association (ADA) guidelines, as more than 60% of the measurements exceeded the recommended percentage of deviation.

5.2 Cost of Diabetes Care

This current study found that, the cost of managing Type II diabetes patients in the hospital was high due to the public private partnership (PPP) policy that was being practiced as a result of the ineffective health insurance system. The health insurance scheme was not catering for the total cost of diabetes treatment at the HFH, Techiman and therefore patients had to pay the difference in treatment cost to get their drugs. As a result of this, some patients could not pay to receive their drugs and nurses equally could not serve them their medications when it was due. This made the control of blood sugar levels of diabetes patients difficult for the nurses.

Patients' financial constraints coupled with the high cost of managing diabetes at the hospital made it difficult for the patients to acquire their prescribed drugs and therefore could not adhere to the treatment regimen. This subsequently affected the control of their blood sugar levels negatively and increased their frequency of re-admission which eventually increased the workload of nurses.

This finding was consistent with that of Clare, Valerie, and Karina (2014) who found patients reporting that, lack of insurance for care including the need to pay for medications and associated financial strains of expensive medications hindered self-management and made blood sugar level control difficult.

Similarly, Baumann et al. (2010) noted that, patients with Type II diabetes were unable to get their medications due to high cost of the medications. Nam, Chesla, Stotts, Kroon, and Janson (2011) also reported in their study that, poor glycaemic control was affected by patient's factors such as finances. It was therefore challenging for the nurses to get hypoglycaemic agents to serve the patients with. This made it difficult for the nurses to control the blood sugar levels of such patients.

Furthermore, Mutea and Baker, (2008) found in their study that, the quality of nursing care was affected by patients' poverty. Other studies (Ng, Lee, Toh, and Ko, 2014; Soewondo, Ferrario, and Tahapary, 2013) revealed high cost of diabetes treatment. The cost of treatment was categorised as direct medical and non-medical costs, indirect costs and intangible costs. Direct medical cost included; hospital in-patient care, physician in-patient care, physician outpatient

care, emergency department visits, nursing home care, hospice care, rehabilitation care, specialists' and other health professionals' care, diagnostic tests, prescription drugs and

medical supplies. Direct non-medical costs referred to costs incurred by patients and their families that were directly associated with diabetes but were not medical in nature, such

as transportation costs, relocation expenses and informal care (Ng et al., 2014).

Indirect costs included productivity losses related to morbidity and mortality whereas intangible costs referred to patients' psychological pain, discomfort, anxiety and distress related to diabetes. All of these together made the cost of diabetes care very high. In some instances, patients were unable to honour their appointments which made it difficult for nurses to control their blood sugar levels.

5.3 Nurses' Knowledge in Diabetes Care

This study revealed that, the nurses who cared for Type II diabetes patients lacked the requisite knowledge to care for such patients. Nurses who provided care to patients with Type II diabetes were general nurses and therefore could not provide specialized and quality care to the diabetes patients. This may have prolonged the length of stay of such patients in the hospital. There was also no access to current information on the management of medical conditions such as Type II

diabetes for nurses in the hospital. This was so because, the hospital did not have a room or a place where reference books for managing medical conditions are kept for nurses; unlike doctors who had conference room where reference books for managing medical, surgical, paediatric, obstetric and gynaecological conditions were kept. Some nurses therefore resorted to read from the internet to get current information on the management of Type II diabetes.

The above findings in this current study agreed with that of Graue, Dunning, Hausken, and Rokne (2013) who found differences in providing quality care to people with diabetes. The differences were due to unavailability and lack of access to new information in managing diabetes by nurses. It was also noted that, limited support, lack of unity among health professionals, inadequate confidence and autonomy made the care for diabetes patients challenging for nurses.

Modic et al. (2014) also reported in their study that, nurses' knowledge of diabetes management for hospitalized patients was low and this may partly be due to the nurses' inability to keep up with the rapidly changing technologies and drug regimens. Nurses also did not feel comfortable and were not adequately prepared to make patient care decisions or provide education for patients with diabetes in the hospital due to their low knowledge in diabetes management.

The deficiencies in nurses' knowledge of diabetes and diabetes care was also revealed in Alotaibi, Al-Ganmi, Gholizadeh, and Perry (2016) study. It was noted in their study that, nurses lacked knowledge on oral diabetes medications, insulin therapy, nutrition, diabetes complications, pathology, symptoms and its management.

However, Siminerio, Funnell, Peyrot, and Rubin (2007) noted that, specialist nurses played more advanced and active role in facilitating both self-management and medication management than general nurses. This is because specialist nurses talked to patients about self-management, taught

medication management, had a higher level of involvement in medication prescribing, and were more willing to take on additional responsibilities such as eye, skin and foot examinations than general nurses. On the other hand, general nurses reported that, they acted as intermediaries and facilitated patient appointment keeping (Siminerio et al., 2007).

5.4 Patients' Non-Adherence to treatment regimen

This current study found that, patients with Type II diabetes did not adhere to treatment regimen and the factors that contributed to this were; language barrier, difficulty to stop eating desired foods, patients' beliefs and literacy level.

