EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

by

THABILE A DLAMINI

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SUPERVISOR: MRS H DU TOIT

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Student number: 45103747

DECLARATION

I declare that the dissertation titled **EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software. The result summary is attached.

I further declare that I have not previously submitted this work, or part thereof, for an examination at UNISA for another qualification or at any other higher education institution.

30 November 2018

SIGNATURE **DATE**

Thabile A Dlamini

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

STUDENT NUMBER: 45103747
STUDENT: THABILE A DLAMINI
DEGREE: MASTER OF ARTS
DEPARTMENT: HEALTH STUDIES, UNIVERSITY OF SOUTH AFRICA
SUPERVISOR: MRS H DU TOIT

ABSTRACT

The purpose of the study was to evaluate the health education for clients diagnosed with diabetes mellitus by nurses working in the diabetes clinic of the specific hospital. The quantitative descriptive cross sectional design used two questionnaires to collect data from all 20 nurses working in the diabetes clinic and from a convenient sample of 132 clients diagnosed with diabetes mellitus, making use of the health services at the diabetes clinic of the hospital. Data was analysed by a computer program, statistical package for social science (SPSS). Measures were taken to ensure acceptable ethical practice, validity and reliability of the study. Findings revealed the absence of official documents to guide the health education and other factors, such as not knowing the learning needs of the clients, not utilising teaching methods optimally. Recommendations address the development of standard procedures, lesson plans, recording of health education sessions and education skills development for the nurses.

Key concepts

Health education; nurses; clients; diabetes clinic; Client Education Model.

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Dedication

This dissertation is dedicated to my beloved husband Mr DPM Dlamini, my daughters Nosizo, Tandzile, Nokuphila, my son Mayenziwe and grandson INgiphile

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LIST OF ABBREVIATIONS

SMOH	Swaziland Ministry of Health
SNC	Swaziland Nursing Council
STG	Swaziland Treatment Guidelines
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

This chapter provides an overview of the study. The research problem is contextualised against background information and supported by references to the literature. The purpose of the study, its objectives and its significance to nursing practice are described. Key concepts are defined, the model that guides the study and the research methodology that is used are presented and finally an outline of the chapters is given.

The incidence of diabetes mellitus is on the rise in the world and it is stated in literature that 85% of cases are type 2 diabetes mellitus (Janssen, Lubetkin, Sekhobo & Pickard 2011:395; Manhan & Escott-Stump 2008:768; WHO 2016:10). If uncontrolled or poorly controlled, diabetes mellitus causes complications that may include damage to blood vessels and nerves that could lead to limb amputation and blindness (Smeltzer, Bare, Hinkle & Cheever 2008:1402). These complications have been related to poor self-management skills, inappropriate self-care and limited or no diabetes education at all (Mason 2011:1; New 2009:320; Torres, Rozemberg, Amaral & Bodstein 2010:1).

The key role players in educating clients are nurses. According to the SNC (2010:6), the role of the nurse is to provide effective, ongoing and up-to-date information, thereby enabling a person with any illness to make informed self-care choices and lead a normal life. The medical treatment of diabetes mellitus is described in the Swaziland national standard treatment guidelines; however, it does not address the education of clients by either doctors or nurses (SMOH 2012:60).

Literature specifies topics that should be covered during health education; they include basic knowledge of diabetes mellitus, self-care and management of acute and chronic complications. It also highlights the need to educate family members so they are able to support the person with diabetes ((Amod, Ascott-Evans, Berg, Blom, Brown, Carrihill, Dave, Distiller, Ganie, Grobler, Heilbrunn, Huddle, Janse van Rensburg, Jivan, Joshi, Khutsoane, Levitt, May, Mollentze, Motala, Paruk, Pirie, Raal, Rauff,

Raubenheimer, Randeree, Rheeder, Tudhope, Van Zyl & Young 2012:S12; WHO 2016:21).

Some literature also recommends education to individuals and groups affected by diabetes mellitus as well as consideration of individual factors that influence behaviour such as beliefs, lifestyles, eating habits, economic status, education level, family support and age. (Duke, Colagiuri & Colagiuri 2009:1; Janssen et al 2011:395; Karakurt & Kaşikçi 2012:171)

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

Health education is defined as the process and programme directed to the general public in an attempt to improve and maintain the health care of the community, thus providing clients with knowledge and skills needed to perform self-care (Abbatt & McMahon 2010:15; Kav, Akman. Dogan, Tarakçi, Bulut & Hanaglue 2010:29-33). The focus of this research is the health education of clients with diabetes mellitus.

1.2.1 Source of the research problem

Diabetes mellitus education is a programme that aims at improving and maintaining the health care of those diagnosed with diabetes mellitus. Therefore, its purpose is to provide knowledge and skills that are required by clients so that they can perform specific health care activities as part of their daily lives (Amod et al 2012:S13; Dennill, King & Swanepoel 2010:149; WHO 2016).

Nurses are considered the primary teachers of clients and their families, groups or communities and other health care team members (Dennill et al 2010:158). It is important that nurses have current knowledge and skills to offer education that addresses the health needs of the clients (Stanhope & Lancaster 2010:305).

A nurse uses the skills she/he acquired during nursing training to give health education to clients as stated in Miller and Stoeckel's Model (2011:6). According to Amod et al (2012:S13), nursing training schools should include special training on diabetes mellitus and health education guidelines should be available so that nurses can provide proper education and comprehensive services to clients with diabetes mellitus.

The scope of nursing practice in Swaziland includes the empowerment of clients, families and communities with the necessary information to meet their health needs to prevent illness and complications of illnesses (SNC 2010b:13, 16).

1.2.2 Background to the research problem

The researcher made the following observation in the diabetes clinic of a hospital in Swaziland where the researcher works as a nurse manager: clients with diabetes mellitus are sometimes provided with group health education in the waiting areas while individual education may be given according to specific health needs identified during consultation, but such interactions are rarely documented in clients' records. This observation was compared with the observations of nurses involved in treating clients with diabetes mellitus in other hospitals across the country (the information was gathered through informal discussions); the nurses' responses were that some education sessions were provided to clients' but not documented.

1.3 RESEARCH PROBLEM

At the time of writing the research proposal, the researcher noted that records in the hospital where the study would be conducted showed that 75 out of 400 clients who attended the diabetes clinic from January to June 2015 were admitted for uncontrolled hyperglycaemia and 10 were referred to the national referral hospital for gangrene – a complication that could lead to the amputation of their feet.

Dyson, Beatty and Mathews (2010:357) indicate that inadequate health education may contribute to the high numbers of clients admitted for uncontrolled diabetes mellitus and complications of diabetes mellitus, impacting economically on all parties involved. Thus, uncontrolled diabetes mellitus may lead to high costs for the individuals affected, their families and the Swaziland health sector.

This realisation raised the need for evaluating the health education provided to clients with diabetes mellitus by nurses in the diabetes clinic of the hospital. The findings may necessitate the development of operational education guidelines for clients with

diabetes mellitus by nurses working in this hospital so that meaningful health education may be provided.

1.3.1 Problem statement

The frequency and practice of health education by nurses to clients diagnosed with diabetes mellitus which is unknown due to a lack of record keeping must be evaluated in a hospital in Swaziland.

1.4 AIM OF THE STUDY

1.4.1 Research purpose

According to Polit and Beck (2013:81), a study's research purpose suggests the manner in which researchers seek to solve the problem. This study intends to improve the quality of health education provided in the diabetes clinic of a hospital in Swaziland by describing the health education of clients with diabetes mellitus as provided by nurses and ascertaining clients' perception of the health education received. This will enable the researcher to identify areas of health education practice that could be improved.

1.4.2 Research objectives

The research objectives flow from the research problem and purpose (Burns & Grove 2012:49). The objectives of the study were to

- describe the health education given by nurses to clients with diabetes mellitus in the diabetes clinic
- describe the health education as perceived by clients with diabetes in the diabetes clinic
- identify factors that impact on the health education given to clients with diabetes in the diabetes clinic

1.4.3 Significance of the study

This study provides information about health education on diabetes mellitus as reported both by nurses and clients at the diabetes clinic in a Swaziland hospital. The direct significance of the study is that health education guidelines may be developed from the study findings and will contribute to the health care quality improvement programme in this hospital.

The indirect significance relates to improving clients' self-management of their diabetes mellitus and its management by their families so that diabetes mellitus complications may be limited. Should diabetes mellitus complications be limited in this way, the financial costs associated with treatment will be lowered for both the client and hospital.

1.5 CONCEPTUAL DEFINITIONS

Conceptual definitions provide the meaning of a concept/word (Babbie & Mouton 2011:111; Burns & Grove 2012:58). The key concepts in this study are defined as follows:

1.5.1 Nurses

Nurses are health care professionals who are trained and qualified to take care of sick or injured people, authorised to practise by a legal body, namely the nursing council in the country (SNC 2010b:6). In this study the nurses were those registered as qualified nurses in Swaziland, working in the diabetes clinic of a specific hospital in Swaziland.

1.5.2 Clients

A client is defined as the consumer of a service (Wehmeir & Ashby 2010:202) and according to Miller and Stoeckel (2011:8), a client may be a child or an adult. In this study, clients refer to individuals diagnosed with diabetes mellitus, receiving treatment in the diabetes clinic of a specific hospital in Swaziland.

1.5.3 Diabetes mellitus

Diabetes mellitus is the metabolic disorder characterised by persistent hyperglycaemia or blood glucose above defined limits, resulting from defects in insulin action with or without glycosuria and a tendency to develop ketoacidosis, poluria, polydipsia asthesia and weight loss (Manyeli 2012:5; WHO 2016:136). Clients in this study are diagnosed with and treated for diabetes mellitus.

1.5.4 Health education

Health education is defined as the process and programme directed at the general public in an attempt to improve and maintain the health care of the community, thus providing patients with knowledge and skills needed to perform self-health-care (Miller & Stoeckel 2011:12). In this study health education is given to clients in the diabetes clinic.

1.6 RESEARCH APPROACH

This study is quantitative in nature. Burns and Grove (2012:7) indicate that the quantitative approach entails breaking the whole into parts so as to examine and describe the parts. Quantitative research is a formal, objective and systemic process in which numerical data are used to obtain information about the world (Babbie & Mouton 2011:647; Burns & Grove 2012:34).

Since the health education of clients with diabetes mellitus will be examined in parts in this study, a quantitative approach was used in developing the study. These parts include the teaching methods used, the topics covered and the clients' perception of the teaching process. Data will be analysed numerically and the findings used to describe the reality of health education in the diabetes clinic of the specific hospital in Swaziland (Burns & Grove 2012:34).

1.7 THEORETICAL FOUNDATION OF THE STUDY

This study is based on the Client Education Model of Miller and Stoeckel (2011:6). The model provides the conceptual framework for understanding essential, interrelated

components of health education which can be applied to the education of clients with diabetes mellitus. The nurse-client relationship is at the centre of the model and it relies on the components of the Nurse as educator, the Client as learner and the Education process, which involves both the activities of teaching and learning. The model is described in Chapter 2.

1.8 RESEARCH DESIGN AND METHOD

A non-experimental, descriptive study will be conducted to provide an accurate account of the health education given to clients with diabetes mellitus (Babbie & Mouton 2011:232; Creswell 2009:146; Polit & Beck 2008:324). The methodology of the study that is the steps, procedures and strategies for gathering and analysing data (Polit & Beck 2013:758) will be discussed in detail in Chapter 3, but the following is a brief summary thereof.

1.8.1 The research setting

The research setting refers to the location where the study is conducted and it describes the conditions for the data collection (Burns & Grove 2012:242; Polit & Beck 2013:766). This study will be conducted in the diabetes clinic of a specific hospital in the Hhohho region of Swaziland.

1.8.2 The study population

A study's population refers to the entire group of persons or objects that is of interest to the researcher (Babbie & Mouton 2011:174). The populations of this study are nurses practicing in the diabetes clinic of a specific hospitals in the Hhohho region of Swaziland and the clients with diabetes mellitus that attend this hospitals.

1.8.3 The sample and sampling methods

As the total number of nurses working in the diabetes clinic of this hospital is 20, no sampling was done. The researcher invited all 20 nurses to participate in the study.

With regards to clients, the researcher had proposed to use random sampling, but when it became clear that clients do not all come on appointment dates, a convenience sampling technique was opted for. The sample size of clients was calculated using an internet calculator (RAOSOFT 2014) and the size was 132 clients.

1.8.3 Development of the data collection instruments

A data collection instrument is a device used to collect data (Babbie & Mouton 2011:102; Henning, Gravett & Van Rensburg 2011:102; Polit & Beck 2013:179). According to Babbie and Mouton (2011:238), the questionnaire should be constructed and laid-out in such a way that it does not lead respondents to miss questions or confuse them about the nature of desired data.

Two questionnaires, one for nurses and one for clients were developed by the researcher on the basis of the Client Education Model illustrated in Figure 2.1 and with the input from the researcher's supervisor and statistician.

To ensure the reliability of a data collection instrument, which in this case are two questionnaires, there must be consistency of the measures obtained (Burns & Grove 2012:23). The internal consistency of the questionnaires was ensured by including the relevant concepts and phrasing of questions accurately. Both questionnaires were reviewed by the supervisor and statistician. The questionnaires were then pretested with nurses and clients who were not part of the study population.

1.8.4 Data collection and method

Data collection, according to Polit and Beck (2013:23), is the formal procedure used by researchers to gather information from respondents. Data for this study was collected by the researcher in the month of October 2015, with the aid of questionnaires for each of the two populations (nurses and clients).

1.8.5 Data analysis

A computer program called Statistical Package for Social Science (SPSS) version 22 was used to analyse data, using descriptive statistics (Argyromas 2011; Babbie & Mouton 2011:417).

1.8.6 Study validity

A study's validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration (Babbie & Mouton 2011:122). There are several types of validity, but here two types are invoked: internal validity and external validity.

Internal validity is ensured by including the relevant concepts to be measured (as illustrated in the Client Education Model and related literature) in the study and by including a variety of questions on health education, as practiced in the clinic, in the questionnaires.

External validity is ensured by using respondents who are able to give the required information and by a good response rate. The respondents, receiving diabetes health services at the clinic will be able to give relevant information. The presence of the researcher during data collection will ensure a good response rate.

1.9 ETHICAL CONSIDERATIONS

Ethics in research is defined as the system of moral values concerned with how research procedures adhere to professional legal and social obligations to the study participants (Boswel & Cannon 2011:65-76). In order to protect the human rights of the respondents, the right of the institution and the scientific right of information reviewed from literature, the following ethical principles were adhered to: the informed consent of respondents and the institution, the explanation of the benefits of the study to respondents and to the institution, respondents' self-determination, their anonymity and the confidentiality of information collected from them, and scientific honesty during all processes of the study

1.9.1 Right of the institution

In order to acknowledge the right of the institution, the researcher obtained permission to conduct a study in the particular institution before the study is conducted (Polit & Beck 2013:184). Written permission to conduct the research was obtained from the administration of the hospital before conducting the study and ethical clearance for the research was obtained from the Research Ethics Committee of the Department of Health Studies of UNISA. See Annexure 1 for a copy of the ethical clearance certificate and Annexure 2 for a copy of the request to do the research and the permission letter from the hospital.

1.9.2 Anonymity

Ensuring anonymity means that the researcher cannot link an individual respondent to an individual responses (Babbie & Mouton 2011:523; Creswell 2009:89). In this study anonymity were ensured by not disclosing the respondents' name on the questionnaire, research reports and by detaching the written consent from the questionnaire. There was no identifying information entered onto the questionnaire and questionnaires were only numbered after data was collected.

1.9.3 Confidentiality

In order to ensure confidentiality, the information provided by respondents must not be publicity reported in a way which identifies them (Creswell 2009:89; Polit & Beck 2013:180). The current study maintains confidentiality by keeping the completed questionnaires in a lockable cabinet at the researcher's office, accessible only the researcher. For the duration of the analysis the statistician had access to the questionnaires.

1.10 SCOPE OF THE STUDY

The study was conducted at the diabetes clinic of a specific hospital in the Hhoho region of Swaziland with the aim to evaluate the heath education given by nurses to clients with diabetes mellitus.

1.11 STRUCTURE OF THE DISSERTATION

The study consists of five chapters, outlined as follows:

Chapter 1: Orientation to the study
Chapter 2: Literature review
Chapter 3: Research design and method
Chapter 4: Data analysis, presentation and description of the findings
Chapter 5: Conclusions, limitations and recommendations

1.12 CONCLUSION

This chapter provided an overview of the study. The research problem was contextualised with the help of background information and supported by references to literature. The purpose of the study, its research objectives and its significance to nursing practice has been described. The definitions of key concepts were provided along with a summary of the methodology used in the study and an outline of the dissertation outline. The next chapter describes the literature that has been reviewed for this study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses what other authors have presented on diabetes mellitus and health education. The researcher discusses the Client Education Model as described in Miller and Stoeckel (2011:6), which has been used as a framework to guide the study, and other sources of literature that are in line with the model.

2.2 AN OVERVIEW OF DIABETES MELLITUS

Diabetes mellitus is a chronic metabolic disorder in which the pancreas produces insufficient insulin or the body is unable to use the insulin effectively. The condition is characterised by persistent hyperglycemia, which results from defects in insulin action with or without glycosuria and a tendency to develop ketoacidosos, polyuria, polydypsia, asthenia, weight loss and fatigue (Manyeli 2012:6; Muma & Lyons 2012:137; Smeltzer et al 2008:1378; WHO 2017a).

Diabetes mellitus can also be explained to newly diagnosed clients as a disease caused by an imbalance in the hormones that regulate the sugar levels in the blood stream; sugar levels may be either too high or too low. The reason for this is that the cells of the body may stop responding to insulin or the pancreas may stop producing insulin entirely (Manyeli 2012:6; WHO 2017a).

A person with diabetes mellitus can have any of the following signs and symptoms: excessive urinating, excessive hunger, excessive thirst, body weakness, weight loss and, at a later stage, impaired vision and complications associated with blood circulation and nerves (Amod et al 2012:S1; SMOH 2012:60; WHO 2017a).

2.2.1 The classification of diabetes mellitus

The major classifications of diabetes mellitus are Type 1 diabetes, Type 2 diabetes, Type 3 diabetes and diabetes associated with other conditions or syndromes (Mabaso 2012:8; Smeltzer et al 2008:1377).

2.2.1.1 Type 1 diabetes mellitus

Brunner and Suddarth (2008:1380) describe Type 1 diabetes as occurring when the pancreas cannot make insulin. They have found that it is caused by genetics and unknown factors that trigger the onset of the disease and is mostly triggered in children and young people, before the age of 40. Those diagnosed with the condition are required to take insulin for the rest of their lives (WHO 2017a).

2.2.1.2 Type 2 diabetes mellitus

Type 2 diabetes occurs when the pancreas cannot make enough insulin or when the insulin made does not work properly or both. It is caused by genetics and lifestyle factors such as being overweight and inactive. Eating a diet with high kilojoules, whether from fat or sugar, can lead to be coming overweight, increasing a person’s risk of developing Type 2 diabetes (Brunner & Suddarth 2008:1377; Karakurt & Kaşikçi 2012:170; WHO 2017a; WHO 2017b).

Type 2 diabetes can develop in a person of any age, but it is common inpeople of ages 40 and older. The World Health Organization (WHO) reports that 90% of diabetes globally are Type 2 diabetes and in Sub-Saharan Africa 8% of persons older than 25 have Type 2 diabetes (WHO 2017b). The majority of clients at the diabetes clinic where the study will be conducted are diagnosed with Type 2 diabetes.

2.2.1.3 Type 3 is gestational diabetes mellitus

Gestational diabetes occurs during pregnancy when hormone changes prevent insulin from working properly. The Swaziland service availability mapping report (SMOH 2010b:137) found that the hyperglycemia that occurs during pregnancy is caused by secretions of placental hormones that cause insulin resistance. This type of diabetes is

usually diagnosed through prenatal screening and not necessarily on the basis of symptoms (WHO 2017a). Women with gestational diabetes usually need to take insulin and the condition may resolve after the birth of the child.

2.2.1.4 Other types of diabetes mellitus

Other types of diabetes mellitus are those associated with conditions or syndromes such as pancreatic diseases, hormone disorders, the use of drugs like glucorcoticodes and oestrogen containing preparations and viral infections depending on the ability of the pancreas to produce insulin (Smeltzer et al 2008:1378).

2.2.2 Lifestyle factors

Lifestyle factors may contribute to the onset of diabetes mellitus and/or the failure in managing it. Lifestyle factors may include poor eating habits, overeating, lack of exercise, tobacco smoking, drinking of alcohol and walking bare foot (Maville & Huerta 2012:40; WHO 2017a).

