PERCEPTIONS OF PATIENTS REGARDING DIABETES-RELATED HEALTH COMMUNICATION STRATEGIES IN THE FREE STATE, SOUTH AFRICA

by

Champion N. Nyoni

2012152241

Dissertation submitted for the fulfilment of the requirements for the degree

Magister Societatis Scientiae (Nursing)

In the School of Nursing

Faculty of Health Sciences

UNIVERSITY OF THE FREE STATE

SUPERVISOR: Dr M. Reid

2015

DECLARATION

I, hereby declare that the dissertation submitted for the degree Magister Societatis Scientiae in Nursing at the University of the Free State is my own independent work and has not been previously submitted by me for a degree to another university or faculty. I further waive my copyright of the dissertation in favour of the University of the Free State.

C. N. Nyoni

DEDICATION

To patients with diabetes in the world, may their voices be heard.

ACKNOWLEDGEMENTS

I would like to express my deepest and most sincere appreciation to the following people and organisations for making this work possible:

- My family, for all the heartfelt support, love and understanding;
- My employer, Paray School of Nursing, for allowing me time to be engaged with my studies and allowing me to use their resources for the fulfilment of this project;
- My supervisor, Dr M. Reid, for being a pillar of strength in unimaginable ways, for offering her friendship and the ‘spa’ treatments in the office. You made the journey lighter;
- Professor B. Smit, for the training related to the use of ATLAS.ti as a platform for data analysis and the continuous support throughout data analysis;
- Dr L. van Rhyn, for organising and training in qualitative interviewing techniques and also conducting the semi-structured interviews in Afrikaans;
- Professor Y. Botma, for the support and the encouragement throughout the project;
- Patients diagnosed with diabetes in the Free State, their voices made the project what it is;
- Jackie Viljoen for the fantastic work with the language editing;
- Elzabe Pienaar, for the phenomenal work related to technical editing, she made this document what it is;
- The National Research Foundation (NRF), through the Thuthuka Grant for the financial support; and
- Last but not least, the colleagues from ‘project four’; their diversity was the spice of this project.

‘We have diabetes… it gets to come along with us… it doesn’t get to stop us.’

Chris Olsen

ABSTRACT

BACKGROUND: Patients with diabetes are expected to manage their own condition throughout their lives. Self-management is enabled through health information presented using health communication strategies. Various health communication strategies related to diabetes are used within the Free State. Perceptions regarding health communication strategies affect adherence to disease management strategies and health outcomes, and are currently unknown.

PURPOSE: The study explored the perceptions of patients with diabetes-regarding health communication strategies.

METHODS: A descriptive, exploratory, qualitative design through a phenomenological approach was used. Semi-structured interviews were conducted in community health centres and primary health care clinics among patients with diabetes (N=34) within the Free State. Data was analysed integrating ATLAS.ti and Creswell's steps of qualitative data analysis.

RESULTS: Two themes emerged: Guidance and Self-management. The theme Guidance was divided into five categories: motive, content, source, technique and evaluation. The theme Self-management was divided into two categories: influencing factors and lifestyle modifications. The category influencing factors was divided into two sub-categories: intrapersonal factors and interpersonal factors, while the category lifestyle modification was divided into two sub-categories: nutrition and outcomes. Recommendations made were based on the findings of the study.

CONCLUSION: Participating patients with diabetes valued the role of health communication strategies. Such perceptions will inform the development of a health dialogue model for patients with diabetes in the Free State.

OPSOMMING

AGTERGROND: Daar word van pasiënte met diabetes verwag om hulle eie toestand dwarsdeur hulle lewens self te bestuur. Selfbestuur word moontlik gemaak deur gesondheidsinligting wat met behulp van gesondheidkommunikasiestrategieë aangebied word. Verskeie gesondheidkommunikasiestrategieë wat met diabetes verband hou, word in die Vrystaat gebruik. Persepsies ten opsigte van gesondheidkommunikasiestrategieë het ʼn invloed op nakoming van strategieë vir die bestuur van siekte en gesondheidsuitkomste, en is tans onbekend.

DOEL: Die navorsing het die persepsies van pasiënte met diabetes ten opsigte van gesondheidkommunikasiestrategieë verken.

METODES: ʼn Deskriptiewe, verkennende, kwalitatiewe ontwerp met ʼn fenomenologiese benadering is gebruik. Semi-gestruktureerde onderhoude is met pasiënte met diabetes (N=34) in gemeenskapgesondheidsentrums en primêregesondheidsorgklinieke in die Vrystaat gevoer. Data is ontleed met inskakeling van ATLAS.ti en Creswell se stappe van kwalitatiewe dataontleding.