Sharma, Kalra, Dhasmana, and Basera (2014) reported in their study that, majority of patients who did not adhere to the treatment regimen were from the lower economic strata who also possessed a poor educational background and/or literacy level, were self-employed or held low-income designations in work places. These patients did not have the financial strength to buy the costly oral hypoglycaemic agents and hence adherence to treatment was compromised.

As we have already noted, low literacy level contributed to patients' non-adherence to treatment regimen. Patients with diabetes who were illiterate could not make any meaning from the values of their blood sugar levels after being checked. It was also difficult for them to comprehend the health education given to them by the health professionals. This current finding of low literacy level making the control of blood sugar levels challenging is consistent with that of Sharma et al. (2014). In their study, it was noted that, patients who had poor educational background or literacy level did not adhere to the treatment regimen and therefore their blood sugar levels were affected.

The nurses at the Holy Family Hospital also attended to various patients from far and near who could not speak nor understand Twi and English and therefore communicating with such patients

was quite challenging, especially during health education in general or nutritional counselling. These patients did not understand the language used in communication and subsequently did not adhere to the instructions given to them on their treatment plan. Therefore their blood sugar levels were difficult to be controlled by the nurses.

The study also found that, patients with Type II diabetes were reluctant to stop eating their desired meals upon dietary counselling to help control and maintain their blood sugar levels within the acceptable range. It was noted that patients with Type II diabetes did not pay heed to the dietary counselling and therefore ate anything that came their way or sneaked to buy and eat what they have been told not to eat.

The above findings of the current study are consistent with that of Nesbeth, Orskov, and Rosenthall (2009) who found that, poor adherence to diet and poor communication between patient and the doctor were barriers to good glycaemic control of patients living with diabetes. De-Graft Aikins (2003) also found in her study that, rural and urban low-income diabetes patients had it difficult to give up staple foods due to their inability to afford recommended diet prescribed by their doctors and nurses.

Nurses reported that, some patients had misconceptions about the causes and treatment of their condition. These patients; according to the nurses believed their diabetes was caused by witchcraft and would therefore resort to herbs or spiritual means as treatment options. This compelled them not to adhere to the orthodox treatment or the professional care available, thereby making their management cumbersome for nurses.

De-Graft Aikins (2005) as well as Korsah (2015) found that, people living with diabetes attributed the cause of their condition to witchcraft and sorcery and therefore sought traditional religious

healing initially. According to Korsah (2015), perceived beliefs of diabetes patients about causes of their condition determined the choice of treatment. Korsah (2015) also noted that, inappropriate beliefs held by Type II diabetes patients served as major barriers in their treatment. The current finding about patients' beliefs on causes and treatment for diabetes is consistent with De-Graft Aikins (2005) and Korsah (2015) as mentioned above.

Similarly, in Noor Abdulhadi, Al-Shafaee, Wahlstrom, and Hjelm (2013) and Nam et al. (2011) studies, it was found that, patient's beliefs and language barrier affected the control of blood sugar levels of diabetes patients. This was so because, many patients showed insufficient self-efficacy and relied on God and his destiny with regards to their diabetes and therefore did not adhere to the treatment plans. The doctors who also could not speak Arabic avoided discussing deep issues or social talks with the patients and focused only on the current medical condition with the help of translators. This eventually did not provide enough information to the doctors to plan a complete care for the patients thereby making their blood sugar levels difficult to control.

Furthermore, Alhyas, Nielsen, Dawoud, and Majeed (2013) reported that, health behaviours and beliefs, and language differences between healthcare professionals and patients served as barriers to motivation in caring for Type II diabetes patients. In their study, it was found that, some patients did not like spending time with the healthcare professionals and others also did not acknowledged their efforts. These caused the healthcare professionals some level of frustrations and felt reluctant to be involved in the care of diabetes patients. It was also noted in their study that, the differences in language among healthcare professionals and between patients did not promote effective discussions on treatment plans. These subsequently made the blood sugar levels difficult to be controlled as health professionals and patients could not communicated well for a complete treatment plan to be made.

5.5 Dealing with the Challenges in Diabetes Care

The challenges in managing Type II diabetes patients found in this study were many and nurses used various ways to address them.

It was found in this study that, nurses provided health education to patients with Type II diabetes to clear their misconceptions about the condition and also the need for them to adhere to treatment regimen. Nesbeth et al. (2009) reported in their study that, there were different barriers to good glycaemic control and these included low understanding of glycated haemoglobin (HbA_1c) by patients, poor adherence to medication, diet, exercise and limited or poor communication between the patient and the doctor. Nurses were therefore well placed to help overcome these barriers by providing advice, education and support to the patients.

Gleeson-Kreig (2006) also found that, diabetes educators were often viewed as the primary source of information and assistance for people living with diabetes and as such, were in a position to effectively encourage physical activity and exercise.

This current study also found that, patients who had some financial constraints and could not pay for the cost of their drugs received some financial support from the hospital's social worker to ease the financial burden or pressure on them. Nurses at certain periods also had to guarantee for patients to take their anti-diabetic drugs that lasted for only 24 or 48 hours from the pharmacy department and payment made later by the patients.