2.2.3 Complications of diabetes mellitus

The complications of diabetes mellitus are important because they increase the morbidity and mortality of clients. Complications may be limited or prevented if clients understand diabetes mellitus as a chronic condition. As such, nurses have an important role to play in educating clients accordingly. The WHO (2017b) emphasises that creating awareness is one of the important measures to limit complications. Hence the focus on the practice of health education in this study.

The complications of diabetes mellitus are classified into acute and long-term complications (Manyeli 2012:22; Muma & Lyons 2012:137; Smeltzer et al 2008:1378). The possible complications are briefly described below.

2.2.3.1 Acute complications of diabetes mellitus

- *Hypoglycaemia*

This complication results when blood glucose falls below the normal levels. It may be caused by injecting too much insulin, overdosing on oral anti-diabetic medicine, injesting too little food or excessive physical activity. It can occur at any time of the day or night. If it occurs before meals, it may be caused by delayed meals or omitted snacks. It may also occur during the peak of the insulin injection in the morning or in the afternoon (Manyeli 2012:21; Muma & Lyons 2012:137; Smeltzer et al 2008:1410).

- *Hyperglycaemic*

This condition also results from a lack of insulin to transport glucose to the body cells. Here the body compensates by shifting water from intracellular fluid space to the extracellular fluid space, resulting in glycosuria, dehydration, hypernatremia and increased osmolarity. It occurs more often in older clients with Type 2 diabetes mellitus (Smeltzer et al 2008:1415).

2.2.3.2 Long-term complications of diabetes mellitus

These complications mostly occur 10 years after the diagnosis of diabetes mellitus. Good self-management of diabetes mellitus may prevent, to a large extent, the range of complications discussed below (Manyeli 2012:21). Good health education can raise clients' awareness, thus facilitating good self-management. This again highlights the important role of health education to clients at the diabetes clinic.

- *Macrovascular complications*

A macrovascular complication is a blockage of blood flow, which can occur because of thickening blood vessels, sclerosis or plaque that stick to the walls of the blood vessels. The three most frequent macrovascular complications are coronary artery disease, cerebrovascular disease and peripheral disease (Amod et al 2012:S57; Muma & Lyons 2012:136; Smeltzer et al 2008:1422).

- *Microvascular complications*

When blood glucose levels are too high biochemical responses cause the capillary basement membranes to thicken for example in the retina and kidneys (Brunner & Suddarth 2010:1422; Muma & Lyons 2012:136).

Such microvascular damage leads to complications that include:

- **Diabetes retinopathy**

Microvascular damage can cause changes in the retina, including haemorrhages, capillary closure, macula oedema, lens opacity and glaucoma. These all result in blindness. The risk of developing retinopathy is related to the length of time a person has been living with diabetes. A client who has been living with diabetes for a long time is likely to develop the complication (Amod et al 2012:S46; Muma & Lyons 2012:61). According to the WHO 2.6% of blindness reported globally is caused by diabetes (WHO 2017a).

- **Nephrophathy**

This complication is due to high glucose levels in the blood for a long period of time, resulting in the damage of nerves. Diabetic nephropathy occurs in clients who have had diabetes mellitus for a long time. Clients may complain of pricking, tingling sensations and burning pain in feet that may progress to numbness, foot ulcers, infections and eventually limb amputations (Amod et al 2012:S46; Mkhombe 2015:11; Muma & Lyons 2012:136, 169; WHO 2017a). According to the WHO (2017a), diabetes is one of the leading causes of kidney failure.

- **Foot and leg problems**

Foot and leg problems are related to neuropathy and peripheral vascular disease. Poor circulation of the lower extremities contributes to poor wound healing and the development of gangrene. Hyperglcaemia impairs the ability of leukocytes to destroy bacteria, thus in poorly controlled diabetes there is a lowered resistance to infections. The WHO found that diabetic foot is one of the reasons for prolonged hospitalisation of

diabetes patients in the African region (Amod et al 2012:S71, 1155; Smeltzer et al 2008:1427; WHO 2017b).

Most of the above-mentioned complications were observed in clients who were admitted to the hospital, which inspired this study. Since diabetes mellitus is a condition that requires self-management by the clients, effective heath education is important.

2.2.4 Medical management of diabetes mellitus

The main goal of diabetes treatment is to normalise insulin activity and blood glucose levels (Manyeli 2012:7-8; Smeltzer et al 2008:1423). The medical management is briefly mentioned.

Medical management refers to treatment prescribed by a doctor, treatment executed by a nurse in case of a patient in a hospital and self-treatment administered by the client at home (Manyeli 2012:24; Smeltzer et al 2008:1425; STG 2012:20).

According to Swaziland standard treatment guidelines (SMOH 2012:20), diabetes mellitus type 1 is managed with insulin injections that are adjusted according to each client's individual needs. Type 2 diabetes is managed with Glibenclamide or Glidazide tablets in the case of adult clients who are underweight or Metform tablets if the client is severely overweight (Amod et al 2012:S24; Mabaso 2012:3; New 2010:318). If the client does not respond to oral medicine, an injection of intermediate-acting insulin is prescribed to be taken twice a day (one before breakfast and one before dinner). The doses vary according to the client's glucose levels and clinical status (SMOH 2012:62).

2.3 HEALTH EDUCATION

Health education is defined as the process and programme directed at the general public in an attempt to improve and maintain the health care of the community, thus providing clients with knowledge and skills needed to perform self-care (Abbatt & McMahon 2010:15; Kav et al 2010:29-33). Another view is that health education refers to a process of learning used by people to increase their understanding and change their ways of thinking and behaviour for better health (Wu, Liang, Wang, Chen, Jian & Cheng 2011:2655).

Miller and Stoeckel (2011:6) describe the importance of nurses educating clients and their families to maintain an optimal level of wellness. The benefits of effective client education include improved quality of life, continuity of care, decreased client anxiety, reducing complications, promoting adherence to treatment and increasing independence in activities of daily living (Bastable 2014:6-9; Bastable 2017:9-10).

Health education of clients with diabetes mellitus is viewed as a practice aimed at improving and maintaining the health of those diagnosed with diabetes mellitus. Education is therefore provided to impart knowledge and skills required by clients to perform specific health care activities as part of daily living (Amod et al 2012:S13; Dennill et al 2010:149; WHO 2013). The researcher also foresees the financial advantages, for the individual and the hospital, of clients who are more aware of treatment and lifestyle issues affecting their condition (Bastable 2014:6-9).

This study was planned and structured according the Client Education Model described in the following section.

2.4 CLIENT EDUCATION MODEL

The Client Education Model is a conceptual framework developed by Miller and Stoeckel (2011:6) for health education of people with illnesses. This model is also considered to be an elaboration of other education models, including Pender's Health Promotion Model and the Theory of Planned Behaviour (Maville & Huerta 2012; Muma & Lyons 2012:3).

The components of the Client Education Model (see Figure 2.1) are based on the Nurse-Client relationship and it includes the Nurse as educator, the Client as learner and the Education process between the two parties. Concerning the education process, the focus of this study is on the teaching and learning process. Miller and Stoeckel (2011) see a parallel between the nursing process and the education process. Nurses use clinical judgment and evidence based information to make decisions on nursing care and a similar process can be used to make decision on health education.

The researcher is of view that client education outcomes can only be evaluated along with clinical records and this is not within the scope of this study.

A complete formative and summative evaluation is also beyond the scope of this study, although the questionnaires include a question on assessment directly after a health education session.

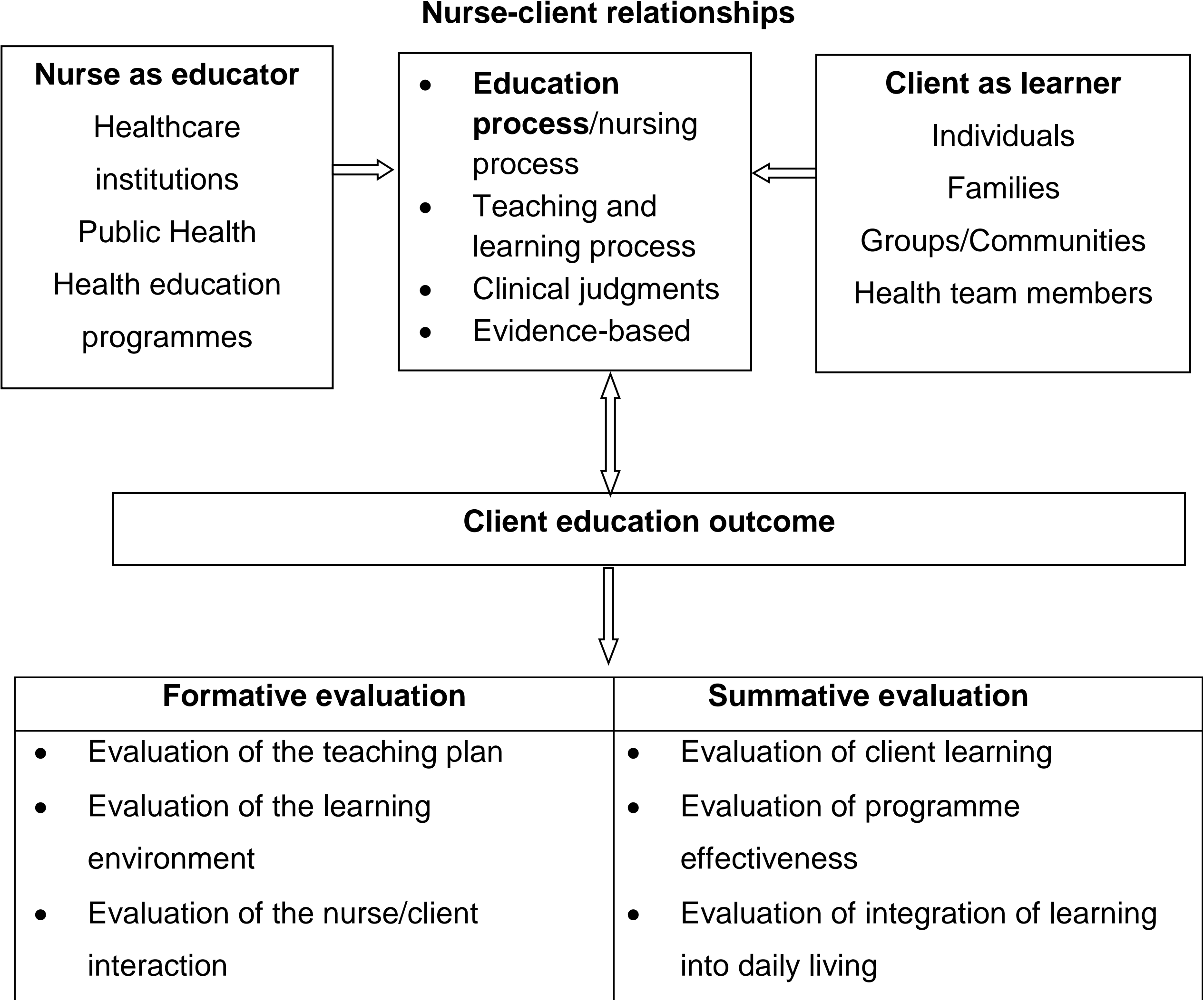

Figure 2.1 The Client Education Model

(Miller & Stoekel 2011:6)

Miller and Stoeckel (2011:6-20) hold that a number of assumptions are fundamental to the Client Education Model. These are listed below and their relevance to this study, according to the researcher, is described.

- Health status can be improved for most clients through education.

  The researcher believes that health education will empower people with knowledge and skills to change their thinking and acting so that their health status may be improved or at least maintained.

- Nurses as educators can help to prevent diseases as well as retain and restore health of clients through health education.

  The researcher believes nurses are considered the primary health professionals, capable of providing information and skills that can help clients with diabetes mellitus to maintain blood glucose levels and prevent complications that may result from the disease.

- Health status is affected by a variety of factors such as lifestyle, heredity and the environment.

  The researcher considers the issues of a stressful living environment and lifestyle factors such as poor eating patterns, poor nutrition, lack of exercise, use of alcohol and smoking as habits that may increase the blood glucose levels, which may then contribute to poor control of diabetes mellitus by those affected.

- Clients' motivation and perceptions affect their learning.

  The researcher believes that clients will be motivated to learn if they realise that what they are learning relates to their needs, hence the teaching plan must be directed towards the clients' education needs.

- Clients can learn positive health behaviour.

  Although the outcome of health education is not determined in this study, the researcher believes that a well-planned and presented health education programme will influence positive health behaviour.

- Teaching appropriate prevention strategies are effective in dealing with health problems.

  In this study, the researcher believes clients with diabetes mellitus may be able to manage their blood sugar levels and prevent the complications related with diabetes mellitus if they are provided with knowledge and skills.

- Clients are active participants in their health care and are responsible for choices under their control that affect their health.

  In this study, clients with diabetes are viewed as capable of practicing self-management skills to control their blood glucose levels if they have received sufficient knowledge and were assisted to develop the necessary skills.

- Nurses are responsible for health education in a variety of settings.

  The researcher of the current study views nurses as responsible health professionals, able to provide health education on diabetes mellitus, in the setting of the diabetes clinic.

- A therapeutic nurse-client relationship is essential to achieve positive health education outcomes.

  In this study, the researcher acknowledges the importance of a professional and trusting relationship between nurses and clients in the diabetes clinic to ensure effective health education.

The following sections (2.4.1-2.4.3) discuss the nurse-client component of the Client Education Model that includes: Nurse as educator, Client as learner and the education process. Where applicable, questions asked in the data collection instruments are added in brackets. For example, (Nurses, item B1) refers to the questionnaire for nurses, section B, question 1.

2.4.1 Nurse as an educator

The Model in Figure 2.1 shows that nurses practice within different health care institutions and health sectors, offering health education within health education programmes. Bastable (2014:508) and Miller and Stockel (2011:6) mention the outpatient clinic as one of the possible settings for instruction on health education.

The nurses in this study are employed at a public hospital in the Hhohho district of Swaziland. As such, nurses have to practise health education according to the available guiding documents in the country. They include the Swaziland National Health Policy (SMOH 2013), the Scope of Nursing Practice in Swaziland (SNC 2010a) the Swaziland Essential Health Care Package (SMOH 2010a) and the Swaziland Treatment Guidelines (SMOH 2012). The researcher could not identify hospital or clinic specific guidelines for health education of diabetes mellitus clients. This lack of official guidance may lead to ineffective health education. The role of nurses in health education is to teach within the scope of nursing practice, available teaching guidelines and teaching programmes. Bastable (2014:120) emphasises the importance of institutional strategic plans, goals and standards and the need for nurses to adhere to those.

Nurses are considered the primary teachers of clients and their families, groups or communities. A nurse should facilitate learning rather than teach. This means that both the nurse and the client or family members should be actively involved in the teaching and learning process. Bastable (2014:15-16) mentions the education and advocacy role of nurses with the aim to teach individuals, families and communities to maintain health or change behaviour in a way that prevents illness.

Nurses should also take note of health education offered by other health care team members and should collaborate with those team members who know the clients' needs (Bastable 2014:118).

It is important that nurses have current knowledge and skills to offer health education that address the health education needs of clients (Bastable 2014:15-16; Dennill et al 2010:158; Stanhope & Lancaster 2010: 305).

To achieve the health education of clients diagnosed with diabetes mellitus, it is expected that nurses at the diabetes clinic have knowledge on the condition and treatment of diabetes mellitus. They should also implement official policy, health education programmes and procedures necessary to achieve positive health education outcomes (Dennill et al 2010:147; SNC 2010:16).

This study describes the existence and use of official documents to guide the health education of clients in the diabetes clinic at the hospital (Nurses, item B5-10).

2.4.2 Health education process

The health education in the Client Education Model (see Figure 2.1) is in line with the nursing process in the sense that the authors described education according to the five phases of the nursing process. This process reflects the art and science of nursing in that it involves systematic approaches to assess patients' needs and solve their problems; it can also be incorporated into acute and long-term care programmes (Marcia & Lancaster 2013:268; Miller & Stoeckel 2015:8).

In the following sections the theoretical description of the nursing process is followed by an application to health education. As the nursing process is mostly used in hospitals, the term "patients" is used. As health education takes place in an outpatient clinic, the term "client" is used when the five phases are described in relation to the health education of clients with diabetes mellitus.

2.4.2.1 Assessment of the needs or assessment of clients' health education needs

The assessment phase concerns gathering information from a patient about any difficulty that adversely affects their wellbeing. The information may be from the current medical history, the past medical history, patient background and lifestyle. The information guides the nurse to identify the nursing needs of the clients (Bastable 2014:13-14; Dyson et al 2010:353; Maville & Huerta 2012:49).

This phase of the nursing process is relevant to the education process. For this study, assessment refers to the information collected by nurses to identify the educational

deficits of clients with diabetes mellitus (Nurses, item C14; Clients, item C12). Bastable (2017:83-87, 117-123) describes the assessment of learning needs as well as the different ways to assess them, namely through informal conversations, structured interviews, questionnaires, observation or documents

2.4.2.2 Nursing diagnosis or identifying health education topics

The nursing diagnosis is the clinical judgment about a patients' responses to actual and potential health problems. Functional aspects that impact on the patient's health are identified. The nursing diagnosis provides the basis for selecting nursing interventions to achieve good outcomes, for which the nurse is then accountable (Dennill et al 2010:156; Miller & Stoeckel 2015:10).

Likewise, in education this phase concerns the analysis and validation of gathered information about the health needs of the clients to plan meaningful health education (Maville & Huerta 2012:10; Stanhope & Lancaster 2010:310).

For the current study, a client's actual and potential problems will relate to their current treatment and possible complications of diabetes mellitus. These should be addressed in that client's health education.

2.4.2.3 Planning

This phase describes the planning of activities that can be done to assist the patient to meet their identified needs. Planning should be done to improve, maintain and restore health or prevent illness. The plan may consist of setting goals and objectives to achieve and prioritising the nursing actions or activities that address a specific patient's problem (Dennill et al 2010:164; Miller & Stoeckel 2015:11). This phase leads to the drawing up of a nursing care plan (Bastable 2014:14; Manyeli 2012:16; Nzimande 2014:101).

This phase of the education process include the planning of a teaching programme, the different topics, the teaching environment, the teaching methods and the teaching materials to be used (Stanhope & Lancaster 2010:311). Health education should be planned in a generic way for all clients diagnosed with diabetes mellitus; however, it

must be adapted to suit the specific needs of a client (Amod et al 2012:S13; Bastable 2014:14; Ndzimande 2014:102).The planning phase is explored in this study (Nurses, item C15-20 and Client items C13-16).

2.4.2.4 Nursing intervention or presentation of teaching sessions

A nursing intervention is any treatment or management based on the clinical judgments that a nurse makes to enhance patient outcomes. These interventions refer to the functional and nurse-initiated care of the patient (Miller & Stoeckel 2015:10).

In health education, this phase addresses the presentation of teaching sessions to meet the set objectives for education in general and the specifically identified knowledge needs of the client in line with accepted teaching principles. The instructional methods and media used forms part of the implementation of education (Bastable 2014:14; Maville & Huerta 2012:49; Stanhope & Lancaster 2010:313). The presentation of teaching sessions is explored in this study (Nurses, item D20-24; Clients, item 16-20).

2.4.2.5 Patient evaluation or knowledge and skills assessment

Evaluation is a process to determine the extent of accomplishment of the set objectives. Evaluation based on patient outcomes assumes that changes in the health status and behaviour of patients are the consequences of effective health care and management. Evaluation is an ongoing process and may result in revision of the nursing care plan (Bastable 2014:14; Dennill et al 2010:159; Miller & Stoeckel 2015:11).

The evaluation phase in this study addresses only one component of assessment, namely the effectiveness of the education provided to clients with diabetes mellitus during or directly after providing teaching session, thus whether clients understood the content of the teaching session (Nurses, item D21, Clients, item D17).

The following section presents the teaching and learning process as part of the nurse-client relationship component of the Client Education Model.

2.4.3 The domains of teaching and learning

According to Stanhope and Lancaster (2010:300), a variety of educational principles can be used to guide the selection of health information for individuals, families, communities and populations. The three domains of teaching and learning include:

2.4.3.1 The cognitive domain

This refers to grasping facts and content, which include intellectual activities such as memory, recognition, understanding, reasoning, application and problem-solving techniques (Bastable 2014:436-438; Kassner 2011:16; Stanhope & Lancaster 2010:310).

The nurses' choice of teaching methods and teaching media influence the cognitive understanding of content. By employing a variety of methods and material, the cognitive learning of clients will be addressed (Abbatt & McMahon 2010:80; Allender, Rector & Warner 2010:325).