The above finding in this study concurred with Leichter, August, and Moore (2003). In their study, it was noted that a diabetes nurse educator was able to provide interfaces with Medicaid, community social service programs, meals on wheels, community transportation programs, community health care clinics or Columbus Regional pharmacy. The pharmacy provided

medications to patients who were unlikely to obtain them on their own due to financial constraints and this helped to improve their condition.

5.6 Perceived Effects of the Challenges on Diabetes Patients

In this study, the challenges in managing the patients with Type II diabetes affected the effective control of their blood sugar levels and therefore prolonged the length of stay of hospitalized patients and also caused complications to the patients.

The study found that, nurses were unable to monitor the blood sugar levels of diabetes patients effectively due to the lack of glucometers and strips. For this reason, the frequency for checking patients' blood sugar levels was delayed and nurses observed that as a result of this, patients on admission had their blood sugar levels either decreased (hypoglycaemic) or increased (hyperglycaemic) extremely. This became difficult for the nurses to bring it under control or within the acceptable range and hence the length of stay of these patients was prolonged in the hospital and also developed some complications. The common complications that were noticed by the nurses included; diabetes ketoacidosis, retinopathy, nephropathy and amputations.

These findings were consistent with the ones that were found by Turchin et (2009) and Smiley and Umpierrez (2010). Turchin et al. (2009) found in their study that, length of stay increased by 2.5 days for each day with hypoglycemia whereas Smiley and Umpierrez (2010) noted that, the presence of hyperglycemia is associated with prolonged hospital stay, infection, disability after hospital discharge, and death.

5.7 Care for Diabetes Patients

This was the basic care that nurses provided to the Type II diabetes patients in their daily duties or activities. The study found that, nurses at the Holy Family Hospital usually monitored the blood

sugar levels of diabetes patients and provided the necessary interventions to control it. They administered the hypoglycaemic agents such as insulin and metformin to the diabetes patients as prescribed by the physicians. Some of the interventions nurses provided for diabetes patients in hypoglycaemic state were: intravenous injection of 50 ml of 50% dextrose water (50:50), infusing 5% or 10% dextrose water as maintenance dose and suspending hypoglycaemic agents (drugs). Patients in hyperglycaemic state were also given 5 units or 10 units of soluble insulin intravenously through 500 ml of normal saline and their hypoglycaemic drugs served as prescribed by the physicians. Nurses also provided health education to the patients in the course of caring for them.

These findings in the current study concurred with the report by Levich (2011) who stated in her study that, nurses are often the first healthcare team members to interact with patients and are being called on to apply their specialized knowledge, training, and skills to educate and motivate patients with diabetes about insulin use and other treatment protocols as well as practical ways to achieve treatment goals.

Similarly, Nyenwe, Jerkins, Umpierrez, and Kitabchi (2011) reported in their article on management of Type II diabetes: evolving strategies for the treatment of patients with Type II diabetes that, the general management of diabetes patients consisted of; education, nutrition therapy, physical activity, oral hypoglycaemic agents and insulin.

5.8 Nurses' Motivation in Diabetes Care

Nurses were motivated in different ways to render quality care to patients with Type II diabetes. The factors that motivated nurses to provide the best of care to their patients included: improvement in patients' condition, patients' appreciation of care, patients' commitment to treatment, reduction in workload and provision of quality equipment by hospital managers.

In this study, the participants indicated that they were motivated to give their best by observing that; the condition of the patients under their care was improving.

Nurses were also motivated after their services had been appreciated by the diabetes patients during admission or after discharge. Some of the patients thanked the nurses for their efforts in providing care to them and also greeted them when and wherever they met.

The study also found that, patients' commitment to treatment regimen motivated the nurses. Participants of this study felt comfortable and were willing to continue providing care to patients who were able to afford their drugs and the materials needed for their care and also adhered to instructions given by the health professionals.

Furthermore, participants stated that, they provided patients with the best care to prevent recurrent visits or readmission of patients to the facility thereby reducing workload. Subsequently, the provision of quality equipment (glucometers, strips, lancets, batteries, etc.) to the wards by the hospital managers served as a motivator to the nurses.

Some of the above findings were in line with that of Alhyas et al. (2013) who found in their study that, the factors that facilitated motivation were patients', healthcare professionals and organization related. Under patients' related factors, health professionals were motivated when patients cooperated with them to achieve therapeutic targets, adhered to treatment plans and were aware of diabetes and its associated complications. The health professionals were also motivated by patients appreciating their role in the care provided, patients providing them with positive feedbacks and patients' characteristics such as age, gender and educational level.

Participants noted that, in most cases patients with high level of education adhered to treatment plans and achieved treatment goals more successfully than patients with low or no educational

backgrounds. Organisational related factor that motivated health professionals was satisfaction regarding pay. Health professionals were satisfied with the amount of pay they received and thought that they were well paid for the rigorous work they completed daily.

In this current study, nurses were motivated to provide quality care to patients to prevent or reduce workload in the hospital. However, Alhyas et al. (2013) found that, heavy workload was a barrier to motivation. In their study, the participants expressed frustration that, the workload increased their stress and reduced the quality of care provided to patients in some situations.

Similarly, Lambrou, Kontodimopoulos, and Niakas (2010) also found in their study that, health professionals were motivated by achievements, remuneration, co-workers and job attributes. Achievements was the main motivator in both doctor and nurse subgroups. The achievements factor referred to intrinsic motivators such as pride, appreciation, respect and social acceptance.

The current study also found that the provision of quality equipment by the hospital managers motivated nurses to provide quality care to diabetes patients. Majikela-Dlangamandla et al. (2006) reported that, appropriate glucometers and strips should be made available to ensure self-monitoring of blood sugar levels hence promoting quality care among diabetics.

5.9 Perspective of Nurses to Improve Diabetes Care

This was where certain suggestions were made to be considered to help improve the care of diabetes patients. The study participants suggested that, for the care of diabetes patients to be improved in the hospital, health insurance coverage should be expanded, there should be social support, the healthcare system should be improved, staff's knowledge in diabetes management should be updated or upgraded and there should be public education on diabetes and its management in general.

Under the expand coverage of health insurance, the participants proposed that, the national health insurance scheme must take the total cost of diabetes care which will stamp out the public private partnership (PPP) policy and relieve the financial burden off the patients.

They also noted that, Non-Governmental Organizations (NGOs), government and other benevolent individuals should support diabetes patients by providing them with free glucometers and strips for them to monitor their own blood glucose in their homes. This will encourage self-care management practices among patients with diabetes and therefore the patients will be able to detect any extreme blood sugar levels and report immediately to the hospital for prompt intervention.

Furthermore, there is the need to have an improved healthcare system which will ensure the supply and availability of quality logistics, provision of meals for diabetes patients, provision of social support, formation of diabetic groups, decentralization of diabetes clinics and home visits.

The participants further suggested that, nurses' knowledge in managing Type II diabetes patients should be updated through ward conferences, workshops and/or refresher courses. The Nursing and Midwifery Council (NMC) of Ghana should also develop or institute a post basic specialty programme in the management of diabetes and patients with other chronic diseases for nurses.

Lastly, the participants suggested that, there should be persistent health education on radio and television to the public on diabetes and its management. This will help them to understand and accept the treatment available for diabetes and clear their misconceptions. This according to the nurses will control or prevent the over reliance on herbs by the patients to cure their diabetes as they have been made to believe so by some herbalists.

Due to the over reliance on herbs, some patients with diabetes reported to the hospital very late and in some cases with complications such as retinopathy, nephropathy and diabetes ketoacidosis (DKA). De-Graft Aikins (2005) noted that, people living with diabetes sought spiritual and traditional religious healing initially and turned to biomedical intervention as their physical health worsened or became severe. In a similar situation, Korsah (2015) found that, Type II diabetes who were diagnosed by traditional healers in their healing camps later went to the hospital to confirm their diagnosis and sought further management.

Some of the above suggestions to improve diabetes care in this current study have been found in some studies to have helped improve diabetes care.

In a randomized controlled trial study conducted by Chao et al. (2015) on the effect of integrated health management model on the health of patients with diabetes, they found that participants (management group) who received the health management care comprising; dietary advice, psychological aspects of health, education or skills training on health, self-management, a tailor-made exercise program, regular blood glucose monitoring, group lectures on health and diabetes, individual telephone consultation and long-term diabetes drug monitoring had their condition improved as compared to participants (control group) who received usual care. Chao et al. (2015) also found that, days of hospital admissions reduced by 1.74 days for the management group whilst it increased by 2.88 days for the control group.

Pick (2008) also found that, patients with diabetes who came together to form groups and discussed their condition as well as shared experiences on how they managed their own diabetes had some benefits. The group discussions helped patients make changes to diet and exercise patterns and provided users with more information, knowledge and social network. It was also noted that, 67%

of patients who participated in the group discussions had a reduction in the rate of their diabetes check – ups and 62% of the patients were also able to manage their condition better.

Furthermore, Latter et al. (2010) also found that, nurses paid attention to patients' beliefs on medication and adopted patient-centered skills after they have received four series of eight hour workshops designed to facilitate skills acquisition and behaviour change.

Similarly, den Engelsen, Soedamah-Muthu, Oosterheert, Ballieux, and Rutten (2009) found in their study that, introducing a primary healthcare nurse helped improve diabetes care. The primary healthcare nurse assumed some responsibilities such as check – ups which were done quarterly and annual by the general nurse and this enhanced monitoring of patients' health in general.

Levich (2011) also reported that, nurses are required to follow-up patients after they have been discharged to help them control and maintain their diabetes over the long term and empower patients with all of the information, tools, and training necessary to successfully manage their diabetes at home.

The current study found that, for the care of diabetes patients to be improved, there should be an expand coverage of health insurance, social support, improved healthcare system, staff's knowledge in diabetes management should be updated or upgraded and there should be public education on diabetes and its management.

The next section which is the final one deals with summary, implications for nurses, limitation conclusion and recommendations.

CHAPTER SIX

SUMMARY, IMPLICATIONS FOR NURSING, LIMITATIONS, CONCLUSION AND RECOMMEDATIONS

6.0 Introduction

This chapter presents summary of the study, implications for nursing education, nursing practice nursing administration and research. It also deals with the limitation of the study, conclusion and recommendations to improve diabetes care.