2.4.3.2 The affective domain

This domain relates to clients' "feelings", which include changes in attitude and the development of values. For effective learning, nurses consider and attempt to influence what individuals feel and value concerning health. But because the attitudes and the values of nurses may differ from those of their clients, nurses are expected to listen carefully to detect clues of feelings that clients have that may influence their learning. It is difficult to change deeply rooted attitudes, beliefs, interests and values in some clients. This is why clients need support and encouragement from those around them to make changes and reinforce new behaviours, hence educating of family members is also very important (Bastable 2014:439-442; Falvo 2010:187; Stanhope & Lancaster 2010:30).

Changes in behaviour and attitudes take time. Nurses will be able to observe it over a period of time through continuous clinical judgment of the client's health status and the evaluation of the effectiveness of the health education programme. The affective domain per se was not addressed in this study.

2.4.3.3 The psychomotor domain

This domain refers to the performance of skills that requires some degree of neuromuscular coordination and emphasises motor skills (Stanhope & Lancaster 2010:301). The health education of clients diagnosed with diabetes mellitus include a number of psychomotor skills, namely to measure blood sugar levels, take tablets and administer injections according to the doctor's prescription. Bastable (2014:445) emphasises the importance of repeating such activities until they are performed with confidence and they become a habit.

2.4.4 The principles of teaching

According to Allender et al (2010:322), health education must also consider the principles of teaching that are presented below:

2.4.4.1 Client readiness

Before nurses educate clients diagnosed with diabetes mellitus, they must assess the clients' readiness to learn. This includes their physical readiness, for example health status, gender and the nature and complexity of tasks that may influence the ability to learn. Emotional readiness involves the reception of learning by the client and addresses issues such as motivation, support systems and developmental stage. Experiential readiness refers to assessing the clients' previous experience of learning, their cultural and educational background. Knowledge readiness includes the current knowledge level of the client, their learning styles and cognitive abilities This means nurses should consider presenting the lesson in simpler terms for clients with a lower level of education (Allender et al 2010:322; Bastable 1017:87-89; Maville & Huerta 2012:40).

2.4.4.2 Client perceptions

Perception helps people to interpret and attach meaning to things; therefore, it is viewed as an aspect which influences the learning of a client. Human perception is affected by several variables, including culture, values, level of education, past life experiences,

economic status, social forces and the physical environment where the client lives (Allender et al 2010:322; Manyeli 2012:16).

2.4.4.3 The education environment

The environment in which education takes place also has an influence on learning. The clients need a room where they can concentrate during a lecture and avoid distraction from noise. The acceptable environment should provide good ventilation, lighting and a good view of the speaker. The nurse must show respect to clients and the clients must be allowed to share ideas (Allender et al 2010:322; Falvo 2010:180).

Bastable (2017:89) states that the teaching environment for older persons is especially important. They need a quiet and non-rushed environment as too many stimuli can overwhelm them. Nurses must also pay attention to factors such as diminished eyesight and hearing. The data collection instruments will consider the nature of the environment used by nurses to conduct health education sessions (Nurses, item D24; Clients, item C13 &D20).

2.4.4.4 Client participation

Client participation is another factor that influences learning. The teaching method should allow and encourage participation of the clients (Allender et al 2010:322; Manyeli 2012:16). Bastable (2014:208) mentions that the active involvement of older persons will improve their self-esteem. Gaming, role play and demonstrations are said to be strategies that ensure active participation by the clients. The same author also describes how involving family members can benefit the client and the nurse.

This study will consider whether nurses use methods of teaching that may allow clients to be actively involved in the teaching and learning process (Nurses, item C18; Clients, item C14).

2.4.4.5 Relevance

Clients learn information that is important for solving their problems. In other words, they must feel the information will benefit them (Abbatt & McMahon 2010:80; Allender et al

2010:323). Coetzee (2016:275) says that to change health behaviour, people must perceive the new behaviour as fitting their needs. The data collection instruments consider whether nurses consult clients to determine their specific learning needs (Nurses item C14; Clients item C12)

2.4.5 Client as a learner

This section discusses the Client as a learner as the component presented in the Client Education Model and as understood by other authors. The client is considered to be an individual or a group of clients, a community, a family or a team of health care workers (Dennill et al 2010:156; Miller & Stoeckel 2011:20).

Falvo (2010:187), Miller and Stoeckel (2011:8) and Nzimande (2014:98) view an individual learner as a person – an adult, a child, a male or female – in need of health education. A group or community refers to a group of people in health facilities or public health units with a common need for health education.

In this study, the client as a learner is an individual and a group of clients who are diagnosed with diabetes mellitus and specifically attend the diabetes clinic at the specific hospital in Swaziland for their treatment of diabetes.

2.4.5.1 Client education outcomes

In the Client Education Model (Miller & Stoeckel 2011:9) client outcomes are influenced by the education process and will be evident in the formative and summative evaluation of all components of teaching and learning. As explained this are not part of this study. Future research may focus on evaluating the integration of learning into the daily lives of clients (Abbatt & McMahon 2010:83; Stanhope & Lancaster 2010:313).

2.5 SUMMARY

This chapter presented the literature on health education, specifically, the education of clients with diabetes mellitus. Diabetes mellitus as a condition was presented along with the Client Education Model, as illustrated in Figure 2.1, which will be used as a frame work for this study of health education provided to clients diagnosed with diabetes

mellitus. The assumptions that underpin the Client Education Model, and their relevance to the study were also presented. The components of the Nurse-Client relationship, namely the Nurse as educator, the Client as learner and the Education process (consisting of the teaching and learning processes) were described.

The following chapter will give a detailed description of the methodology of the study.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

In this chapter the research design and methods used in the study are described. The study site, the population, the sample and sampling techniques, the instruments used to collect data, the process of data collection and the statistical procedures used to analyse data are presented. Finally, ethical principles considered by the researcher are explained.

3.2 RESEARCH DESIGN

A research design is defined by Burns and Grove (2012:49) as a plan of how the researcher intends to conduct a study. The researcher of this study selected a non-experimental descriptive design. A non-experimental design allows aspects of a situation to be studied as it naturally occurs. A descriptive design also allows for a cross-sectional focus, that is the collection of data at one point in time (Polit & Beck 2013:51). Furthermore, a quantitative research approach was decided upon because such an approach is a formal, objective and systematic process in which numerical data are used to obtain information about the world (Babbie & Mouton 2011:646; Burns & Grove 2012:34).

The aim of the study is to investigate and describe the practice of health education provided to clients with diabetes mellitus by nurses working in the diabetes clinic of a hospital in Swaziland – was therefore best suited by a quantitative, descriptive, cross-sectional design. The researcher did not introduce any intervention or change the variables under study, but the health education, as provided by nurses and as experienced by clients, was studied and described.

The following discussion will present the quantitative research methods that were used.

3.3 RESEARCH METHODS

3.3.1 Research population

The two populations identified for this study were nurses practising in the diabetes clinics of the hospitals of Swaziland and clients who have been diagnosed with diabetes mellitus and visit the diabetes clinics in the hospitals of Swaziland for their health care services. From them the accessible populations had to be selected. In other words; those individuals who were available for the study had to be selected. (Babbie & Mouton 2011:174; Burns & Grove 2009:51). The selection was made as follows:

- **Nurses population**

The target population of nurses was those nurses working in all the diabetes clinics in the Hhohho region of Swaziland. The accessible population was all the nurses working at the diabetes clinic of the specific hospital where the study was conducted. The total number of the accessible nurses was 20.

- **Clients population**

The target population was all the clients who visit the diabetes clinics in the Hhohho region of Swaziland. However, the accessible population was the clients who visit the diabetes clinic of the specific hospital in Swaziland whose names are in the diabetes mellitus register. The total number of the accessible clients was 200.

3.3.1.1 Sampling

Sampling is the process of selecting a portion of the entire population being studied (Burns & Grove 2012:51). What follows is a description of the methods used for selecting the sample.

3.3.1.2 Sampling technique and sample size

Sampling technique specifies how the final study respondents were selected from the accessible population (Babbie & Mouton 2011:168; Burns & Grove 2012:51; Polit &

Beck 2013:337). The sample size is the number of respondents selected to participate in the study (Polit & Beck 2013:765). According to Polit and Beck (2013:485), there is neither consensus among experts nor rules for determining the size of samples. However, some researchers recommend a large sample size, while others have suggested specific percentages and numbers (De Vos 2011:225; Gay 2011:30).

- **Nurses sample**

As the total number of nurses working in the diabetes clinic was 20, no sampling was done. This is known as a census or complete count, meaning every unit in the accessible population was used in the study (Australian Bureau of Statistics 2013).

The nurses had to meet the following criteria to be included in the sample:

- Have experience of working at the diabetes clinic for more than one year
- Be a registered nurse
- Be willing to participate in the study

- **Clients sample**

Following the guidance of the statistician, the clients' sample size was calculated using the RAOSOFT calculator. The target population of 200 clients a sample size of 132 clients was determined, keeping the confidence level as 95% and keeping the margin of error as 5% (RAOSOFT 2014).

The original intention was to use a probability simple random sampling technique in order to select respondents from the target population of clients, but it was observed that clients do not keep their appointment dates, thus after a discussion with the statistician a non-probability sampling was agreed upon. Convenience sampling was conducted to select from the available clients who would be willing to participate in the study (Burns & Grove 2012:350; Polit & Beck 2013:750).

In this study, the researcher requested clients who were available during each of the clinic days to voluntarily participate in the study. The clients in the waiting area were briefed on the purpose of the research. The informed consent processes were

explained to those who volunteered to participate and they signed the consent. Respondents were selected until the sample size of N132 clients was achieved (Burns & Grove 2012:350).

The inclusion criteria for clients included:

- Being diagnosed and treated for diabetes mellitus
- Being 18 years or older
- Being able to understand what the study is about in order to give informed consent

3.3.1.3 Ethical issues related to sampling

The ethical issues that were considered were informed consent, benefits, potential harm and self-determination.

An information sheet was developed for each category of respondents, along with a consent form that explained all the information about the study and what respondents could expect. This information sheet would be given to potential respondents before they would volunteer to sign the consent form and participate in the study.

Informed consent means that the respondent has enough information regarding the study to help them decide whether to participate in the study or not (Babbie & Mouton 2011:521; Polit & Beck 2013:176). The consent form was given to volunteer respondents to sign before they were asked to complete the questionnaires (see Annexure 3 for the informed consent forms).

Two important aspects of ethical research pertain to the benefits and potential harm to respondents. A benefit refers to what the respondent would gain after participating in a study and harm refers to any injury of any form (physically and psychologically) that may be inflicted on the respondent because of participating in the study (Babbie & Mouton 2011:522; Creswell 2009:89).

The information sheet that was provided informed respondents that they would not benefit in the sense of receiving an incentive for participation, rather they would benefit

from possible changes to health education practices. Completing a questionnaire with no sensitive content meant that respondents would not be exposed to harm.

Self-determination means that the respondent has a right to voluntary participation in the study, a right to ask questions and have them answered and a right to withdraw from a study (Babbie & Mouton 2011:521; Polit & Beck 2013:171).

The information sheet for respondents covered the purpose of the study, the procedures that would be used to collect data and the fact that there was no potential risk or costs involved. Respondents ‘rights to decline to participate and to withdraw from participating at any time without penalty was explained. They were also informed that their health care services at the clinic will not be influenced by their decisions.

3.3.2 Data collection

Data collection is the formal procedure used by researchers to gather information from respondents (Polit & Beck 2013:23). The following section discusses the methods and instruments used to collect data.

3.3.2.1 Data collection approach and method

The researcher’s approach to data collection for this study was a self-report, which is a method of collecting data that involves a report of information by the person who is being studied (Polit & Beck 2013:766). A data collection instrument is a device used to collect data (Babbie & Mouton 2011:102; Henning et al 2011:102; Polit & Beck 2013:179). A questionnaire was chosen for several reasons: quick distribution and collection of completed questionnaires, the fact that it requires less time and energy to administer as the researcher would be able to do it without assistance and the fact that a high response rate could be achieved (Polit & Beck 2013:179).

3.3.2.2 Development of the questionnaires

A questionnaire should be constructed and laid out in such a way that it does not lead respondents to miss questions or confuse them about the nature of the desired data (Babbie & Mouton 2011:238). Two questionnaires were developed on the basis of the

Client Education Model (Miller & Stoeckel 2011:6) and other literature (as described in Chapter 2) and with the input from the study supervisor and a statistician.

Both questionnaires consist mostly of closed-ended questions, where the respondents have options to choose from. Closed-ended questions are more efficient in the sense that a respondent is able to complete more closed-ended items than open-ended items in a given period of time (Polit & Beck 2013:414). A few open-ended questions are also included, requiring respondents to express their opinions. These also allow respondents to expand on answers, using their own words and providing more details.

3.3.2.3 Characteristics of the data collection instruments

The two questionnaires contain group-specific information, for example, the nurses questionnaire includes questions on the didactics of health education, while the one for clients includes questions regarding their diabetes mellitus health history (Babbie & Mouton 2011:233; Polit & Beck 2013:425).

The questionnaire for nurses included the following sections:

- **Section A: Biographic data**

The questions on biographic data were aimed at gaining information on the nurses' civil status and their work experience at the diabetes clinic in this specific hospital.

- **Section B: Health care services for clients diagnosed with diabetes mellitus**

The purpose of this section was to determine if nurses were providing the information to clients, according to any standard or guideline on health education available at the diabetes clinic.

- **Section C: The educational process**

Questions on the education process were included to determine if nurses follow the principles in the planning of health education.

- **Section D: The teaching and learning process**

Questions on teaching and learning, the educational environment, the topics covered during sessions and the evaluation of clients' understanding were formulated to assess whether these factors are considered by nurses during health education sessions (see Annexure 4 for a copy of the nurses questionnaire).

The questionnaire for clients consisted of the following questions:

- **Section A: Biographic data**

Questions on biographic data assessed gender, age and level of education. The information would assist the researcher in establishing whether there was a relationship between the age and educational level clients and their understanding of the disease and the importance of its management.

- **Section B: History of diabetes mellitus**

Questions on clients' health history with regard to diabetes mellitus assessed the type of diabetes, the duration of the illness, the medication used, the frequency with which medication is collected from the clinic. The answers to these questions would help the researcher determine the clients' opportunities to be exposed to health education.

- **Section C: The educational process**

Questions were posed regarding the health education on diabetes mellitus that clients have received. The questions assessed clients' knowledge of diabetes mellitus as a disease, whether they received information at the clinic or not, what the frequency of education sessions were, who the people were who provide the education at the clinic, what the environment where education take place was like and what teaching methods and teaching aids were used. All these questions were formulated so that the findings might show how health education on diabetes mellitus is conducted at the clinic.

- **Section D: The teaching and learning process**

This section posed questions about the topics that were covered by nurses during education sessions over the previous two months, including how to take medication (tablet, injection or both), how to care for feet, how to exercise, how to take care of the mouth, how to plan meals, what the bad effects of diabetes are and what to do when blood sugar levels are low. Section D also posed a question to evaluate clients' understanding of education sessions. Other questions in this section addressed the environment where the sessions were conducted to determine if the area allowed clients to hear properly (see Annexure 5 for a copy of the client questionnaire).

Completion of both questionnaires was pretested with five nurses and five clients at another hospital in the Hhohho region of Swaziland on 15 September 2015. Problems regarding the numbering sequence were identified and corrected before data collection at the site commenced (Mouton 2011:244; Polit & Beck 2013:763).

3.3.2.4 Data collection process

Data were collected during the period of 1 to 30 October 2015. The following section describes the process of data collection.

- **Nurse respondents**

Questionnaires were personally distributed by the researcher to nurses who work at the diabetes clinic of the specific hospital in Swaziland. The researcher requested permission to start data collection from the person in charge of the department, using the permission letter issued by the hospital authorities. The nurses who volunteered to participate in the study signed consent forms and were requested to complete the questionnaires at their duty stations after their shifts ended. This was to ensure that the normal operation of the clinic was not disrupted. The researcher was available to answer any question as the nurses completed the questionnaires. The researcher checked the questionnaires for completeness before they were collected (Boswell & Canon 2011:218-219; Burns & Grove 2012:23).

- **Client respondents**

Clients with diabetes mellitus, who volunteered and consented to participate in the study, were requested to complete the questionnaires after consultation with the doctors for their medication refills. The completion of the questionnaires were done in a corner of the queuing area; was prepared with a desk and chairs where the respondent and the researcher could be seated. The delivery of health services were not interrupted at all.

Both sets of completed questionnaires were kept in envelopes that were locked in a filing cabinet for privacy and confidentiality (Polit & Beck 2013:66).

3.3.2.5 Ethical consideration related to data collection

The following ethical considerations pertains to data collection and was considered by the researcher: the right of the institution, anonymity and confidentiality:

- **Right of the institution**

Ethics dictate that the researcher must get permission to conduct a study in a particular site from the relevant institution before the study is conducted (Polit & Beck 2013:184). In an ethical clearance certificate for the research was obtained from the Research Ethics Committee of the Department of Health Studies of UNISA (see Annexure 1), written permission to conduct the research was obtained from the Swaziland Health Research Committee (see Annexure 2) and from the administration of the hospital where the research would be conducted (see Annexure 3).

- **Anonymity**

Ensuring anonymity means making sure that the researcher cannot link individual respondents to individual responses (Babbie & Mouton 2011:523; Creswell 2009:89).In this study anonymity was ensured by not disclosing the respondents' names on the questionnaires or research reports and detaching the written consent forms from the questionnaires. No identifying information was entered onto the questionnaires and they were only numbered after data was collected.

- **Confidentiality**

Confidentiality means that the information provided by respondents was not going to be reported in a way which identifies them (Creswell 2009:89; Polit & Beck 2013:180). Confidentiality was further maintained by keeping the completed questionnaires in a lockable cabinet at the researcher's office which could only be accessed by the researcher, for the duration of the analysis, the statistician had access to the questionnaires.

3.3.3 Data analysis

Data analysis is defined as the systematic organisation and synthesis of research data (Polit & Beck 2013:214).

After the data was collected the researcher cleaned the data and coded it to facilitate the entry of data (Babbie & Mouton 2011:417). The quantitative data were organised and analysed by the statistician using a computer programme called Statistical Package for Social Science (SPSS) version 22.

Descriptive statistics were performed to describe and synthesise the quantitative data (Polit & Beck 2013:556).

Frequencies for all responses of both groups (nurses and clients) were identified and data were then presented in tables, cross-tabulations and graphics (Babbie & Mouton 2012:417; Polit & Beck 2013:517). Responses from both groups were compared in graphics form to determine similarities and differences among the nurses' and clients' information. The comparison was done for aspects such as the provision of health education sessions, descriptions of the teaching environment, the teaching methods used, the teaching media used, the topics covered and the evaluation of education sessions.

During the data analysis it was found that the nurse respondents did not follow the instructions given with items C15-17. This threatened the validity of the findings and the data was excluded from the report.

3.4 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY

Validity concerns the truth about the study (Polit & Beck 2013:286). The researcher aimed to ensure both the internal and external validity of the study.

3.4.1 Internal validity

A study's internal validity refers to the extent to which the truth found does not depend on extraneous variables (Babbie & Mouton 2011:217; Polit & Beck 2013:295). In this study, internal validity was ensured in the following ways:

The informed consent and information provided on the questionnaires addressed the issues of anonymity – that identifying individual respondents was not required. The respondents could respond freely without fear of victimisation (Creswell 2009:230).

The respondents in each group had similar characteristics. Clients were all adults who were diagnosed with diabetes mellitus and nurses were those who were working at the diabetes clinic. This helped the researcher to get information from people with similar experiences and prevented selection bias (Creswell 2009:160).

Two different groups of respondents, namely nurses and clients were used to collect data on the practice of health education at the diabetes clinic of this hospital and validating the information from the two sets of respondents strengthen the truth of information collected (Polit & Beck 2013:768).

Data were collected within four weeks, a short period of time to avoid the risk of maturation, which could occur if the data collection took long (Polit & Beck 2013:296).

Most items in the questionnaire were closed-ended, which made it easy to analyse the responses. There was less opportunity for bias as the questionnaires were distributed to respondents at the same time during each day of data collection and they could not discuss the questionnaire with each other (Babbie & Mouton 2011:233; Polit & Beck 2013:415).

Scientific honesty, which regarded as very important ethical responsibility when conducting research, was also observed as part of this study. Dishonest conduct includes manipulation of designs and methods and manipulation of responses as well as fabrication of data (Babbie & Mouton 2011:531). The researcher avoided any form of dishonesty by recording the findings of the study truthfully and by acknowledging the sources of information in the literature review and discussion of findings. The statistician produced the results independently of the researcher to avoid subjective collaboration.