6.1 Summary

The study explored the challenges of nurses in managing Type II diabetes and ways to improve care for these patients at the Holy Family Hospital (HFH), Techiman. Ethical approval for this study was given by the Institutional Review Board of Noguchi Memorial Institute for Medical Research at the University of Ghana, Legon. Data for the study was collected with a semi-structured interview guide and all 14 interviews were conducted in English language. The interviews were recorded and lasted between 8 and 26 minutes. The recorded interviews were then transcribed verbatim and analysed with Creswell (1998) thematic content analysis which revealed 9 main themes and 25 sub-themes.

The key findings of the study were; bad glucometers, lack of glucometers, lack of nurses' knowledge in diabetes care and patients' non-adherence to treatment regimen.

Overall, the key findings of this study have shown that, nurses encountered a lot of challenges in managing Type II diabetes patients and these affected the outcome of the condition negatively. Some of the perceived effects that patients developed as a result of the challenges included;

complications (DKA, hypoglycaemia, hyperglycaemia, retinopathy, amputations) and prolonged length of stay in the hospital.

The findings from this current study have therefore demonstrated the need for nurses to upgrade their knowledge in diabetes care. Therefore nurse educators should develop a curriculum on the management of patients with diabetes as a post-basic course for nurses. This will help the nurses to acquire the requisite knowledge and skills to manage such patients well, hence improving the care.

6.2 Implications for Nursing Education

General Nurses whilst in school, should also be made to understand the need to provide basic quality care for diabetes patients. This can be done by nurse educators using current books on the management of diabetes to teach their students and also being abreast with evidence-based practices in diabetes care. Similarly, clinical nurses should properly take the student nurses through the care of diabetes patients during their clinical periods.

6.3 Implications for Nursing Practice

The implication of the findings for nursing practice is that, nurses should be taken through workshops and refresher courses on the management of medical conditions or chronic illnesses. This will place them in a position well-resourced to provide quality care for the patients living with chronic conditions such as diabetes. Glucometers should also be available and accessible to the nurses for them to use to check patients' blood sugar levels at all times.

This can be ensured by the hospitals having stock of glucometers in their store for nurses to pick them in the event of fault or damage to those being used in the wards. Similarly, glucometers in

the wards should not be kept in an obscured place or under lock and key system so that it can be accessed easily to check patients' blood sugar levels whenever the need be or at all times.

Furthermore, ward managers should check the functionality of glucometers in their wards frequently and nurses should also link research to practice to help improve diabetes care.

6.4 Implications for Nursing Administration

Nursing administrators should ensure regular supply of glucometers to the wards to prevent the unavailability. They should also do periodic surveys on the management of diabetes using both nurses and patients as participants. This will help them to detect some of the problems in managing diabetes early enough and solve them to improve the care provided to patients.

6.5 Implications for Future Research

The findings from this study have demonstrated the need to do further research on the challenges of nurses in managing patients living with diabetes mellitus as well as nurses' knowledge in caring diabetes care. A quantitative research design may be used to conduct this research and create room for generalization of findings. Diabetes patients may also be used as participants to find out the actual effects these challenges have on them in the course of nurses managing their condition. Subsequently, an exploratory descriptive design may also be used to carry out this research in about 6 settings to allow for generalization of findings.

6.6 Limitation of the study

The data for this study was manually analysed by the researcher and therefore there was the possibility of data missed or loss. Crawford, Leybourne and Arnott (2000) noted that, it may be helpful to use both manual and electronic methods for data analysis to compare findings of a study.

There was also the possibility of personal bias in the research processes as the researcher interviewed people he has worked with before. However, this was reduced as open-ended questions were used and this allowed the participants to narrate their own experiences. The research findings were therefore not affected in anyway.

6.7 Conclusion

The outcome of the study has shown that, nurses encounter challenges in the course of providing care for patients living with diabetes and these compromise quality care. It has also revealed ways to improve the care rendered to these patients which should be considered critically by policy makers or formulators to ensure the provision of quality care by health professionals for the diabetes patients and prevent complications associated with it.

Since this study used nurses as participants and was qualitative in nature, future studies should look at patients' perspectives on the challenges of nurses in managing them as well as the actual effects these challenges have on the patients. A quantitative research design should be used for generalization of findings or an exploratory descriptive research design should also be used at multiple sites for generalization of findings.

6.8 Recommendations

The following recommendations were made based on the study findings:

1. The hospital management should provide quality glucometers and strips to the nurses for use. This will ensure that, patients' blood sugar levels are checked at the appropriate time and the needed interventions given to prevent complications of diabetes.

2. Workshops and seminars on diabetes management should be organised for nurses. This will enable the nurses to acquire the necessary knowledge and skills in managing patients with diabetes; hence improving the care.
3. Family members, benevolent organizations, individuals and Non-Governmental Organisations (NGOs) should provide social and financial support for diabetes patients. This will also aid the patients to pay for their medications and buy their own glucometers to monitor their blood sugar levels at home, thereby detecting outrageous figures of blood sugar levels early for prompt intervention.
4. The national health insurance scheme should be revived by the government. Therefore the National Health Insurance Authority (NHIA) should broaden coverage of the drug list to include as many drugs as possible. This will ensure that, patients get all their drugs whenever they visit the hospital and will not pay for any drugs or buy them from pharmacy shops. More people should also be encouraged to register with the National Health Insurance Scheme (NHIS) for wider coverage.

   For the sustainability of the NHIS, the premium paid by clients of the scheme and government's subsidy to the scheme should be increased.

   In a study by Pollitz et al. (2005), they reported that, diabetes could be effectively and efficiently managed but medical care and equipment needed to monitor and control blood sugar levels were expensive.

   They then recommended that, policymakers must promote and expand insurance coverage that would be available, affordable and adequate to improve quality of diabetes care.

Similarly, Casagrande and Cowie (2012) reported in their study that, lack of health insurance coverage was often a barrier for receiving routine and preventive medical care. They also recommended that, healthcare reform should work toward ensuring that people with diabetes have coverage for routine care.

5. There should be persistent public education on diabetes and its management by health professionals. This should be done through the print and electronic media to sensitize people about the causes, treatment and complications of diabetes.

   This will help clear the misconceptions people have about the causes of diabetes and the purported cure for it.

6. There should be a specialty programme on diabetes management for nurses. This will also provide them with an in-depth knowledge and skills to manage patients with diabetes. Studies have shown that, specialist nurses provided more care to patients with diabetes than general nurses.

   Siminerio, Funnell, Peyrot, and Rubin (2007) found in their study that, specialist nurses played more advanced and active role in facilitating both self-management and medication management than general nurses. They talked to patients about self-management, taught medication management, had a higher level of involvement in medication prescribing, and were more willing to take on additional responsibilities than general nurses.

   Similarly, Levich (2011) noted that, clinical nurse who have specialized in diabetes and trained to understand the behavioural aspects of living with chronic illness, were well positioned to provide the patient with health education and coaching necessary to promote diabetes self-management.

Furthermore, the Health Quality Ontario (2013) reported that, specialized nurses working on their own could achieve good health outcomes that were similar to those of doctors. It also reported that, specialized nurses who worked with doctors could reduce hospital visits and improve certain patients' outcomes related to diabetes, coronary artery disease or heart failure.

7. Home visits or follow-ups should be integrated in diabetes management. This will serve as a means for monitoring people with diabetes to ensure continuity of care and prevent default, thereby reducing complications of the condition. It will also help the patients to control and maintain their blood sugar levels over a long period as noted by Levich, (2011).
8. Group therapy should also be incorporated into the management of diabetes. This is where people with same disease are put together to form groups which are led by health professionals. These groups help the patients to discuss their challenges and share their experiences on how they manage the disease among themselves.

   Pick (2008) found that, diabetes groups helped patients make changes to diet and exercise patterns and provided users with more information, knowledge and a social network. These helped them to reduce their diabetes check-ups and manage their condition better.

   Similarly, Simmons and Kapustin (2011) in their review found that, Diabetes Group Visits (DGVs) improved patients' satisfaction, increased quality of care and decreased emergency visits as well as specialty care utilization. They reported that, an advantage of group visits for patients was to benefit from discussions with their peers and learn successful coping strategies from their interactions.

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APPENDICES

APPENDIX A: Interview guide

APPENDIX A

Data Collection Instruments (Interview Guide)

This interview guide is to find the challenges of nurses in managing Type II Diabetes Mellitus at the Holy Family Hospital, Techiman.

Section A: Background Information

1) Age (years)
2) Sex (Male/ Female)
3) Type of certificate (Diploma, Degree, Masters' degree, others)
4) Grade (SN/SM, SSN/SSM, NO/MO, SNO/SMO)
5) Years of practice as a nurse

Section B:Challenges in managing Type II Diabetes Mellitus.

Main question (1): Please tell me about some of the challenges you face in managing Type II Diabetes patients. (Probes as and when necessary).

Main question (2): In your daily work as a nurse what do you do to deal with challenges you face in the management of patients with Type II Diabetes?

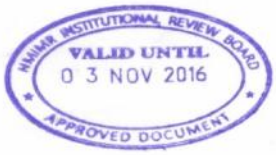
Main question (3): Please tell me some of the effects these challenges have on the Type II Diabetes patients.

Main question (4): What do you do in your daily management of patients with Type II Diabetes Mellitus?

Main question (5): What are some of the factors that influence how you manage patients with Type II Diabetes?

Main question (6): How can the care for diabetes patients be improved?

Main question (7): What other issues do you want to discuss with me concerning how you manage your patients with Type II Diabetes?



APPENDIX B: Permission Letter

HOLY FAMILY HOSPITAL

BOX 36

TECHIMAN.

27/11/15.

HOLY FAMILY HOSPITAL RECEIVED 30 NOV 2015 SIGN P.O. BOX 36 TECHIMAN-GHANA

THE ADMINISTRATOR

HOLY FAMILY HOSPITAL

BOX 36

TECHIMAN.

Dear Sir,

APPLICATION FOR PERMISSION

I wish to write for permission to use the hospital as a setting for my MPhil research work.

Sir, the study is on the challenges of nurses in managing Type II Diabetes Mellitus at the Holy Family Hospital, Techiman and nurses will therefore be the participants for this study.

There is no anticipated harm in this study.

Counting on your usual co-operation.