3.4.2 External validity

External validity refers to the generalisation of findings with respect to other settings or samples (Burns & Grove 2012:219; Polit & Beck 2013:287). When conducting descriptive research, control is exercised by applying the principles of external validity (Polit & Beck 2013:302). In this study, the researcher ensured external validity in the following ways:

The study was conducted in a natural setting, which did not disturb the routine life events of respondents, thus the study findings may be generalised to those who are in similar settings (Polit & Beck 2013:301). Furthermore, the sample size of clients was 66% of the total number of the accessible population of clients and 100% of that of nurses. These figures were considered by the researcher and statistician as big enough to generalise the findings in the Hhohho region of Swaziland (Polit & Beck 2013:308).

Using a valid data collection instrument enhances the general validity of the study; the measures to ensure the validity of the two questionnaires used in the study were described in section 3.3.2.3.

3.5 CONCLUSION

This chapter discussed the reasons for choosing a quantitative descriptive cross sectional study design to evaluate the health education provided to clients with diabetes mellitus in a specific hospital of Swaziland.

The following chapter will describe the data analysis and the findings of the study.

CHAPTER 4

ANALYSIS, PRESENTATION AND INTERPRETATION OF THE DATA

4.1 INTRODUCTION

This chapter presents the data and findings of a quantitative study to describe the health education provided by nurses to clients diagnosed with diabetes mellitus in a diabetes clinic at one of the hospitals in Swaziland.

Data was collected using two structured questionnaires: one for nurses and one for clients as described in Chapter 3. The nurses questionnaire includes Section A: Biographic data, B: Health care services for patients diagnosed with diabetes mellitus, Section C: The educational process and D: The teaching and learning process. The clients questionnaire consists of section A: The Biographic data, B: History of diabetes mellitus, C: The educational process and D: The teaching and learning process.

The total number of 20 (N=20) nurses working in the diabetes clinic responded to the questionnaire, while a sample of 132 (N=132) clients from the 200 on the diabetes register participated in the study.

The Client Education Model presented in Chapter 2 (Figure 2.1) served as a framework for the presentation of the data. Data and findings in this chapter are presented as follows:

- The nurse as an educator
- The client as a learner
- The nurse/client relationship as evident in the education process, namely teaching and learning

4.2 NURSE AS EDUCATOR

The findings show that 14 of the sample of 20 nurses were females and 6 were males (Nurses, Item A1). This section describes these nurses' working experience and

the health care services they provide in the diabetes clinic of the hospital.

4.2.1 Working experience of nurses (Nurses, item A2)

The years of working experience in the diabetes clinic is shown in Table 4.1 below.

Table 4.1 Working experience of nurses by years (N=20)

Working experience of nurses by years					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1-2 years	9	45%	45%	45%
	3-4 years	9	45%	45%	90%
	5-6 years	0	0	0	0
	7-8 years	2	10%	10%	10%
	Above 8 years	0	0	0	0
	Total	**20**	**100%**	**100%**	**100%**

Table 4.1 reveals that 45% of nurses have worked at the diabetes clinic for a period of 1-2 years, 45% have worked for 3-4 years, and 10% have worked for 7-8 years. Booyens (2011:200) explains that at least two years of experience in a specific work situation is necessary to ensure effective competent service. The researcher therefore reasoned by that in addition to the knowledge nurses' had acquired from their nursing training, they have also had plenty opportunities for practicing health education at the diabetes clinic. The client education activity is one of the roles of a practicing nurse expected in Swaziland and internationally (Bastable 2014:15; Muma & Lyons 2012:3; SNC 2010:12).

4.2.2 Frequency of diabetes clinic services per week (Nurses, item B3)

The respondents were asked how often diabetes mellitus services were provided per week. The findings showed that the frequency of clinic services offered was two times a week as indicated by all 100% (N=20) respondents.

4.2.3 Frequency of diabetes clinic visits by well controlled clients (Nurses, item B4)

The findings on the frequency of clinic visits by well controlled clients with diabetes are shown in Figure 4.1 below.

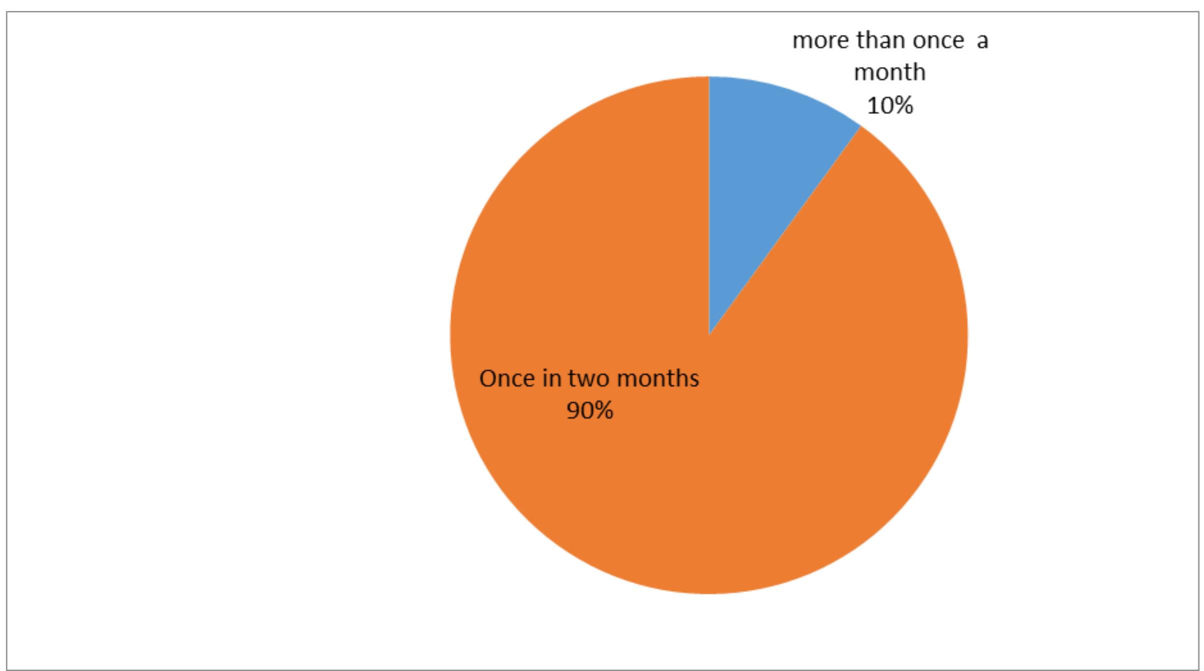

Figure 4.1 Frequency of diabetes clinic visits by well controlled clients (N=20)

The findings in Figure 4.1 show that 90% of respondents reported that clients with well controlled diabetes returned to the clinic once in two months. The frequency of clinic services offered was important to the study to identify opportunities of health education to clients with diabetes, as suggested by other authors (Bastable 2014:120; Brunner & Suddarth 2013:1378).

4.2.4 Awareness of health education guiding documents (Nurses, items B5, B6, B7, B8, B9, B10)

Respondents were asked if they were aware of diabetes mellitus health education guiding documents on different levels of health provision. Their responses are shown in the series of tables labelled Table 4.2.

Table 4.2 Awareness of health education guiding documents by nurses (N=20)

Awareness of national legislation and policy (Item B5)

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	0	0	0	0
No	20	100%	100%	100%

List those documents (Item B6)

	Frequency	Percent	Valid Percent	Cumulative Percent
Nil	20	100%	100%	100%

Awareness of hospital policy or procedure (Item B7)

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	0	0	0	0
No	20	100%	100%	100%

List those documents (Item B8)

	Frequency	Percent	Valid Percent	Cumulative Percent
Nil	20	100%	100%	100%

Awareness of health education policy or programme in clinic (Item B9)

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1	5	5	5
No	19	95%	95%	95%
Total	**20**	**100%**	**100%**	**100%**

Description of the policy or programme available at clinic (Item B 10)

	Frequency	Percent	Valid Percent	Cumulative Percent
No description	20	100%	100%	100%

The findings in Table 4.2 show that 100% of nurses were not aware of documents or policies that guide health education of clients with diabetes on national or hospital level. Only one nurse reported awareness of a clinic policy document that guides the practice of diabetes mellitus health education. This one respondent did not describe the document.

The researcher searched for documentation and could identified the guideline in the Swaziland National Standard Treatment Guidelines (SMOH 2012:62) in which the treatment and health education of diabetes mellitus is highlighted. However, the document does specify the topics and processes of health education in particular. The researcher could not identify guiding documents on health education of clients with diabetes mellitus at hospital or diabetes clinic level.

Other literature describes how health education should be presented in general (Miller & Stoeckel 2011:6; Muma & Lyons 2012:338–340). Medical and nursing textbooks describe specific health education for diabetes mellitus and indicate what important topics should be included (Brunner & Suddarth 2013:1; Manyeli 2012:6).

These sources can be used by the nurse to guide the planning of generic health education for clients with diabetes mellitus.

4.3 CLIENTS AS LEARNERS

This section presents the characteristics of the clients. Age, gender, marital status and educational level were seen as important variables to be considered by nurses when they plan health education of clients on the level of the clients. The profile of the clients is also described in terms of their history and treatment of diabetes mellitus.

4.3.1 Age and gender of clients (Clients, items A1, A3)

Clients were asked to give their gender and their ages, which are presented in Table 4.3 below:

Table 4.3 Age and gender of the clients (N=132)

	Age	Respondents		Gender			
				F		M	
Ranges of age and gender	Between 20-30 years	0	0	0	0	0	0
	Between 31-40 years	5	4%	2	3%	3	6%
	Between 41-50 years	25	19%	18	22%	7	14%
	Between 51-60 years	41	31%	33	40%	8	16%
	Above 60 years	61	46%	29	35%	32	64%
	Total	**132**	**100%**	**82**	**100%**	**50**	**100%**

Table 4.3 shows that 46% of clients were above 60 years of age. With regard to gender in this age group, 35% were female (F) and 64% were male (M). These findings indicate the need for health education, presented in a simple way, that can be understood by older persons. It also indicates the need to involve a family member in the education since men, especially the elderly, may have challenges in self-management (Dennill et al 2010:158; Stanhope & Lancaster 2010:305). In planning and presenting health education to older persons, the nurse must consider and, where necessary, compensate for visual challenges, hearing loss, decreased short-term memory, dependency on family members and inability to cope with lifestyle changes (Bastable 2017:140-148; Muma & Lyons 2012:8).

4.3.2 Marital status of clients (Clients, item A2)

The findings on marital status are shown in Figure 4.2 below.

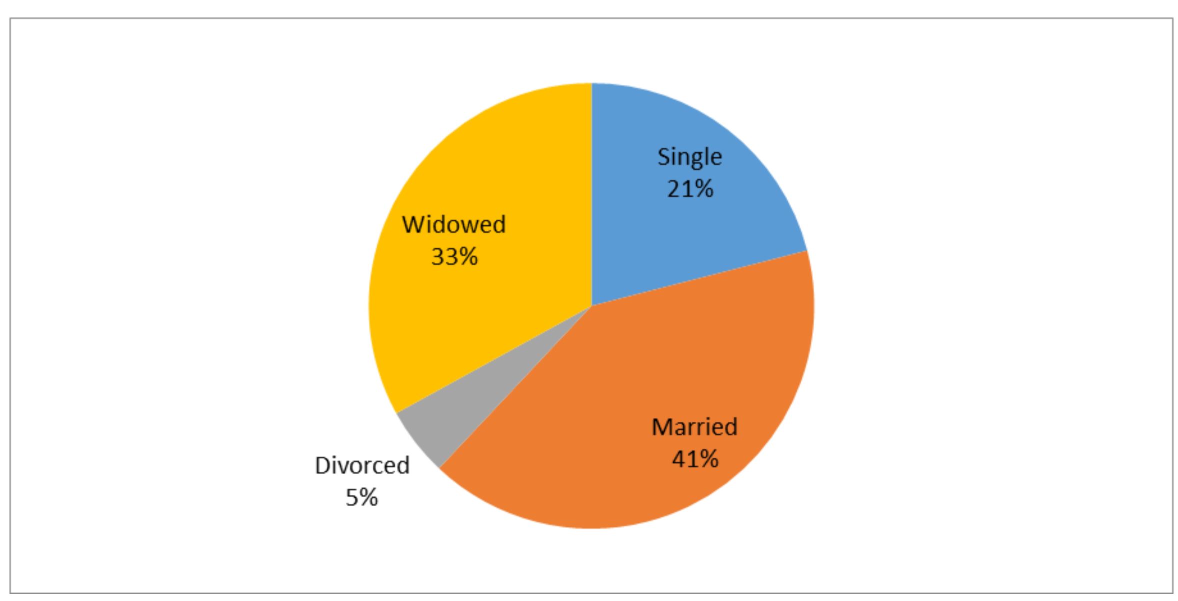

Figure 4.2 Marital status of clients (N=132)

Figure 4.2 shows that 41% of clients were married, while 59% of clients were not married; they were either divorced, widowed or single. The single clients are of major concern to this study because they may lack support at home and would therefore require nurses to pay more attention to them in terms of health education. Clients' marital status is important in the study because diabetes mellitus is one of the chronic conditions that requires social support to comply with the changed activities of daily living at home (Bastable 2017:328; Brunner & Suddarth 2013:1377; Karakurt & Kaşikçi 2012:170).

4.3.3 Level of education of clients (Clients, item A4)

Figure 4.3 below shows the level of education of clients.

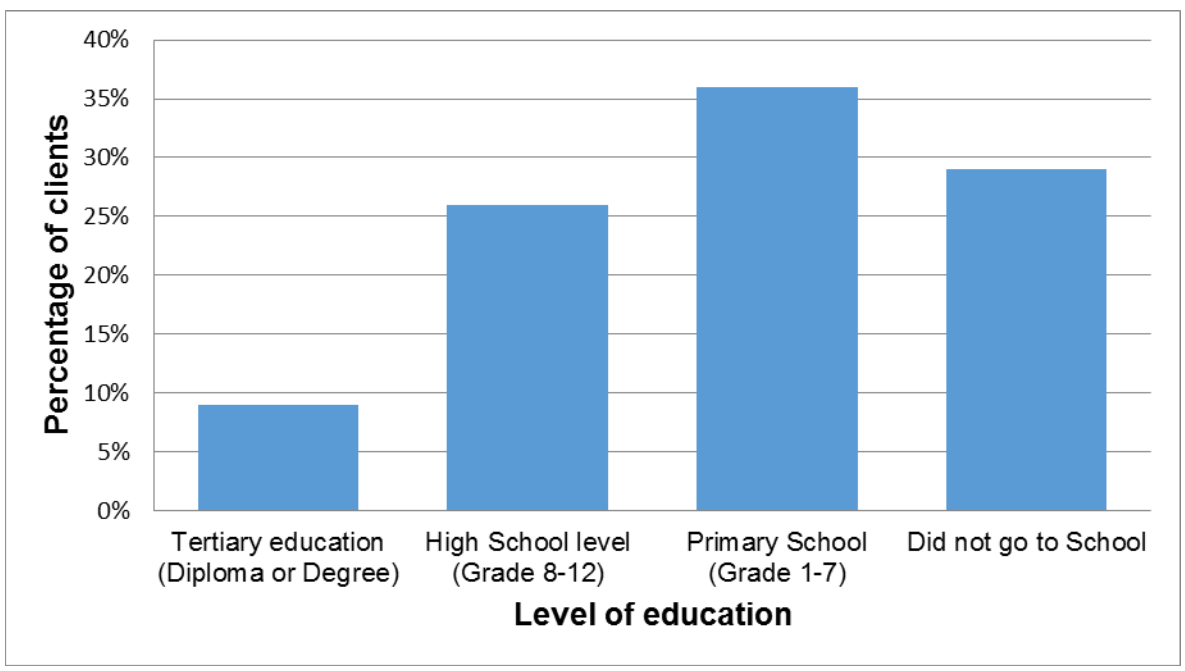

Figure 4.3 The level of education of clients (N=132)

The level of education presented in Figure 4.3 shows that 65% of clients had a low level of education – either no education, 29%, or education up to primary school level 36%. Clients' level of education is important to the study because nurses must consider it when planning for client education. The health education needs to be presented simply to accommodate those with a lower level of education and to ensure that they understand (Allender et al 2010:322; Bastable 2014:22; Nzimande 2014:102).

4.3.4 Type of diabetes mellitus affecting clients (Clients, Item B5)

The questionnaire also required clients to indicate the type of diabetes mellitus they were diagnosed with. The findings are shown in Figure 4.4.

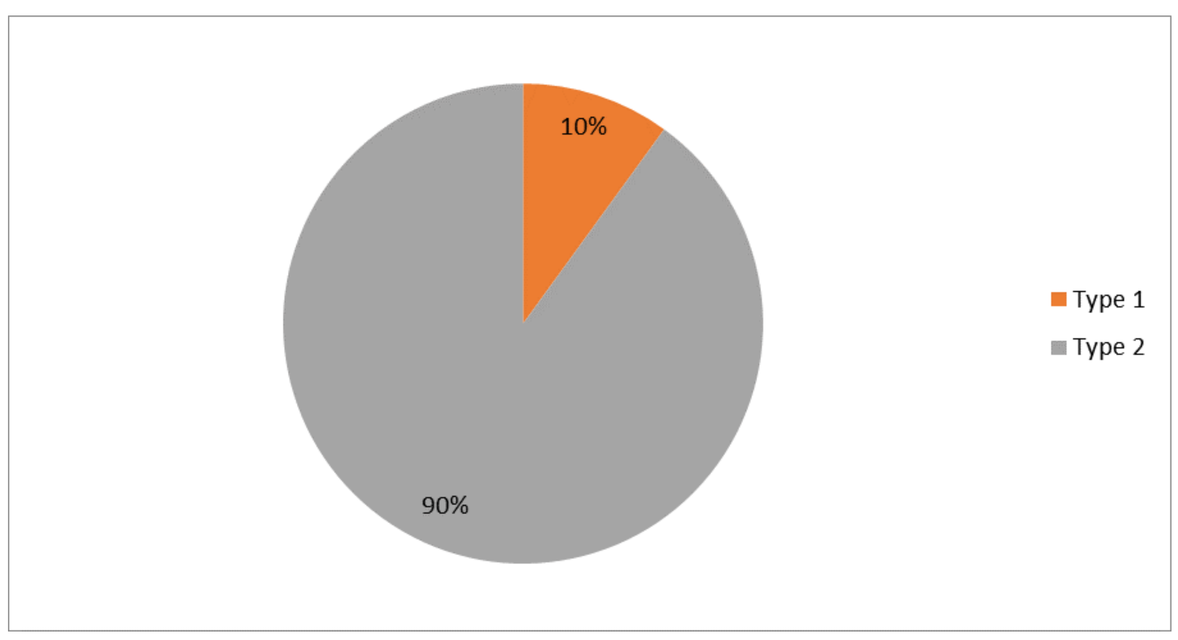

Figure 4.4 Type of diabetes mellitus affecting clients (N=132)

Figure 4.4 shows that 90% of the clients had type 2 diabetes mellitus, while only 10% had type 1. There were no pregnancy induced diabetes reported. Literature indicates that type 2 diabetes mellitus increases with aging because of the physiological degenerative changes in the body systems that occur with aging processes (Brunner & Suddarth 2013:1378). The findings also correlate with the older age of respondents (see section 4.3.1). The type of diabetes mellitus affecting clients is important in the study because the health education provided to clients with type 1 differs from that provided to clients with type 2 in the sense that different aspects must be emphasised. For example, people with type 2 diabetes mellitus should reduce their intake of carbohydrates, while people with type 1 diabetes mellitus should not (Brunner & Suddarth 2013:1424).

4.3.5 Duration of treatment (Clients, item B6)

Clients were asked how long they had been on treatment for diabetes mellitus. The graph below shows the duration of clients' treatment.