Yours faithfully

Gyimah Emmanuel

(2) HOLs
Pls approved
for your support.
16/12/15

Please find attached a copy of the ethical clearance from Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB).

APPENDIX C: Ethical Clearance

NOGUCHI MEMORIAL INSTITUTE FOR MEDICAL RESEARCH
Established 1979
A Constituent of the College of Health Sciences
University of Ghana

INSTITUTIONAL REVIEW BOARD

Phone: 233-302-916438 (Direct)
233-289-522574
Fax: 233-302-502182/513202
E-mail: nirb@noguchi.mimcom.org
Telex No: 2556 UGL GH

Post Office Box LG 581
Legon, Accra
Ghana

My Ref. No: DF.22
Your Ref. No:

4th November, 2015

ETHICAL CLEARANCE

FEDERALWIDE ASSURANCE FWA 00001824 **IRB 00001276**

NMIMR-IRB CPN 019/15-16 **IORG 0000908**

On 4th November 2015, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) at a full board meeting reviewed and approved your protocol titled:

TITLE OF PROTOCOL : **Challenges of nurses in managing Type II diabetes mellitus at Holy Family Hospital, Techiman**

PRINCIPAL INVESTIGATOR : **Emmanuel Gyimah, Mphil Cand.**

Please note that a final review report must be sbmitted to the Board at the completion of the study. Your research records may be audited at any time during or after the implementation.

Any modification of this research project must be submitted to the IRB for review and approval prior to implementation.

Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and fourteen days in writing.

This certificate is valid till 3rd November, 2016. You are to submit annual reports for continuing review.

Signature of Chair: .....
Mrs. Chris Dadzie
(NMIMR – IRB, Chair)

cc: Professor Kwadwo Koram
Director, Noguchi Memorial Institute
for Medical Research, University of Ghana, Legon

APPENDIX D: Approval Letter

NATIONAL CATHOLIC HEALTH SERVICE
DIOCESE OF TECHIMAN
HOLY FAMILY HOSPITAL TECHIMAN
Post Office Box 36
Techiman
Brong-Ahafo Region
Ghana, West Africa
Email: hfhtechiman@yahoo.co.uk
Web: hfhospitaltech.com
Telephone numbers:
+233 352 522 364
+233 352 522 031
+233 576 612 779

REF: HFH/ADM/0006/16

4th January, 2016

MR. GYIMAH EMMANUEL
HOLY FAMILY HOSPITAL
BOX 36
TECHIMAN

Dear Sir

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH IN HOLY FAMILY HOSPITAL, TECHIMAN

With reference to your letter on the above subject matter, approval has been given to you to conduct the research in this hospital. Your on site supervisor is Mad. Gertrude Maasangyir (DDNS).

Thank you.

Yours faithfully

.....
CHRISTOPHER AKANBOBNAAB
(Hospital Administrator)

CC: THE DDNS
HFH – TECHIMAN

Motto: In God is Our Help and Our Health

APPENDIX E: Consent Form

NMIMR-IRB CONSENT FORM TEMPLATE

Title: **Challenges of Nurses in managing Type II Diabetes Mellitus at the Holy Family Hospital, Techiman B/A.**

Principal Investigator: **Gyimah Emmanuel**

Address: **School of Nursing**
College of Health Sciences
University of Ghana, Legon.
P.O Box LG 43.

General Information about Research

This research work is to find the challenges of nurses in managing Type II Diabetes Mellitus at the Holy Family Hospital, Techiman. As a participant for this study, I would like to find from you the challenges you face in caring for people with Type II Diabetes, how you deal with the these challenges, the effects these challenges have on the diabetes patients, what you do in the management of patients with Type II Diabetes, the factors that influence the care you render to Type II Diabetes patients and what to do to improve the management of Type II Diabetes patients.
If you agree to be a participant in this study, you will be interviewed and the interview will be recorded or audio taped. The interview will be done at your own convenient time and place and it is expected to last between 45 minutes and 1 hour.

Possible Risks and Discomforts

There is no risk or discomfort anticipated in this research.

Possible Benefits

The findings of this study may be used to review policies and protocols in managing Type II Diabetes at the HFH, Techiman. This will help improve care rendered to people with Type II Diabetes and prevent complications as well.

Confidentiality

To ensure confidentiality, the information you provide will be kept under lock and key system and this information will only be accessible to the researcher and his supervisors. Your name will not be used in this study and only pseudonyms will be used when quoting verbatim. Any clarification that you may need on this study will be given to you and you may sign a consent form to show that you have agreed to participate in this study without any coercion.

1

Compensation

You will be given one canned Malt and a pie after the interview as a token for participating in this study.

Voluntary Participation and Right to Leave the Research

Participating in this research is voluntary and any participant is free to leave the research at any time without penalties.

Contacts for Additional Information

In case of answers to pertinent questions about this research, please contact the following researchers:

Gyimah Emmanuel

Tel: 0208735549/ 0244015047

Email: kgyemmanuel@yahoo.com

Dr. kwadwo Ameyaw Korsah

Tel: 0243547317

Email: korsah19@yahoo.com

Your rights as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 8am-5pm through the landline 0302916438 or email addresses: nirb@noguchi.mimcom.org

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title *(***Challenges of nurses in managing Type II Diabetes mellitus at the Holy Family Hospital, Techiman B/A***)* has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

_____ _____

Date Name and signature or mark of volunteer

NMIMR INSTITUTIONAL REVIEW BOARD
VALID UNTIL
0 3 NOV 2016
APPROVED DOCUMENT

2

APPENDIX F: Summary of Demographic Characteristics of Participants

Participants Number	Pseudonyms	Age (years)	Gender	Certificate	Grade	Number of years practiced
1	Achiaa	31	Female	BSc. Health science	Nursing officer	8
2	Rose	29	Female	BSc. Nursing	Nursing officer	6
3	Isaac	27	Male	Diploma in nursing	Staff nurse	2
4	Agyeman	27	Male	Diploma in nursing	Staff nurse	3
5	Margaret	28	Female	Diploma in nursing	Senior staff nurse	5
6	Asantewaa	28	Female	Diploma in nursing	Senior staff nurse	5
7	Richard	27	Male	Diploma in nursing	Staff nurse	2
8	Florence	33	Female	BSc. Nursing	Nursing officer	7

9	Felix	34	Male	Diploma in nursing	Nursing officer	8
10	Peter	28	Male	Diploma in nursing	Senior staff nurse	4
11	Selina	26	Female	Diploma in nursing	Staff nurse	3
12	Vida	27	Female	Diploma in nursing	Staff nurse	3
13	Prince	27	Male	Diploma in nursing	Staff nurse	2
14	Felicia	29	Female	Diploma in nursing	Senior staff nurse	5

APPENDIX G: Thematic Code Frame

THEMES AND SUBTHEMES	CODE	DESCRIPTION
1. Main theme: Nurses' Experiences with Equipment for Diabetes Care	**NEDC**	What nurse go through whilst using the equipment for checking blood sugar levels of patients
i Bad Glucometers	BG	Glucometers which do not work well or develop faults easily
ii Lack of Glucometers	LOG	Insufficient or inadequate glucometers for monitoring blood sugar levels of patients.
2. Main theme: Cost of Diabetes Care	**CODC**	The financial implications in caring for diabetes patients
i Patients' Financial Constraints	PFC	Patients lack of funds to support care or provide for the necessary materials.
ii Patients Pay for Dietary Counselling	PPDC	Patients being charged after provided with dietary

			counselling in diabetes care
	3. Main theme: Nurses' Knowledge in Diabetes Care	**NKDC**	What nurses know about the management of diabetes patients
i	Lack of Knowledge	LOK	Insufficient knowledge in diabetes management
	4. Main theme: Patients' Non-dherence to Treatment Regimen	**PNAT**	Patients refusing to do what they have been told by health professionals in their management.
i	Language Barrier	LB	Differences in languages making communication difficult.
ii	Difficult to Stop Eating Desired Food	DSEF	Unwillingness of patients to avoid food that he or she likes best

iii	Patients' Beliefs	PBI	What patients think about their condition and their educational background
iv	Patients illiteracy	PI	Patients not having any educational background
	5. Main theme: Dealing with the Challenges in Diabetes Care	**DCDC**	What is done to resolve the challenges or control them in diabetes care
i	Provision of Health Education	PHE	Educating patients on their conditions and the care needed
ii	Support from Social Worker	SSW	Assisting patients to meet their healthcare needs
iii	Provision of Anti-Diabetics	PAD	Where patients are given or supplied with diabetes drugs
	6. Main theme: Perceived Effects of the Challenges on Diabetes Patients	**PECP**	Problems that come to the patients as a result of the challenges

i	Prolonged Hospitalization	PH	Staying in the hospital over a long period of time
ii	Complications of Diabetes	CD	Severe or bad consequences that result from diabetes
7.	**Main theme: Care for Diabetes Patients**	**CDP**	The usual care that is given to diabetes patients
i	Monitor Blood Glucose and Control	MBGC	Checking blood sugar levels regularly and giving the necessary intervention
8.	**Main theme: Nurses' Motivation in Diabetes Care**	**NMDC**	Incentives and encouragements to boost nurses' morale for them to give out their best and improve performance
i	Improvement in Patients' Condition	IPC	Where patients get well during admission in the hospital
ii	Appreciation from Patients	AP	Where patients acknowledged the

			efforts of nurses in their care
iii	Patients' Commitment to Treatment Regimen	PCTR	Where patients abide by instructions given by health workers and show concern in their care
iv	Reduce Workload	RW	Limiting patients' attendance to the hospital
v	Provision of Quality Equipment	PQE	Ensuring the supply of good equipment use in caring for diabetes patients
9.	**Main theme: Improving Diabetes Care**	**IDC**	Ensuring that people with diabetes get better and avoid complications
i	Expand Coverage of Health Insurance	EHI	A health insurance system that covers all drugs and the total cost of care or treatment given
ii	Social Support	SS	Provision of the necessary assistance

			or materials to support diabetes care
iii	Improved Healthcare System	IHS	A system that focuses on the comprehensive care for a patient
iv	Staff's Knowledge Update	SKU	Organising courses on the care of diabetics patients for nurses
v	Public Education	PE	Creating awareness among the people on diabetes and its management