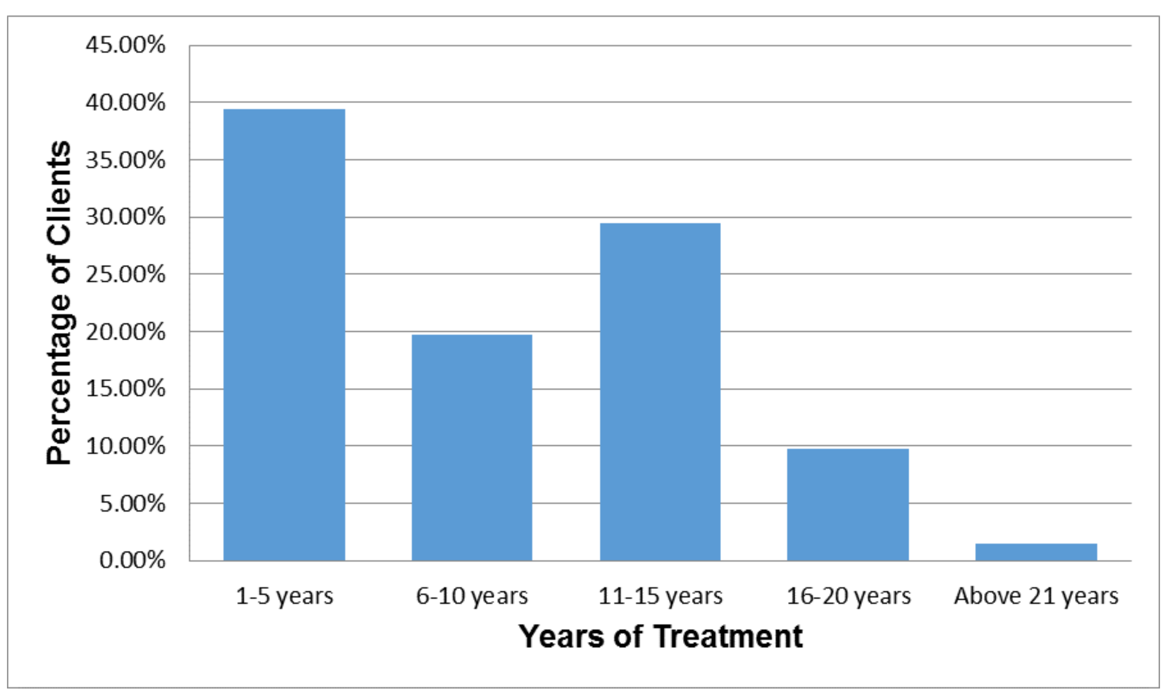

Figure 4.5 The duration of treatment for diabetes (N=132)

Figure 4.5 indicates that the majority of clients, 39.4%, had been undergoing treatment for a period of 1-5 years. The duration of clients' treatment is significant in the study because nurses have to consider the potential for complications as these are more easily preventable in the first five years after diagnosis. The ideal would be to make sure that newly diagnosed clients know how to manage the disease as soon as they are diagnosed, to prevent complications such as increased risk of heart attack, neuropathy, retinopathy and kidney failure (Brunner & Suddarth 2013:1378; Manyeli 2012:22; WHO 2017). Being aware that most clients are relatively newly diagnosed, may influence the health education nurses choose to give.

4.3.6 Type of medication used by clients (Clients, item B7)

The results shown in Figure 4.6 below indicate the type of medication used by clients for their management of diabetes.

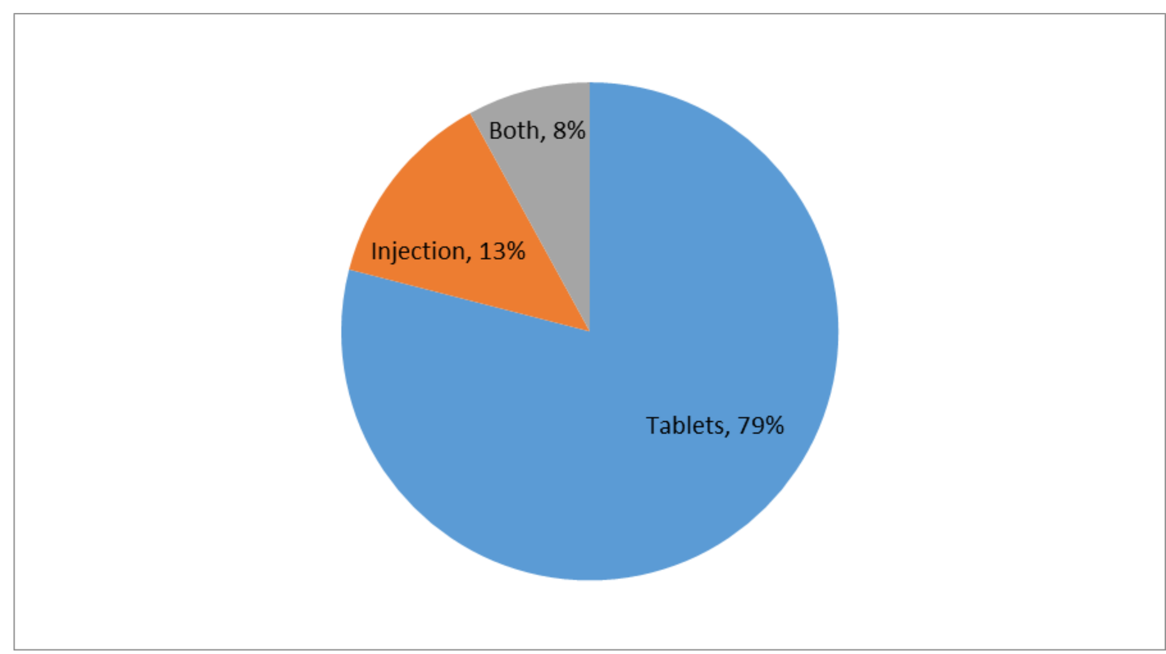

Figure 4.6 Type of medication used by clients (N=132)

Figure 4.6 indicates that most clients, 79% took only tablets as their medical treatment, while 21% took insulin. Of these 13% use insulin injections only and 8% use a combination of insulin injection and tablets. It is important that nurses know the type of medication to explain to clients how to take it to maximise the effect.

4.3.7 Frequency of client visits to the clinic (Clients, item B8)

The regularity with which clients visit the diabetes clinic is shown in Figure 4.7 below.

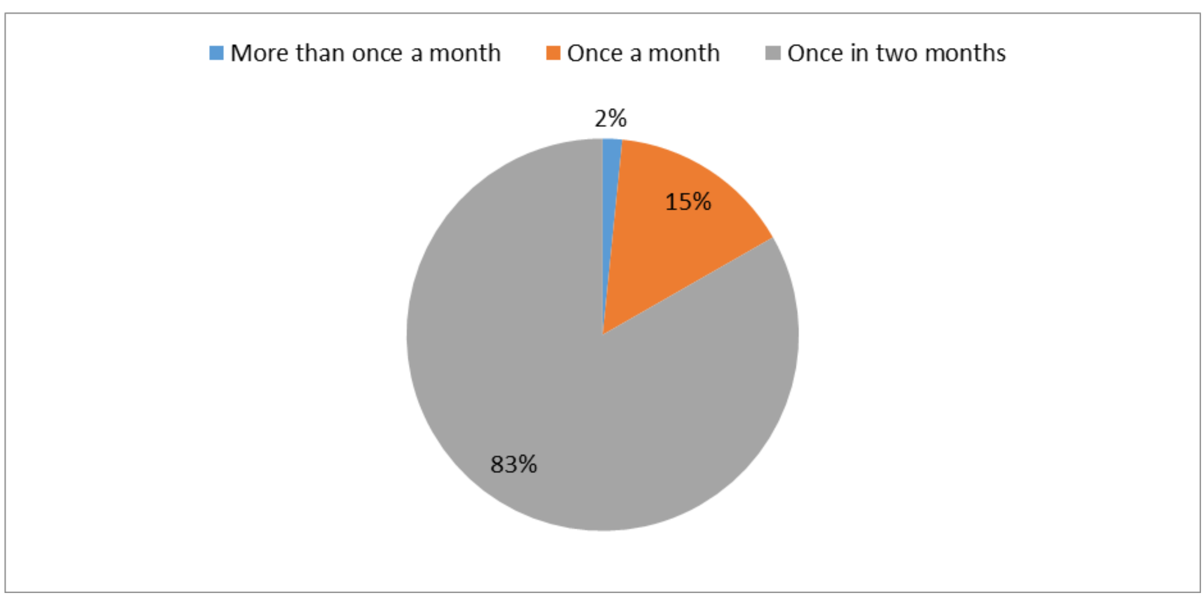

Figure 4.7 Frequency of client visits to the clinic (N=132)

Figure 4.7 reveals that most clients came to the diabetes clinic once in two months; this was reported by 83% of clients; 15% reported that they attended the clinic once a month and 2% reported that they came to the diabetes clinic more than once in a month. This information corresponds with the information from the nurses (see section 4.2.3).

4.4 EDUCATION PROCESSES

The findings in this section present the processes of health education on diabetes mellitus at the diabetes clinic as reported by the nurses, giving the health education, and the clients, receiving health education.

Respondents were asked if they give health education on diabetes mellitus (Nurses, item C11) and if they receive health education on diabetes mellitus (Clients, item C9). All nurses (N=20) and clients (N=132) responded yes.

4.4.1 Categories of health workers involved in health education (Nurses, item C12; Clients, item C10)

Both groups of respondents were asked to indicate who presented health education to the clients at the clinic. All nurse respondents, 100% indicated that the health education on diabetes was presented by the nurses and 98% of clients indicated that health education was presented by the nurses. The remaining 2% of clients reported that the doctor provided health education. These findings show the important role of the nurse to empower clients with knowledge on diabetes mellitus to manage their self-care as confirmed in literature (Bastable 2017:12, 80; Muma & Lyons 2012:3).

4.4.2 Frequency of health education provided (Nurses, item C13; Clients, item C11)

The nurses had to indicate how often they provided health education to clients and the clients were requested to indicate how often they received health education. Their responses are shown in Figure 4.8 below.

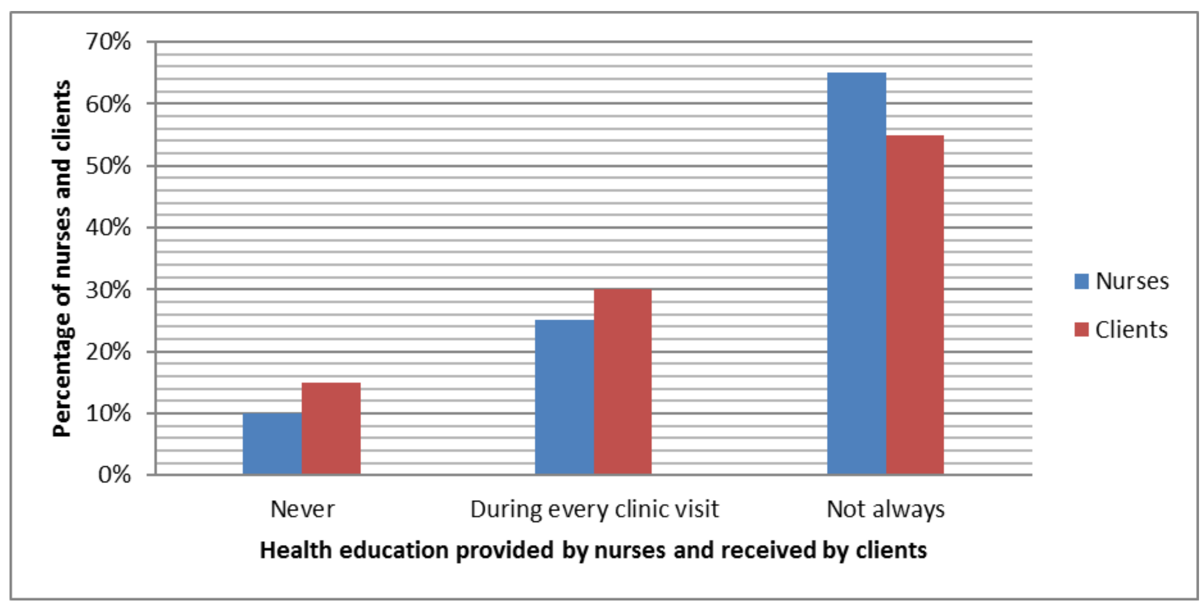

Figure 4.8 Provision of health education by nurses (N=20) and receiving of health education by clients (N=132)

The figure above shows that 10% of nurses reported that they never provided health education to clients, 25% indicated that they provided health education during every client visit to the clinic and 65% reported that they did not always provide health education to clients. One of the two nurses who had never provided health education reported that it was due to the heavy workload and the other nurse did not give reasons for not educating the clients.

As far as clients receiving education is concerned, 15% of them reported that they had never received health education, 30% indicated they had received health education during every clinic visit and 55% said they received health education sometimes but not always.

These findings confirm those of White, Wolff, Cavanacigh and Rothham (2010:216) who found in their study that clients with diabetes are provided with limited or no education at all.

4.4.3 Consideration of the learning needs of clients (Nurses, item C14; Clients, item C12)

Nurses were asked to consider how they determine the learning needs of clients and clients were asked how nurses knew what to teach them. The responses of both nurses and clients are shown in the table and figure below.

Table 4.4 Consideration of learning needs of the clients by nurses (N20)

Learning needs	Number	Percentage (%)
Follow a pre-planned schedule	1	5%
Ask clients what they want to be educated	3	15%
Follow a clients' health record	16	80%
Concur with the medical doctor	0	0%
Let the client complete a needs assessment	0	0%
Total respondents	**20**	**100%**

The questionnaire for nurses allowed respondents to choose more than one option. However, none of the nurses indicated more than one option. Table 4.4 shows that 15% of nurses asked clients about their learning needs, while 80% of nurses looked at clients' health records to identify their learning needs. One nurse indicated that a pre-planned scheduled was followed. Knowing the specific learning needs of clients guides the nurse to plan appropriate health education sessions (Allender et al 2010:325; Bastable 2017:82).

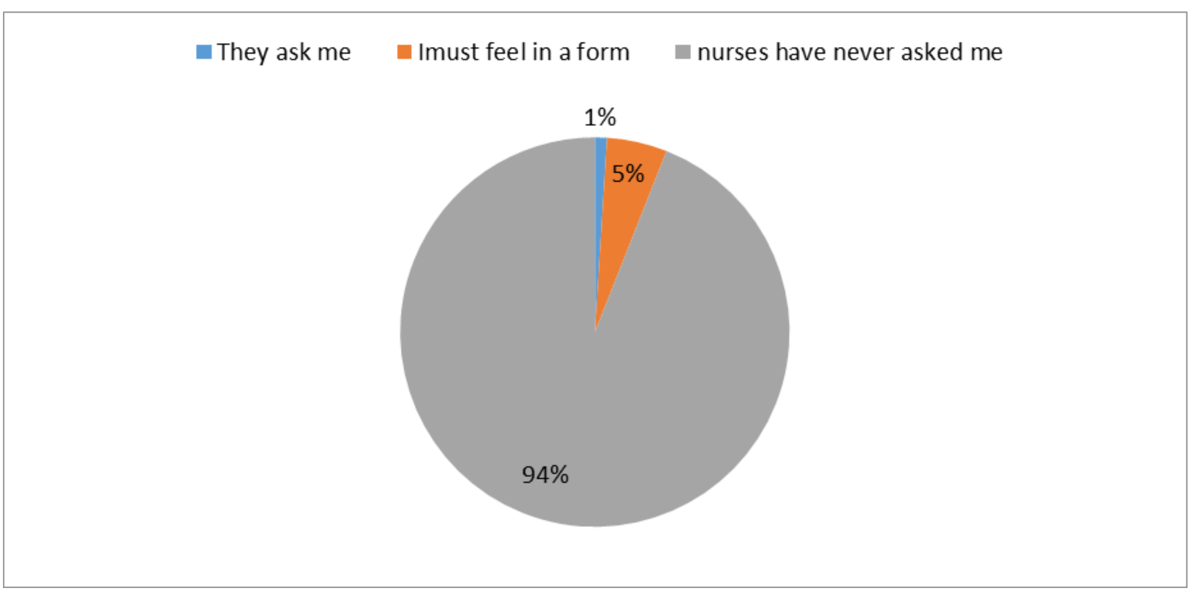

Figure 4.9 Consideration of learning needs described by clients (N=132)

Figure 4.9 shows that 1% of clients indicated that nurses asked about his/her learning needs, while 5% of clients reported that they were provided with an assessment form to complete and 94% of clients indicated that they were not asked about their learning needs. One should note the 5% of clients reported that they filled in a form, yet none of the nurses indicated that they had provided such forms to clients. Due to anonymity, the researcher could not return to the clients to clarify their responses.

Asking clients about their learning needs is crucial because it is where the nurse identifies all the client's problems that may impact their self-care negatively. Identifying the learning needs of a client forms part of the subjective data that is collected before effective planning and implementing of health education can take place. This is confirmed in literature (Bastable 2017:81-84; Bastable 2014:12, 115, 116; Dyson et al 2010:353; Maville & Huerta 2012:49).

4.4.4 Space in which health education is presented (Clients, item C13)

Clients were asked where nurses do the health education. It was indicated by 72% (N=132) of clients that teaching takes place in the waiting area and by 3% (N=132) that health education takes place in the consulting room. Respondents could select from more than one option.

For health education to be successful, the environment where teaching takes place must be favourable and conducive in many ways (Bastable 2017:89). The researcher is of the opinion that the waiting area is not conducive in terms of seating or the noise levels and the movement of others that may distract the clients' attention. In contrast, health education given in the consulting room has to contend with fewer distractions and an additional advantage would be that the information will be specific to the client's needs.

4.4.5 Teaching methods used in health education (Nurses, Item C18; Clients, item C14)

Nurses were asked about the teaching methods used during health education provided to clients with diabetes mellitus and the same was asked of clients. The results are shown in Figure 4.10.

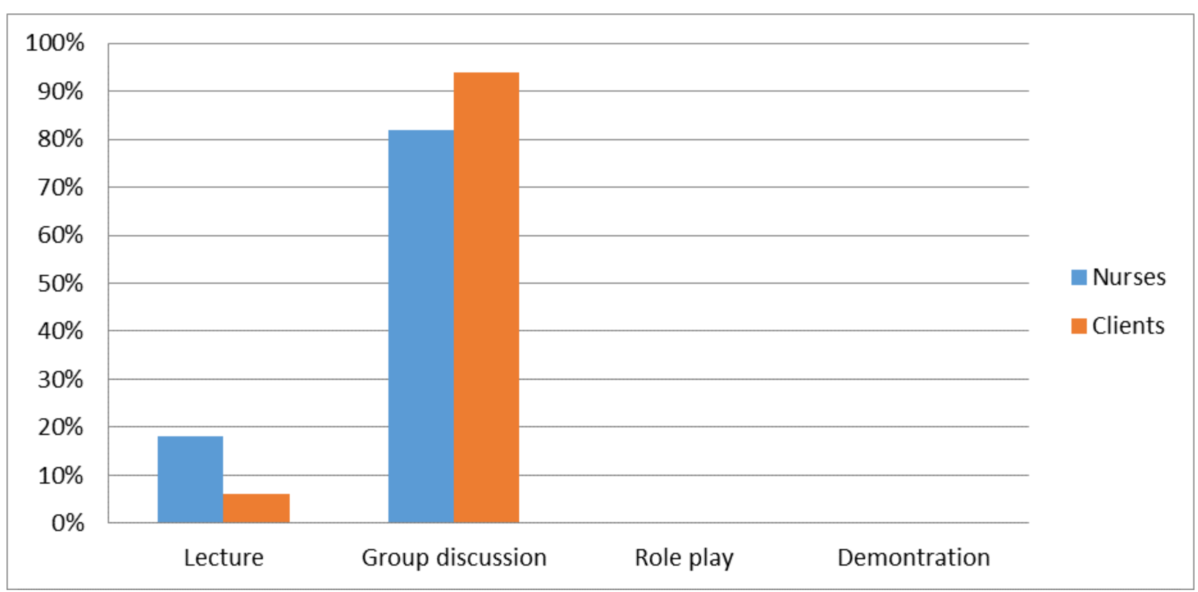

Figure 4.10 Teaching methods used during health education as indicated by both nurses (N=20) and clients (N=132)

According to the findings in Figure 4.10, 82% of nurses said they used group discussion and 94% of clients' responses confirmed this. Literature describes a lecture as a method whereby a person presents information in a structured way to a group of learners; whereas a group discussion takes place between a smaller number of persons, all actively involved in the exchange of information (Bastable 2017:380, 384). When analysing the two questions the researcher checked with the nurses and found that group discussion in this context was seen as a lecture given by the nurse to a group of clients. It must also be noted that the nurses do not necessarily have a nursing education qualification to enable them to distinguish between the two teaching methods. Thus the researcher concluded that health education is presented only through lectures. This confirms the finding that health education most often takes place in the waiting area, where a group of clients can be accommodated (see section 4.4.4).

No demonstrations were done; this is a concern as it may negatively impact the 21% of clients who use insulin injections (see section 4.3.6). These clients need to be empowered on correct procedure and sites for injection (Bastable 2014:445).

4.4.6 Teaching media used in health education (Nurses, item C19; Clients, item C15)

The responses from both nurses and clients regarding the teaching media used during health education are illustrated in Figure 4.11.

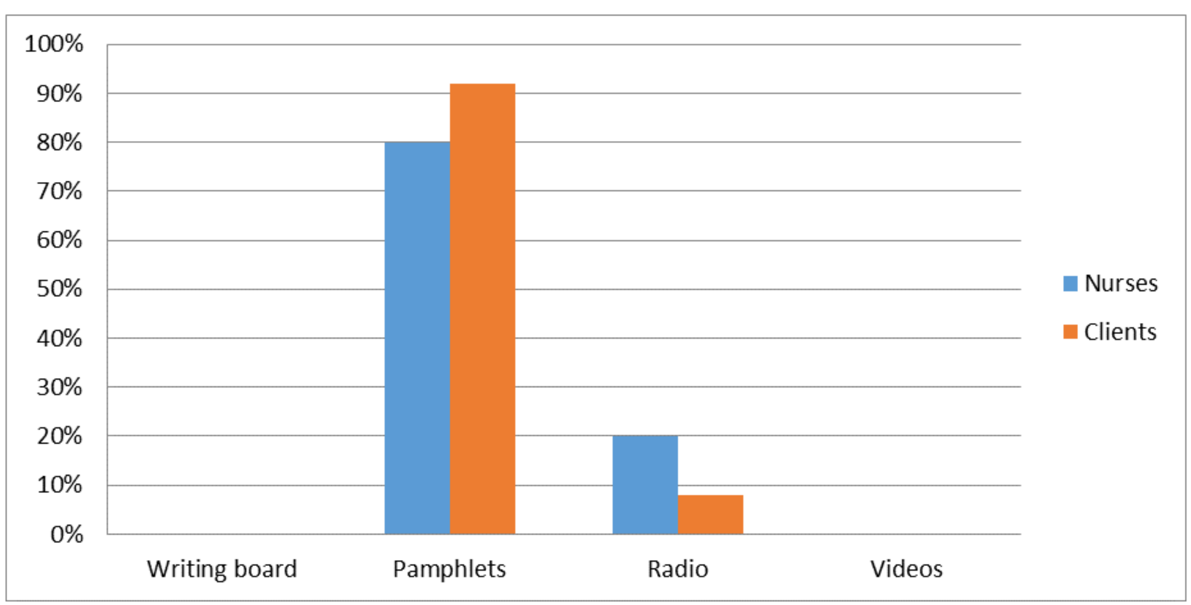

Figure 4.11 Teaching media used during health education as indicated by both nurses (N=20) and clients (N=132)

The teaching medium that was most often used for health education was pamphlets, as indicated by 80% of nurses and 92% of clients. Clients were also educated through radio programmes, which was confirmed by 20% of nurses and 8% of clients. Other forms of media such as writing boards and videos were not used, thus limiting the effectiveness of face-to-face teaching (Stanhope & Lancaster 2010:305). Literature indicates that the use of teaching media for health education is necessary to enhance learning (Bastable 2014:518; Bastable 2017:418; Manyeli 2012:16; Muma & Lyons 2012:10).

4.4.7 Topics that were covered in the two months before data collection (Nurses, Item D 20; Clients, item D16)

Nurses were asked to indicate what topics they had taught and the clients had to indicate what topics nurses had taught in the two months before data collection. This data is reported in terms of the number of times topics were mentioned. The responses by nurses are shown in Table 4.5 below.

Table 4.5 Responses in relation to the topics covered in the two months before data collection indicated by nurses (N=34)

Topics covered	Frequency	Percentage
Diabetes as a condition	4	11.8%
Diet	6	17.8%
Exercise	3	8.8%
Foot care	2	5.9%
Eye examination	1	2.9%
Insulin injection	3	8.8%
Hyperglycaemia	3	8.8%
Hypoglycaemia	7	20.6%
Complications of diabetes	5	14.7%
Total responses	**34**	**100%**

Table 4.5 shows 34 responses by nurses. Respondents could select more than one option. The topic presented most during the two-month period preceding data collection was the management of hypoglycaemia – 7 time – followed by diet – 6 times. The topic of eye examination was covered only once in the two-month period.

The corresponding question posed to clients used layman's terms and some topics were broken down into smaller units for better understanding, therefore, the number of topics presented to clients were 12. The responses of clients are shown in Table 4.6 below.

Table 4.6 Responses in relation to the topics covered in the two months prior to data collection indicated by clients (N=72)

Topic covered	**Frequency**	**Percentage**
What is diabetes?	6	8.3%
Signs and symptoms of diabetes	8	11.1%
Taking tablets	3	4.1%
Eye examination	4	5.6%
Insulin injection	5	7%
Foot care	5	7%
Exercise	6	8.3%
Mouth care	5	7%
Diet	13	18%
Complications of diabetes	5	7%
Hyperglycaemia	6	8.3%
Hypoglycaemia	6	8.3%
Total responses	**72**	**100%**

Table 4.6 shows 72 responses by clients. Respondents could select more than one option. Diet (how to plan meals) was reported most, namely 13 times. Four topics namely diabetes as condition (what is diabetes), exercise (how to do exercises), hyperglycaemia (what to do when blood sugar level is high) and hypoglycaemia (what to do when the blood sugar level is low), were all indicated six times. Eye care (when to do an eye examination) was indicated four times and how to take tablets was indicated only three times. One client wrote that he/she did not learn at all.

It is important that clients receive health education on all topics that concern diabetes, so that they may be empowered to care for themselves and prevent complications early on (Brunner & Suddarth 2013:1422; Manyeli 2012:22; Muma & Lyons 2012:133-139).

4.4.8 Ways in which clients' understanding of health education are evaluated (Nurses, item D24(21)[1]; Clients, item D17)

Both nurses and clients were asked how the clients' understanding of the health education sessions were evaluated. The findings are shown in Figure 4.12.

[1] Please note the typing error: Nurses question 21 was typed as 24. The typing error was explained to the respondents and did not have an effect on the data collected or analysed.

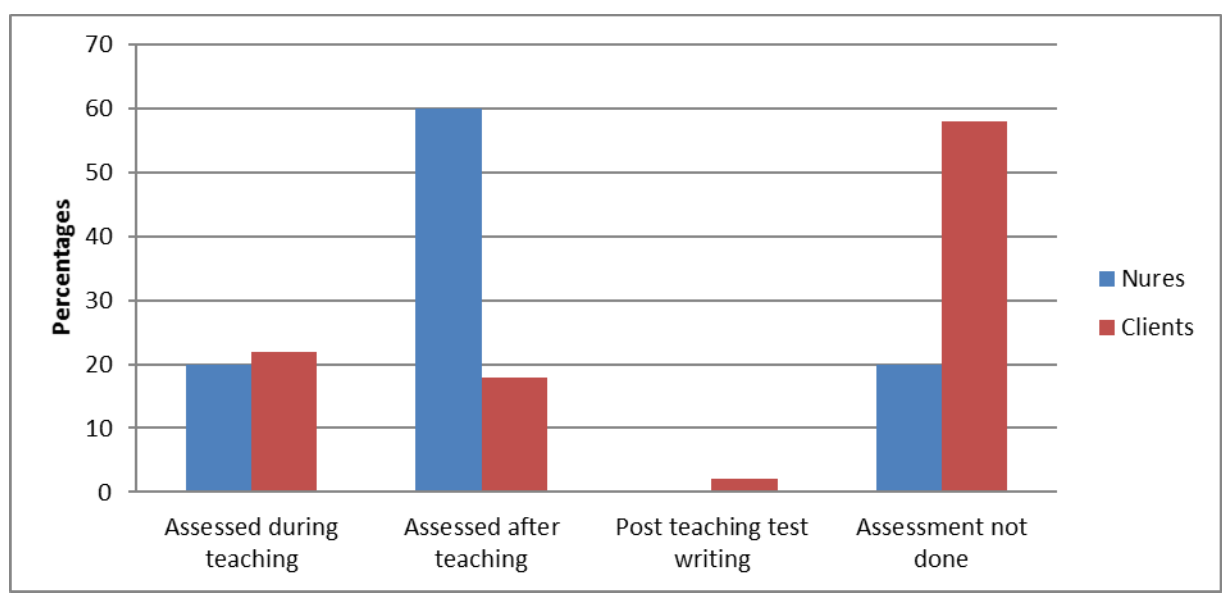

Figure 4.12 Ways in which clients' understanding of health education sessions are evaluated as indicated by both nurses (N=20) and clients (N=132)

Figure 4.12 indicates that 60% of nurses do the evaluation after each teaching session. Contrary to that, 58% of clients reported that nurses do not check if they understand. A few clients, 2% reported that they wrote down the information after the teaching session. However, such an evaluation was not reported by the nurses. The evaluation of clients' understanding of health education sessions is very important to see if all the objectives of the teaching have been met (Dennill et al 2010:159; Miller & Stoeckel 2011:9). Bastable (2017:71) notes how important it is to evaluate understanding at the end of a learning experience and again in a follow-up session because learning is not once-off and everlasting.

4.4.9 Topics important for diabetes mellitus health education (Nurses, item D22; Clients, item D18)

Although respondents were asked which topics were taught the two months before data collection, the researcher also wanted to know what information they see as important for diabetes mellitus health education. Nurses were asked to indicate the topics of health education they felt were important and the clients had to indicate the topics they felt were important for the nurses to cover during health education. The findings are shown in the Table 4.7 and Table 4.8 on the following pages.

Table 4.7 Responses in relation to topics important for health education as indicated by nurses (N=20)

Aspects of information perceived important by nurses	Frequency	Percentage
How diabetes occurs	1	5%
Signs and symptoms of diabetes	2	10%
How should clients take their tablets	1	5%
Importance of eye examination	1	5%
How should clients administer insulin injection	1	5%
Foot care	1	5%
How to do exercises	1	5%
Mouth care	1	5%
Meal planning	9	45%
Complications of diabetes	1	5%
Management of hyperglycemia	1	5%
Other	0	0%
Total responses	20	100%

Table 4.6 indicates that meal planning, which appeared nine times was perceived by nurses as the most important topic to cover. Respondents could select more than one option. The other topics received less attention since signs and symptoms appeared twice and the remaining topics appeared only once.

Table 4.8 Responses in relation to topics important for health education as indicated by clients (N=132)

Important topics according to clients	Frequency	Percentage
Understanding how the disease occurs	8	6%
The diet of patients with diabetes	58	44%
The importance of exercise	8	6%
The importance of foot care	5	4%
The importance of eye care	7	5%
To be taught about insulin injection	7	5%
Maintenance of sugar levels	7	5%
To manage low blood sugar levels at home	9	7%
To manage high sugar levels at home	8	6%
The changes of blood sugar levels in illnesses	7	5%
The effects of diabetes in the body	8	6%
Other	0	0%
Total responses	**132**	**100%**

Table 4.7 shows that meal planning was reported 58 times. Respondents could select more than one option. In other words, this topic was perceived by clients to be the most important. The other topics were not seen as being important as meal planning.

Diet and meal planning are not the only aspects of diabetes mellitus that will help clients with the management of the condition and reducing the complications associated with it (Brunner & Suddarth 2013:1378; Manyeli 2012:22). The researcher is of the opinion that it is the responsibility of nurses to familiarise clients with all the topics of diabetes mellitus instead of focussing on meal planning.

4.4.10 Preferred way to present health education (Nurses, item D23; Clients, item D19)

The researcher also wanted to identify what nurses saw as important aspects of presenting effective health education to clients with diabetes mellitus. Clients, in turn, were asked how they preferred to receive the health education. Respondents could choose more than one answer and this data is reported in relation to the number of times a response was chosen. The two tables below show the responses of the nurses (Table 4.9) and the clients (Table 4.10).

Table 4.9 Responses in relation to the preferred ways to present health education according to nurses (N=50)

Preferences	Frequency	Percentage
Clients prefer to be taught as individuals	15	30%
Clients prefer to be taught in groups	12	24%
Clients want to be taught along with their family members	17	34%
Clients want all of the above done	6	12%
Total responses	**50**	**100%**

Table 4.8 shows that there were 50 responses. Respondents could select more than one option. The option preferred most by nurses, 17 times, was for clients to be taught along with their family members. In second place was the preference for clients to be taught as individuals – 15 times. In third place was the preference for clients to be taught in groups 12 times.

Table 4.10 Responses in relation to the preferred way to receive health education according to clients (N=132)

Preferences	Number	Percentage
To be taught individually	2	1.5%
To be taught in groups	2	1.5%
To be given written information to take home to read	6	4.5%
My family members should also be taught about diabetes	26	19.8%
All of the above	96	72.7%
Total responses	**132**	**100%**

Table 4.9 shows responses of preferred ways of health education. Respondents could select more than one option. The option "All of the above" was selected 96 times. The other option preferred most by clients, 26 times is for clients' family members to be taught along with them.

The need of clients to include family members in the health education is a significant finding that concurs with the literature – involving family members in health education, more specifically the family members of older persons, is important for psychosocial support (Bastable 2014:207-208; Dennill et al 2010:158; Stanhope & Lancaster 2010:305).

4.4.11 The teaching environment (Nurses, item D24; Clients, item D20)

The respondents could choose more than one environment or aspect of it in answer to what they regarded as a suitable teaching environment for health education. This data is reported in relation to the number of times a response was chosen. The two tables below show the responses of the nurses and the clients.

Table 4.11 Responses in relation to a suitable teaching environment according to nurses (N=50)

Teaching environment	Frequency	Percentage
Lecture room	3	6%
It is a quiet place	14	28%
There is enough light	15	30%
Clients use desks	5	10%
It is a waiting area	6	12%
Clients are taught at their homes	5	10%
Clients are taught at their work places	2	4%
Total responses	**50**	**100%**

Table 4.11 shows that there were 50 responses. Respondents could select more than one option. The two aspects of teaching environments considered most important by nurses were that there should be enough light, chosen 15 times, and that the environment must be quiet, chosen 14 times.

Table 4.12 Responses in relation to a suitable teaching environment according to clients (N=110)

Teaching environment	Frequency	Percentage
Teaching room	17	15.5%
Quiet place	0	0%
There must be enough light	0	0%
Sit at the desk	0	0%
A waiting area	82	74.5%
Nurses must teach at home	6	5.5%
Nurses must teach at work	5	4.5%
Other	0	0%
Total responses	**110**	**100%**

Table 4.12 lists the clients' 110 responses. Respondents could select more than one option. The option of being taught in a waiting area was selected 82 times, while a teaching room was selected only 17 times. Although the options to be taught at home or at the work place were selected the least amount of times, it seems there is a need for this.

The teaching environment for health education is important to the study because the literature describes it as a place that should facilitate concentration, limit distractions, such as noise, and also provide good light to view the speaker and all the teaching material being used (Falvo 2010:180; Allender et al 2010:322). For these reasons, the waiting area may not be the best place to teach clients. Nurses indicating a quiet environment, may be an indirect way of realising that the waiting area is not the most suitable teaching environment. In a previous question the clients identified the waiting area as the place where teaching takes place (see section 4.4.4). The researcher reasons that they may have chosen the waiting area option as a suitable place for teaching because they are normally taught in a waiting area and clients are not expected to know that there are more conducive teaching environments.

4.5 EDUCATIONAL PROCESSES RELATED TO NURSE ACTIONS

This section reports the findings that pertain to responses from nurses only.

4.5.1 Use of lesson plan (Nurses, items C15, C16, C17)

Nurses were asked if they use a lesson plan when they do health education. Item 15 revealed that 6 respondents use lesson plans to present health education. In items 16, these six respondents had to indicate where they get the lesson plan from. In item 17 the 14 respondents who did not use lesson plans were asked the reason for not using a lesson plan. It seems that the respondents did not follow the instructions concerning items 16 and 17, as all 20 of them answered questions 16 and 17. This was not detected by the researcher during the cleaning of the data or by the statistician during the analysis of the data. Due to the error the data collected with these three items could not be used to describe a finding.

A lesson plan is important because it guides an educator to achieve the objectives of teaching and enables him/her to address the problems of clients appropriately (Bastable 2017:365-367; Dennill et al 2010:164).

4.5.2 Recording of health education sessions (Nurses, item D25)

The respondents could choose more than one option to answer the question regarding their record keeping of the health education they present. This data is reported in relation to the number of times a response was chosen.

Table 4.13 Responses in relation to recording of health education sessions by nurses (N=23)

Records	Frequency	Percentage
It is written on each client's personal record	7	30%
It is recorded in a health education register	16	70%
Total responses	**23**	**100%**

Table 4.13 indicates 23 responses. Respondents could select more than one option. Nurses indicated that health education sessions were recorded in the health education register 16 times. They indicated recording of health education in the client's patient record seven times. No respondent specified other means of recording.

The health education register was found by the researcher to be just a 2 Quire exercise book that nurses use in the absence of a standard health education register. The recording of a learning session is significant to prove that the clients are taught and to avoid duplication as described by several authors (Dennill et al 2010:159; Miller & Stoeckel 2011:11; New 2010:323). The researcher reasons that good record keeping would allow nurses to identify the topics presented and those not presented.

4.6 SUMMARY

Chapter 4 presented the findings of the study according to the data collected with the two questionnaires. Using the Client Education Model as framework to present the data analysis, the researcher was able to describe the health education offered by nurses and received by clients in the diabetes clinic of a specific hospital in Swaziland. The findings were described and supported by relevant literature sources. The next chapter will conclude the report, summarising the factors that impact on the provision of health education, stating the limitations of the study and the recommendations that emanate from it.

CHAPTER 5

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

This chapter concludes the study, makes recommendations based on the research findings and outlines its limitations. The objectives of the study were to:

- Describe the health education given by nurses to clients with diabetes mellitus in the diabetes clinics.
- Describe health education as perceived by clients with diabetes mellitus in the diabetes clinic.
- Identify factors that impact on the health education given to clients with diabetes mellitus in the diabetes clinic.

The first two objectives were met. The health education as practiced by nurses at the diabetes clinic of a specific hospital in Swaziland and the way in which the clients perceived this health education were presented and described in Chapter 4. The third objective has also been met. The factors that impact on the health education provided to clients with diabetes mellitus in the diabetes clinic became evident during data analysis and are discussed in this chapter (see section 5.6).

The Client Education Model as described in Chapter 2 was the framework used to develop the two questionnaires that would produce the data to describe the Nurse as an Educator, the Client as a Learner and the Nurse/Client relationship.

5.2 NURSE AS EDUCATOR

This section discusses the characteristics of the Nurse as an Educator in the diabetes clinic of a specific hospital in Swaziland and the impact it has on the health education provided to clients diagnosed with diabetes mellitus.

5.2.1 The working experience of nurses.

The work experience of nurses at the diabetes clinic revealed that the majority of nurses, (55%), had more than two years work experience in the diabetes clinic. Although nurses are considered competent when they pass and complete their nursing training (SNC 2010a:12), experience in the actual work situation is gained over time. This is confirmed by Booyens (2011:200) who points out that a period of two years is reasonable for an individual worker to be considered competent in a specific area. It can thus be concluded that the majority of nurses working at the diabetes clinic have the knowledge and skills to practice nursing appropriately and according to expected standards. As health education is one of the duties of the practicing nurse (SNC 2010b), the conclusion that nurses have the appropriate knowledge and skills is also applicable to the provision of health education to clients diagnosed with diabetes mellitus.

This study did not test the diabetes mellitus knowledge of the nurses; therefore, the researcher cannot comment on that. However, a finding of the study was that the practices involved in providing health education fell short of what is expected from experienced nurses. For example, it was found that nurses did not always give health education (refer to section 4.4.2), only 15% of nurses asked clients about their learning needs (refer to section 4.4.3) and nurses considered diet or meal planning as the most important topic to be covered in health education – the range of other health education topics were not considered equally important (see section 4.4.9).

It is concluded that nurses working in the diabetes clinic are not orientated or prepared for all aspects of providing health education to clients.

5.2.2 Awareness of health education guiding documents

The study revealed that nurses were not aware of official policies (national, hospital or clinic) or the associated procedures with regard to health education in general or health education specific to diabetes mellitus (see section 4.2.4). This is despite the fact that the Swaziland National Standard Treatment Guidelines (SMOH 2012:62) address health education as a subsection under the section devoted to the treatment of diabetes

mellitus. The researcher could not find any documents on hospital or clinic level to guide nurses in their practice of health education to clients at the diabetes clinic.

Booyens (2011:200) states that policies and procedures should be available in an organisation and at operational level to provide specific guidance for actions. Nzimande (2014:102) also suggests that specific health education programmes should be available to address health problems that exist in the society and those that are likely to occur. In addition, for specific fields like that of diabetes mellitus, the important health education topics to be covered with clients should be indicated (Brunner & Suddarth 2013; Manyeli 2012:6).

The researcher therefore concludes that if policies and procedure guidelines for the diabetes mellitus health education programme are available in the diabetes clinic, nurses who are practicing at the diabetes clinic may be able to practice health education in a more structured way.

5.3 CLIENT AS A LEARNER

This section discusses the characteristics of clients who attended the diabetes clinic of the specific hospital in Swaziland. In terms of the nursing process and related education process (refer to section 2.4.2.1) nurses must plan health education according to the profile of the clients. This will be possible through a full assessment of each client.

5.3.1 Biographic information of clients

The biographic data of clients that were captured included their age and gender, marital status and their level of education. The majority (77%) of clients were above 50 years of age and in this age group there were more males than females (see section 4.3.1). Stanhope and Lancaster (2010:305) mention that the elderly may have challenges in self-management of their illness. The researcher concludes that the high number of older clients requires nurses to carefully plan their provision of health education. Such careful planning should include an arrangement to teach them along with their family members or care givers since it may be possible for older clients to forget to take their treatment or give themselves wrong doses, especially those who use insulin injections. They may also need assistance in planning the correct diet and preparing correct meals

(Smeltzer et al 2008:1404). The study found that clients would like to have their family included in the health education and nurses also considered the inclusion of family as important (see section 4.4.10).

The majority (59%) of clients were single (refer to section 4.3.2), meaning that they may not have the same support at home as those who are married. It is concluded that nurses must be aware of this so that they can especially motivate single clients to practice good self-management of their condition. This conclusion is supported by Allender et al (2010:325) as well as Abbatt and McMahon (2015:80) who state that diabetes mellitus is one of the chronic conditions that requires social support to comply with the changes that comes with the illness and activities of daily living at home.

Most clients (65%) were illiterate or had education up to primary school level (see section 4.3.3). Allender et al (2010:322) state that low level of education may impact negatively on the understanding of education. The implication therefore is that the health education for such clients must be presented at a level that they can understand (Nzimande 2014:102).

It is concluded that awareness of the biographical profile of clients at the diabetes clinic will assist the nurses in assessing their health education needs as well as in planning and presenting health education at the most understandable level.

5.3.2 Type of medication used by clients

Although the majority of clients (79%) took oral medication in the form of tablets, the fact that there were clients (21%) who used insulin injections (refer to section 4.3.6) requires that nurses cover the topic of insulin injection in their health education sessions. The procedure of injecting insulin should be demonstrated so that the client knows how to properly inject in terms of the site and mode of injection and how to determine the correct dose to prevent the overdosing (Black, Hawks & Keene 2002:1179; Brunner & Suddarth 2013:1425; Manyeli 2012:24; SMH 2012:20). The findings on teaching methods, (refer to Figure 4.4.5) indicates that demonstrations were not done at the diabetes clinic. The researcher finds this to be a reason for concern that ought to be addressed.

5.4 THE NURSE-CLIENT RELATIONSHIP

The teaching and learning process involves both the nurse and client. The discussion in this section concerns health education as practiced by nurses and as perceived by clients in the diabetes clinic of a specific hospital in Swaziland.

Identifying relevant health topics according to the assessment of the needs of clients represents the diagnosis phase in the education process (see section 2.4.2.1). Selecting appropriate methods for planning and presenting the health education relates to the planning and intervention phases of the nursing or education process (see sections 2.4.2.3 and 2.4.2.4). The following sections address the findings in terms of diagnosing, planning and implementing health education at the diabetes clinic.

5.4.1 Provision of health education during clinic visits

It was found that nurses did not provide education during every clinic visit of clients. In fact, 25% of clients reported that they never receive health education (see section 4.4.2). The researcher did not find the ideal frequency with which health education ought to be provided in literature. However, authors such as White et al (2010:216), Yikwan Ho, Berggren and Dawbong-Lychoge (2010:260) also found that people with diabetes mellitus receive limited or no education on self- management.

The researcher sees this as a significant finding, as knowledge to manage the condition of diabetes mellitus is necessary to ensure a good quality of life and prevention of complications. It can be concluded that nurses have a responsibility to provide such knowledge through well-planned and presented health education.

5.4.2 Learning needs of clients

The learning needs of clients at the clinic were assessed by nurses through review of the clients' personal health record as revealed by 16 nurses. The majority of clients, 94% also stated that nurses never ask them about their learning needs (see section 4.4.3). Although health records can be used to identify areas for health education, subjective data is very important for planning purposes (Fuller & Schaller-Ayers 2013:365).

Allender et al (2010:325) suggest that nurses tailor their teaching of clients to real and perceived needs. They state that nurses can use interviews and open forms to assess the education needs of clients. Identifying learning needs is also important to stimulate the interest of clients in the topic being taught. It also assists nurses to focus on the clients' needs during teaching.

The researcher concludes that nurses are unaware of the fact that clients may have specific educational needs that can only be known through asking them. The current assessment of health education needs is thus incomplete and clients' actual needs may not be addressed.

5.4.3 Health education topics

The respondents were presented with health education topics relevant to diabetes mellitus. The topics that nurses and clients deemed important were identified as were the topics that were actually presented in the two-month period prior to data collection.

Nurses reported that the management of hypoglycaemia and the diet of clients with diabetes mellitus were the topics presented most during the two months prior to data collection. Clients reported that in the above-mentioned time period the following topics were presented: diet, signs and symptoms of diabetes and the management of hyper- and hypoglycaemia (see section 4.4.7). Other topics were presented less frequently, with eye examination being the most neglected topic. The WHO (2017b) emphasises the importance of awareness as a measure for limiting complications. The researcher concludes that not all diabetes topics are presented adequately.

The topic of meal planning was considered important by both nurses and clients (see section 4.4.9). However, the other topics are considered less important by both nurses and clients. All topics related to diabetes mellitus is however important to ensure good self-management of diabetes as condition and to prevent complications of diabetes (Maville & Huerta 2012:40; WHO 2017a; WHO 2017b). The researcher concludes that the ignorance of nurses may contribute to the clients not being aware of the importance of these topics.

5.4.4 Teaching methods

It was found that the lecture was the most used method of teaching as this was indicated by most nurses, 82%, and most clients, 94% (see section 4.4.5). The literature lists the methods of lecture, group discussion, demonstration, simulation and role play as appropriate methods for presenting health education (Bastable 2017:380-398; Stanhope & Lancaster 2010:312). Bastable (2014:445) also states that demonstration of skills should be taught repeatedly to ensure that the client masters the skill.

The researcher concludes that nurses at the diabetes clinic do not utilise different methods of teaching to empower clients with information on diabetes. Nurses must be prepared to use different teaching methods.

5.4.5 Teaching media

Pamphlets was the teaching medium used most often for health education as this was indicated by 80% of nurses and 92% of clients (see section 4.4.6). Although the literature describes a wide range of teaching media, these are not necessarily available to nurses, as stated by Manyeli (2012:16).

The researcher concludes that appropriate teaching media used with a variety of teaching methods can both assist to provide effective health education to clients.

5.4.6 Evaluation of clients' understanding

Evaluation is the last phase of the nursing or education process (see section 2.4.2.5). This study only explored if clients' understanding of the health education was assessed. It did not explore the actual understanding of clients. Contradicting information was given by nurses and clients. Nurses, (60%) indicated that they did assess the understanding of clients at the end of the lesson. However, 58% of clients indicated that nurses did not ask about their understanding of a lesson (see section 4.4.8). This means that although nurses indicated that they evaluated clients' understanding, the majority of clients were not evaluated.

The researcher is not in a position to explain the contradicting information. It is however an issue to take note of and address in the health education plan.

5.5 OTHER SIGNIFICANT FACTORS

5.5.1 Including family in the health education

The findings show that both nurses and clients expressed a need to involve the family in the health education (see section 4.4.10). Teaching a family member is important for the proper support of a client with diabetes mellitus at home (Dennill et al 2010:158; Stanhope & Lancaster 2010:305).

The researcher considers this even more important in terms of the high number of men and elders in this study who may have challenges in self-management, for example planning proper meals (see section 5.3.1).

5.5.2 Teaching environment

While nurses indicated that the teaching environment must be a quiet area with enough light, clients indicated that the environment used and preferred was the waiting area (see sections 4.4.4 and 4.4.11). These findings are not consistent with what the other authors suggest. Allender et al (2010:322) suggest that the setting where the education is conducted has a significant impact on learning. They further explain that the environment should be quiet and have enough light to influence good concentration; also, the presence of noise and heat distract learners from learning.

The researcher concludes that the area where diabetes education is currently conducted is noisy and busy. Given the fact that this is a waiting area, the noise levels and movement are beyond the control of the nurse.

5.5.3 Lesson plans

The information on the use of lesson plans could not be used (see section 4.5.1). The researcher is not in a position to reach a conclusion on this finding.

However, the importance of using a lesson plan is supported in the literature. A lesson plan is regarded important in teaching not only to confirm the content but also to ensure that the client receives all the relevant information over a period of time. Allender et al (2010:321) and Bastable (2017:365–367) indicate that for health education to be successful, the educator is required to plan the lesson in such a way that it is in line with the needs of the clients. The lesson plan is the most important tool to be used in health education (Miller & Stoeckel 2011:20).

5.5.4 Recording of health education sessions

Nurses recorded the education sessions they presented in the health education register and, to a lesser extent, in the client's personal record (see section 4.5.2). The register that was mentioned was afterwards checked by the researcher and was found to be a 2 Quire exercise book. This is not an official or standard document. New (2010:323) states that documentation of health education should be done by health care workers to avoid duplications.

It is concluded that precise recording of health education should form part of the recording function of the nurse.

5.6 FACTORS IMPACTING ON HEALTH EDUCATION PROVIDED TO CLIENTS WITH DIABETES MELLITUS

From the discussion of the findings the researcher identified a number of factors that have an impact on the health education offered in the diabetes clinic. These serve as evidence that the last objective of the study was met.

5.6.1 Factors with a positive impact on health education practice

- The cohort of nurses in the diabetes clinic seems to be stable; they also seem to have adequate nursing experience. This means hospital management can invest in and empower them with the means to present health education. This would benefit the nurses, clients and the hospital (see section 5.2.1).
- The health education sessions were found to be recorded in an education register (2 Quire exercise book) and this was found to be a good initiative in the

absence of standard documents. It provides an overview of the topics that was presented in the health education (see section 5.5.4).

5.6.2 Factors with a negative impact on health education practice

- Unawareness of the Swaziland National Standard Treatment Guidelines (SMOH 2012:62) and the absence of hospital health education guiding documents (see section 5.2.2) are barriers that may lead to inappropriate practice of health education by nurses.
- Not considering the specific learning needs of clients may mean that the self-management of clients is compromised (see section 5.4.2).
- The teaching currently does not involve family members or care givers of the clients; this may lead to lack of proper support at home (see section 5.5.1).
- The teaching venue is the waiting area, which is noisy and busy. This does not promote the proper concentration of clients (see section 5.5.2).
- The topics currently covered during health education are not sufficient to empower clients with enough knowledge and skills to care for themselves (see section 5.4.3).
- The evaluation of the clients' understanding seems questionable and needs clarification (see section 5.4.6).
- The resources to present effective quality health education is not optimal, namely the venue and teaching media (see sections 5.4.5 and 5.5.2).

5.7 RECOMMENDATIONS THAT EMANATE FROM THE STUDY

Based on the findings of the study, the following recommendations are made with reference to governing authorities, the nurses working in the diabetes clinic of the specific hospital in Swaziland and further research.

5.7.1 Governing authorities

There is a need for standard guiding documents on health education. These ought to be developed and made available to nurses to guide them in the practice of providing health education. Such documents should also address the special needs of clients with

diabetes mellitus. The current Swaziland National Standard Treatment Guidelines (SMOH 2012:62) may be expanded by adding a procedure manual that includes specific information regarding the health education for diabetes mellitus.

The Department of Health of Swaziland should facilitate the development of health education guidelines and the authorities of the hospital and the diabetes clinic should ensure that standard guidelines are available to the practising nurses in order to provide proper quality health education to meet the needs of clients with diabetes mellitus. All the nurses will then provide the same standard of health education to all clients. These could include:

- a well-planned health education programme
- a health education procedure manual
- a set of standard lesson plans that cover a variety of topics relevant to diabetes mellitus
- a standard way of recording the health education both in a health education register and in the clients' hospital records

The current resources and infrastructure in terms of a suitable teaching venue and teaching media must be investigated. The ideal venue and equipment should be such that both clients and family members or caregivers of clients with diabetes are accommodated during health education sessions.

5.7.2 Nurses working in the diabetes clinic

Once in place, the documents guiding the provision of health education to clients in the diabetes clinic should be followed to ensure standardised practice. Nurses as the key providers of health education must contribute to the planning of a health education programme for the clinic. Such a programme should allow for general health education sessions as well as sessions focused on meeting the specific needs of clients.

Nurses must be informed about the close relation between the nursing process, which is known to them, and the education process to ensure effective planning, implementation and evaluation of health education.

Nurses working in the diabetes clinic should be empowered to provide health education. They can empower themselves by updating their knowledge on current issues of diabetes mellitus and health education principles and practices through in-service education. The hospital management, in turn, can empower them by allowing them to attend seminars and workshops on diabetes mellitus and on health education.

5.7.3 Further research

A similar study at diabetes clinics of other hospitals in Swaziland may be useful to sketch a more comprehensive picture of the current state of health education and the needs for improvement in the country. Studying the practice of health education by other health professionals may also provide useful information to ensure holistic health education to clients with diabetes mellitus. In addition, a more extensive study to include the Outcomes aspect of the Client Education Model (see Figure 2.1) may give insights with regard to the effectiveness of the health education to diabetes mellitus clients.

5.8 CONTRIBUTIONS OF THE STUDY

The findings of this study will be disseminated to the following institutions and groups of people in the hope that it contributes to policy-making, the formulating of procedures and the development of guidelines for health education on diabetes mellitus:

- The national health research committee
- The national health education programme
- The management of the hospital where the diabetes clinic featured in this study is located
- The nursing staff of the diabetes clinic where the study was conducted

5.9 LIMITATIONS OF THE STUDY

The professionals who were targeted by the study were nurses only, yet the management of clients with diabetes mellitus is multidisciplinary. The unique role of dieticians, doctors, physiotherapists, podologists and pharmacists were not included. Furthermore, only clients who were attending outpatient diabetes clinic were involved in the study. This is a limitation of the study since clients with diabetes mellitus are also

admitted to the hospital wards and they also need health education. Lastly, the three questions on lesson plans that were not used in the data analysis prevented the researcher from drawing conclusions regarding the use of a tool that forms the basis of any education, which in this case is health education.

5.10 CONCLUDING REMARKS

This final chapter discussed the findings of a study that evaluated the provision of health education to clients with diabetes mellitus in the diabetes clinic of a specific hospital in Swaziland. The findings clearly showed that health education provided to clients with diabetes mellitus is not well-planned and thus there is room for improvement. Addressing the factors that have a negative impact on such education will be to the benefit of the clients, the nurses and the hospital.

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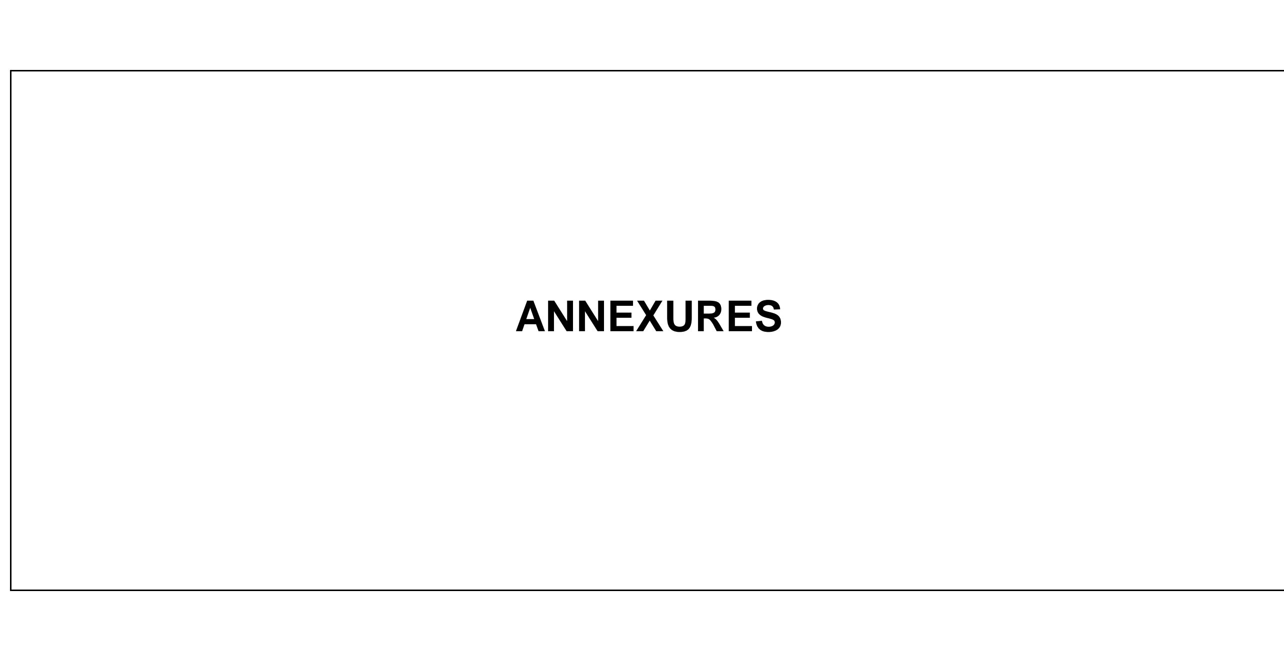

ANNEXURES

ANNEXURE 1

Unisa ethical clearance

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

ANNEXURE A

REC-012714-039

Unisa ethical clearance

HSHDC/383/2014

Date: 10 December 2014 Student No: 4510-374-7

Project Title: Evaluating the health education for clients with diabetes mellitus by nurses in a hospital in, Swaziland.

Researcher: Thabile A Dlamini

Degree: MA in Nursing Science Code: MPCHS94

Supervisor: Mrs Du Toit
Qualification: M Cur
Joint Supervisor: -

DECISION OF COMMITTEE

Approved [√] **Conditionally Approved** [ ]

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

ANNEXURE 2

Letters: Request to do the study and approval (SMOH and Hospital)

PO Box 741
Pigg's Peak
Swaziland
23 November 2013

THE RESEARCH COMMITEE (Ministry of Health in Swaziland)
PO Box 5
Mbabane
Swaziland

Dear Sir/Madam

Request for permission to conduct a study on 'Evaluating of health education to clients with diabetes mellitus by nurses in a hospital of Swaziland'

I am a student who is pursuing my studies on Masters of Art in Nursing Science at the University of South Africa. This activity is required for fulfillment of the degree.

I request permission to conduct a study on the above mentioned topic in one of the hospitals in Swaziland. Ethical clearance was obtained from the Departmental Higher Degrees Committee of the Department of Health Studies at the University of South Africa.

Data will be collected using a questionnaire, from the professional nurses working in the diabetes clinics of the mentioned hospital. There will also be a questionnaire to be completed by patients at the diabetes clinic. The data collection will not disrupt the normal clinic activities as nurses will complete the questionnaire during off-duty time and patients will be requested to do so whilst queuing at the pharmacy.

Find attached a copy of the ethical clearance certificate, the research proposal and the two questionnaires.

Your positive response will be highly appreciated. Thanking you in advance.

Yours faithfully

Thabile A. Dlamini

Telegrams:
Telex:
Telephone: (+268 404 2431)
Fax: (+268 404 2092

MINISTRY OF HEALTH
P.O. BOX 5
MBABANE
SWAZILAND

THE KINGDOM OF SWAZILAND

FROM: The Chairman
Scientific and Ethics Committee
Ministry of Health
P. O. Box 5
Mbabane

TO: Thabile Dlamini
Principal Investigator

DATE: 27 th November 2013

REF: MH/599C

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

The committee thanks you for your submission to the Swaziland Scientific and Ethics Committee on the topic Factors affecting nurses in giving health education to patients with type 2 Diabetes Mellitus in the Hhohho region hospitals, of Swaziland

In view of the importance of the study and the fact that the study is in accordance with ethical and scientific standards, the committee grants you authority to conduct the study. You are requested to adhere to the specific topic and inform the committee through the chairperson of any changes that might occur in the duration of the study which are not in this present arrangement.
The committee requests that you ensure that you submit the findings of this study (Electronic and hard copy) to the Secretariat of the SEC committee.
The committee further requests that you add the SEC Secretariat as a point of contact if there are any questions about the study on 24047712/24045469.

The committee wishes you the best and is eagerly awaiting findings of the study to inform proper planning and programming to use for analysis.

Yours Sincerely,

Dr S.M.Zwane
DIRECTOR OF HEALTH SERVICES
(THE CHAIRMAN)
cc: members

DIRECTOR OF HEALTH SERVICES
MINISTRY OF HEALTH
02 DEC 2013
P. O. BOX 5. MBABANE
SWAZILAND

GOVERNMENT

Pigg's Peak Government Hospital
P.O.Box 46
Pigg's Peak
Date: 1st October 2015

Thabile A Dlamini
P.O.Box 741
Pigg's Peak

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

Acknowledgement on the letter dated 30 September 2015, concerning the above named study. Permission is granted to you to carry out the study, as it will benefit the facility.

Feedback will be highly appreciated in order to gauge ourselves in the quality health service rendered to our patients.

Thank You

PIGGS PEAK GOVERNMENT HOSPITAL
MATRON 1
0 5 OCT 2015
P.O. BOX 46
PIGGS PEAK
SWAZILAND

T.N. NSIBANDE
SENIOR MATRON

ANNEXURE 3

Information for the respondent and informed consent

INFORMATION FOR CONSENT OF NURSES

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

Researcher's name: Mrs TA Dlamini

I am a UNISA student doing a masters degree which include a research project.

You are invited to participate in the above mentioned research project, for which ethical clearance was obtained from the University of South Africa, Department of Health Studies Higher Degree Committee. Consent was obtained from Swaziland Department of Health and management of the Hospital of study.

This study will describe the health education of patients with diabetes mellitus, by nurses in the Hospital of study in Swaziland.

The purpose of this study is to develop operational, education guidelines for nurses to improve the health education of clients/patients with diabetes mellitus in the Hospital.

You will be expected to complete a questionnaire which will take about 30 minutes. An arrangement will be made so that you fill the form at the duty station before you knock off from work. This will not disrupt your work responsibilities.

Participating in the project is voluntary and you are free to withdraw from this project at anytime without providing a reason, it will not affect your position in the diabetes clinic negatively.

There are no risks associated with the study.

You are encouraged to ask any questions that you might have in connection with this project at any stage. The researcher will gladly answer your questions.
To ensure anonymity, you don't have to write your name on the questionnaires. The study data will be kept confidential. However collective findings of the study will be reported on and may be used to develop guidelines for nurses in health education of clients/ patients with diabetes and for publications.

CONSENT FOR NURSES

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

Researcher: Mrs TA Dlamini

I understand that I am asked to participate in the above research study and the following were explained to me:

I will complete a questionnaire which will take about 30 minutes and arrangements will be made for me to fill the questionnaire at the duty station before I knock off from work.

The researcher will be available to clarify questions when necessary. She will collect the completed questionnaire and check it for completeness on the same day.

No identifying information will be included on the questionnaires and all information will be kept confidential by the researcher and the statistician.

The research report will contain collective information only. Findings of the study may be used to improve the health education to clients/patients with diabetes and to publish research articles.

There are no risks associated with the study. I realize that my participation in this study is entirely voluntarily.

I understand that not participating or if I decide to discontinue my participation in the study, this will not affect me negatively at my work.

I have read and understood this consent form and I agree to participate in the study.

Signature of the respondent.................................Date..

Signature of the researcher..................................Date...

INFORMATION FOR CONSENT OF CLIENTS

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

I am Mrs TA Dlamini, a student studying at the University of South Africa. As part of my studies I must do research. I invite you to take part in this research project.

This research project has been evaluated and approved by the Department of Health Studies Higher Degree Committee and permission to do the research was obtained from hospitals in Swaziland.

The information given by you will help to improve education of people with diabetes mellitus (sugar diabetes) who attend the hospital.

You will be expected to fill and complete a question paper that will take about 30 minutes of your time during the time when you are queuing for treatment at the clinic, which means you will not lose out on your consultation time.

Participating in the study is voluntarily and you are free to withdraw from this project at any time without providing a reason. It will not affect the services you receive from the diabetic clinic negatively.

There are no foreseeable risks or harm to you in participating in the project.

You are welcome to ask any question about the research or research questions.

You are not expected to write your name on the question paper. Your Identity will not be revealed while the study is conducted or when the study is reported and published.

CONSENT FOR CLIENTS

EVALUATING THE HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS BY NURSES IN A HOSPITAL IN SWAZILAND

Researcher: Mrs T Dlamini

I agree to participate in the study and I will fill and complete the questionnaire, which will take 30 minutes of my time of queuing at the clinic for treatment.

I understand the following:

- The researcher will be available to clarify the questions if necessary. She will collect them after completion for checking if they are complete on the same day.
- To protect myself I am not expected to write my name on the question paper.
- There is no risks/harm associated with the study.
- My participation in this study is entirely voluntarily.
- If I do not participate or decide to discontinue my participation in the study, it will not affect my treatment at the diabetes clinic negatively.
- All the information collected will be used to improve education of people with diabetes who attend the hospital.
- My identity will not be revealed while the study is conducted or when the study is reported and published.
- I understand the nature of this research project and I agree to participate in the study.

Signature of Respondent ______________________ **Date** _________________

Signature of Researcher _______________________ **Date** __________________

ANNEXURE 4

Questionnaires: Nurses

QUESTIONNAIRE

Office Use

NURSES:

HEALTH EDUCATION FOR CLIENTS WITH DIABETES MELLITUS (DM)

Number of Questionnaire____________________

Please note the following:

1. **Thank you** for volunteering to participate in this research project
2. Don't write **your name** in this questionnaire
3. The questionnaire consists of different sections, please complete all the sections.
4. Choose an option from the list provided and indicate with a **circle** around the number which is next to the appropriate answer.

SECTION A: Biographic data

Q1. What is your gender?

AQ1

1.Female

2.Male

Q2. How long have you worked in the diabetes clinic?

AQ2

1.1-2 years

2.3-4 years

3.5-6 years

4.7-8 years

5. above 8 years

Office use

SECTION B: Health care services for patients diagnosed withdiabetes mellitus

Q3. How often do you attend to clients with diabetes mellitus per week?

BQ3

1. Once a week

2. Two times a week

3. Specify____________

Q4. How often does a client with well controlled DM report at the clinic? (Choose only one answer)

BQ4

1. More than once a month

2. Once in two months

3. Once in two months

4. Other(specify) ______________________

Q5. Are you aware of any national legislation and policy that address health education to clients?

BQ5

1. Yes

2. No

If the answer to the above question is "yes", answer no 6. If "no", answer Q7

Q6.List those documents(no need for the full title) on the spaces provided below

1____

2____

3____

4____

5____

Office use

Q7. Are you aware of any hospital policy or procedure that addresses health education to patients?

1. Yes

2. No

BQ7

If the answer to the question is "yes", answer Q8, if "no" answer Q9

Q8. List those documents (No need to write the full title) on the spaces provided below.

1____
2____
3____
4____
5 ____

Q9. Are you aware of any health education policy or programme in your clinic that addresses health education to DM clients?

BQ9

1. Yes

2. No

If the answer to the above question is "yes", answer Q10, if "no", answer Q11

Q10. Briefly describe the policy or programme on the spaces provided below

1____
2____

3____
4____
5____

Office use

SECTION C: The educational process

Q11. Do you give health education to clients diagnosed with DM?

1. Yes

2. No

If the answer is "yes", answer Q13 and 14. If the answer is "no", answer Q15

CQ11

Q12. Who gives health education on diabetes to clients at the clinic? (Choose only one answer)

1. The doctors

2. The nurses

3. The pharmacists

4. The dieticians

5.Other(Specify) ________________

CQ12

Q13. How often do you give education on DM to clients at the clinic? (Choose one answer)

1. during every visit to the clinic

2. Never

3. Notalways (Explain on the space below) ________________

CQ13

Office use

Q14. How do you know the learning needs of the clients? (You may choose more than one answer)

1. It is not considered as I follow a pre-planned schedule
2. I ask the client what he/she wants to be educated on
3. I look at the client's record and decide what to teach
4. I concur with the medical doctor on the teaching needs of the client
5. I let the client complete a need assessment form

CQ14.1	
CQ14.2	
CQ14.3	
CQ14.4	
CQ14.5	

Q15. Do you use a lesson plan when you teach the clients in groups?

1. Yes
2. No

CQ15

If the answer is "yes", answer Q16 and if the answer is "no", answer Q17

Q16. Where do you get the lesson plan from? (Choose only one answer)

1. Standard lesson plans are available in the clinic
2. I develop my own lesson plan

CQ16

Q17. If you don't use a lesson plan when teaching groups of clients, give the reasons why in the spaces provided below:

1____
2____
3____

Office use

Q18. Which teaching method do you use when giving health education? (Choose only one answer)

1. A Lecture
2. A group discussion
3. A role play
4. A demonstration
5. Other (Specify)____
____

CQ18

Q19. Which teaching media do you use when you give health education? (You may choose more than one answer from the options provided)

1. Writing board
2. Pamphlets
3. Radio
4. Videos
5. Other(Specify)____________________

____

CQ19.1	
CQ19.2	
CQ19.3	
CQ19.4	
CQ19.5	

Office use

SECTION D: Teaching and learning process

Q20.In the past two months, which topics did you cover when giving health education on DM? (You may choose more than one answer by putting a tick in the spaces provided in the table below)

SNO.	Tick(√)	Topic covered
1		Diabetes as a condition
2		The diet of patient with DM
3		The importance of exercise
4		The importance of foot care
5		The importance of eye examination
6		How to take insulin injection
7		Management of hyperglycaemia
8		Management of hypoglycaemia
9		The complications of diabetes.
10		Other(Specify)________________________

____

DQ20.1	
DQ20.2	
DQ20.3	
DQ20.4	
DQ20.5	
DQ20.6	
DQ20.7	
DQ20.8	
DQ20.9	
DQ20.10	

Q24.How do you evaluate the clients' understanding of the health education?(You may choose more than one answers)

1. Clients are asked questions during the education sessions.
2. Clients are asked questions at the end of the education session.
3. By giving a short written test after the session.
4. I do not check their understanding.

DQ24.1	
DQ24.2	
DQ24.3	
DQ24.4	

Office use

Q22. Which aspects of health education for clients with DM do you consider important? (You may choose more than one answer by putting a tick in the spaces provided in the table below.

SNO	Tick(√)	Aspects of information needed by clients
1		To understand about how the disease occurs
2		The signs and symptoms of diabetes
3		How should the clients take their tablets
4		The importance of eye examination
5		How should the clients inject insulin injection
6		How should clients care for their feet
7		How should clients do their exercises
8		How should clients care for their mouth
9		How should clients plan their meals
10		The complications of diabetes
11		The management of hyperglycaemia
12		Other Specify__________

DQ22.1	
DQ22.2	
DQ22.3	
DQ22.4	
DQ22.5	
DQ22.6	
DQ22.7	
DQ22.8	
DQ22.9	
DQ22.10	
DQ22.1	
DQ22.12	

Q23. Which of the following issues do you consider as important when giving health education on DM? (You may choose more than one answer).

1. Clients prefer to be taught as individuals
2. Clients prefer to be taught in groups
3. Clients want to be taught with their family members
4. All of the above are true about clients
5. Other(Specify) __________

DQ23.1	
DQ23.2	
DQ23.3	
DQ23.4	
DQ23.5	

Office use

Q24.Describe the suitable environment for teaching clients with DM.(You may choose more than one answers by putting a tick on the spaces provided in the table below)

SNO	Tick(√)	The environment used by nurses when teaching clients with DM
1		Lecture room
2		It is a quiet place
3		There is enough light
4		Clients use desks
5		It is a waiting area
6		Clients are taught at their homes
7		Clients are taught at their work place
8		Other(Specify)

DQ24.1	
DQ24.2	
DQ24.3	
DQ24.4	
DQ24.5	
DQ24.6	
DQ24.7	
DQ24.8	

____

Q25. How do you keep record of the health education session?

(You may choose more than one answer)

1. It is written on each client's patient record.
2. It is recorded in a health education register.
3. Other (Specify) ____________

DQ25.1	
DQ25.2	
DQ25.3	

____

Thank you for your time.

ANNEXURE 5

Questionnaires: Clients

QUESTIONNARE

CLIENTS

HEALTH EDUCATION OF CLIENTS WITH DIABETES MELLITUS

(Please do not write your name on this question paper)

Number of questionnaire__________________

Please read the following:

1. Thank you for volunteering to participate in answering these questions.
2. Don't write **your name** in this questionnaire
3. The questionnaire consists of different sections, please complete all the sections.
4. Read each item and **circle** the correct answer (indicated with a number 1,2,3,4,5 and 6)

Section A: Biographical Data

Q1. What is your gender?

AQ1

1. Female

2. Male

Q2. What is your marital status? (Choose only one answer)

AQ2

1. Single
2. Married
3. Widowed
4. Divorced

Office use only

Q3. How old are you? (Choose only one answer)

1. between 20-30 years
2. between 31-40 years
3. between 41-50 years
4. between 51-60 years
5. above 60 years

AQ3

Q4. What is your highest level of education? (Choose only one answer)

1. Tertiary education (Diploma or Degree)
2. High school level (Grade 8-12)
3. Primary School (Grade1-7)
4. I did not go to school

AQ4

Section B: History of diabetes mellitus

Q5. What type of Diabetes do you have?

1. Type 1
2. Types 2
3. Pregnancy induced
4. Other (Specify)______________________

BQ5

Q6. How long have you been treated for diabetes disease? (Choose only one answer)

BQ7

1. Less than 1 year

2. 1-5 years

3. 6-10 years

4.11-15 years

5. 16-20 years

6. above 21 years

Q7. Which medication are you currently using for treatment of diabetes disease? (Choose only one answer)

BQ7

1. Tablets
2. Injection
3. Both

BQ8

Q8. How often do you come to the diabetes clinic? (Choose only one answer)

1. More than once a month

2. Once a month

3. Once in two months

4. Other (Specify) ________________

Office use only

Section C: The educational process

Q9. Do you receive information about diabetes mellitus at the clinic?

1 Yes

2 No

If the answer is yes, answer Q10 and next questions, If the answer is no, answer Q18 and next questions.

CQ9

Q10. Who are the most actively involved health care workers in providing you with health education on diabetes mellitus at the clinic? (Choose only one answer).

1. The doctors
2. The nurses
3. The pharmacists
4. The dieticians
5. Other (Specify) ____________________________________

CQ10

Q11. How often do nurses give you health education sessions on diabetes mellitus? (Choose only one).

1. during every visit to the clinic
2. Not always
3. I have never been educated

CQ11

Q12. How do nurses know what to teach you? (Choose only one)

1. They ask me
2. I must fill in a form
3. Nurses have never asked me

CQ12

Office use only

Q13 Where do nurses teach you? (You may choose more than one answers).

1. in the consulting room
2. at the waiting area
3. in a lecture room
4. at my home
5. at my workplace

6 Other (Specify) ______________________________

____

CQ13.1	
CQ13.2	
CQ13.3	
CQ13.4	
CQ13.5	
CQ13.6	

Q14. Which teaching method do nurses use most of the times? (Choose only one answer).

1. The nurse teaches and I listen
2. The nurse talks about diabetes to the group
3. The nurse uses two of more people to show a play about diabetes disease.
4. Nurse shows me on a doll, how to inject myself with insulin at home.
5. Other (Specify) ______________________________

____

CQ14.1	
CQ14.2	
CQ14.3	
CQ14.4	
CQ14.5	
CQ14.5	

Q15 which of the following do nurses use when they teach you? (You may choose more than one answer).

1. Writing board
2. They give written information to read.
3. They let us listen to the radio
4. They show videos
5. Other (Specify) ______________________________

____

CQ15.1	
CQ15.2	
CQ15.3	
CQ15.4	
CQ15.5	

Office use only

Section D: Teaching and learning process

Q16. What did nurses teach you about diabetes in the past two months? (You may choose more than one answer by ticking (√) the correct answer in the spaces provided in the table below).

SNO	Tick√	Topic on diabetes
1		What is diabetes
2		The signs and symptoms of diabetes
3		How to take my tablets
4		When to do eye examinations
5		How to inject Insulin
6		How to care for my feet
7		How to do exercises
8		How to care for my mouth
9		How to plan meals
10		The bad effects of diabetes
11		What to do when my blood sugar level is high
12		What to do when my blood sugar level is low
13		Other(Specify)________________

DQ16.1	
DQ16.2	
DQ16.3	
DQ16.4	
DQ16.5	
DQ16.6	
DQ16.7	
DQ16.8	
DQ16.9	
DQ16.10	
DQ16.11	
DQ16.12	
DQ16.13	

Q17. How do nurses know that you understand the information they give to you? (Choose only one answer)

1. Nurses ask me questions during teaching
2. Nurses ask me questions after they had taught me
3. Nurses let me write the information about what I have leant
4. Nurses do not check if I understand what they have teach

Q17

Office use only

Q18. What do you wish nurses should tell you about diabetes mellitus? (You may choose more than one answer by putting a tick in the spaces provided in the table below).

SNO	Tick(√)	Aspects of information needed by clients
1		To understand about how the disease occurs
2		The diet of patients with diabetes
3		The importance of exercises
4		The importance of foot health care
5		The importance of eye health care
6		To be taught about insulin injection
7		How to maintain normal sugar levels
8		What to do when blood sugar levels drops below normal at home
9		What to do when blood sugar levels raises to above normal at home
10		To understand about the changes of blood sugar levels in illness
11		To understand the effects of diabetes in the body
12		Other(Specify)

DQ18.1	
DQ18.2	
DQ18.3	
DQ18.4	
DQ18.5	
DQ18.6	
DQ18.7	
DQ18.8	
DQ18.9	
DQ18.10	
DQ18.11	
DQ18.12	

____

Q19. Which other aspects amongst the following, would you like nurses to consider when giving health education on diabetes? (You may choose more than one answer from the list below).

1. To be taught individually

2 .To be taught in groups

3. To be given written information to take home

4. My family members should be also taught about diabetes

5. All of the above

6. Other (Specify) ___________________

____

DQ19.1	
DQ19.2	
DQ19.3	
DQ19.4	
DQ19.5	
DQ19.6	

Office use only

Q20. What do you expect the place to be like when nurses teach you about diabetes? (You may choose more than one answers by putting a tick on the spaces provided in the table below)

SNO	Tick(√)	The preferred place for teaching
1		It must be a teaching room
2		It must be a quiet place
3		There must be enough light
4		I want to sit at the desk
5		It must be a waiting area
6		Nurses must teach me at home
7		Nurses must teach me at my work place
8		Other(Specify)___________________________

DQ20.1
DQ20.2
DQ20.3
DQ20.4
DQ20.5
DQ20.6
DQ20.7

____

Thank you for your time.

ANNEXURE 6

Letter from statiscian

SWAZILAND **GOVERNMENT**

TEL: (+268) 2404 2151/4
FAX: (+268) 2404 3300
e-mail: national.accounts@gov.sz

CENTRAL STATISTICAL OFFICE
P. O. Box 456
Mbabane, H100
SWAZILAND

09th November, 2017

TO WHOM IT MAY CONCERN

This serves to confirm that, I, **Sibusiso Matsenjwa** is working for the Central Statistical Office of Swaziland under the National Accounts Unit as an Assistant Statistician.

I have attached my Bachelor of Arts Degree certificate in Social Science, majoring in Statistics and Economics for your review which I have obtained from the University of Swaziland in 2012.

Yours sincerely

SIBUSISO MATSENJWA
ASSISTANT STATISTICIAN

«CMP_TEL» «CMP_TLX»

ANNEXURE 7

Letter from editor

Glenvista 13
Leather Oak Street
Oak Glen
Bellville
7530

20 October 2018

To whom it may concern

LANGUAGE EDITING OF MA DISSERTATION

I hereby declare that I assisted Mrs Thabile Dlamini (student number: 45103747) with her MA dissertation by providing technical formatting, copy-editing and content editing, which included:

* corrections with regard to formatting;
* advice on referencing;
* advice on grammar;
* advice on punctuation; and
* advice on maintaining consistency of language style and conventions.

Yours faithfully

Alexa Anthonie

0832532717 www.alexaanthonie.com alexa@alexaanthonie.com

ANNEXURE 8

Turnitin originality report

Mrs Thabile Dlamini

by Ta Dlamini

Submission date: 27-Nov-2018 12:27PM (UTC+0200)
Submission ID: 1045589756
File name: 2Rina_Dlamini_formatted_26_Nov_2018_1.doc (9.42M)
Word count: 25421
Character count: 154035

Mrs Thabile Dlamini

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