RESULTATE: Twee temas het na vore gekom: Leiding en Selfbestuur. Die tema Leiding is onderverdeel in vyf kategorieë: motief, inhoud, bron, tegniek en evaluering. Die tema Selfbestuur is onderverdeel in twee kategorieë: beïnvloedende faktore en lewenstylveranderinge. Die kategorie beïnvloedende faktore is verder onderverdeel in twee subkategorieë: intrapersoonlike faktore en interpersoonlike faktore, terwyl die kategorie lewenstylverandering onderverdeel is in twee subkategorieë: voeding en uitkomste. Aanbevelings wat gemaak word, is gebaseer op die bevindinge van die navorsing.

GEVOLGTREKKING: Pasiënte met diabetes wat aan die studie deelgeneem het, het die rol van gesondheidkommunikasiestrategieë op prys gestel. Dergelike persepsies sal die ontwikkeling van ʼn gesondheidsdialoogmodel vir pasiënte met diabetes in die Vrystaat inspireer.

LIST OF ABBREVIATIONS

CAQDAS	-	Computer Assisted Qualitative Data Analysis Software
CHC	-	Community Health Centre
DDoH	-	District Department of Health
DoH	-	Department of Health
ED	-	Erectile Dysfunction
FSDOH	-	Free State Department of Health
HU	-	Hermeneutic Unit
IDF	-	International Diabetes Federation
NDOH	-	National Department of Health
PDoH	-	Provincial Department of Health
PHC	-	Primary Health Care
PRISM	-	Planned Risk Information Seeking Model
SEMDSA	-	Society for Endocrinology, Metabolism and Diabetes of South Africa
Stats SA	-	Statistics South Africa
UFS	-	University of the Free State
USDHHS	-	United States Department of Health and Human Services
WHO	-	World Health Organisation

CONCEPTUAL AND OPERATIONAL DEFINITION OF CONCEPTS

Diabetes mellitus – diabetes mellitus is a metabolic disorder with heterogeneous aetiologies and is characterised by chronic hyperglycaemia and disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both (Ascot-Evans, Berg, Blom, Brown, Carrihill, Dave, Distiller, Ganie, Grobler, Heibrunn, Huddle, Van Rensburg, GJivan, Joshi, Khutsoane, Levitt, May, Mollentse, Motala, Paruk, Pirie, Raal, Rauff, Raubenheimer, Randeree, Rheeder, Tudhope, Van Zyl, & Yang, 2012:12). Using the same parameters set by Ascot-Evans *et al.* (2012), in this study the term **diabetes** will be used when referring to diabetes mellitus, specifically type 2. Should another type of diabetes be referred to, the diabetes mellitus type/s will specifically be indicated.

Health care workers – according to Adams (2003 cited in Dal Poz, Kinfu, Drager & Kunjumen, 2007: online), health care workers are all people engaged in the promotion, protection or improvement of the health of populations. In this study, the concept **health care workers** will be utilised in reference to all health care workers that are providing care and service to patients with diabetes in the Free State.

Health communication strategies – Rensburg and Kruger (2011: 79) define health communication strategies as various approaches that are used to inform, influence and motivate individuals and community decisions about health health. In this study, health communication strategies will refer to approaches used in informing, influencing and motivating patients with diabetes in the Free State.

Patients – patients are persons receiving medical care at any hospital or health institution. Pulia (2011:18) attests that patients could be of any age. In this study, **patients** will refer to adults above the age of 18 diagnosed with type two diabetes.

Perceptions – perceptions are the organisation, identification and interpretation of sensory information in order to represent an understanding of the environment (Bunting, 1988:170). In this study, **perceptions** will imply the interpretation of health communication strategies by adults with type two diabetes.

TABLE OF CONTENTS

CHAPTER 1: Overview of the study

Page

CHAPTER 2: Methodology

CHAPTER 3: Discussion of the research findings

CHAPTER 4: Summary of research findings, recommendations, limitations and conclusion

LIST OF FIGURES

LIST OF TABLES

LIST OF ADDENDA

CHAPTER 1

Overview of the study

1.1 INTRODUCTION

"As millions of undiagnosed people develop diabetes complications, we can expect to see the mortality rate climb", said Jean Claude Mbanya, President of the International Diabetes Federation (IDF) (IDF, 2012: online). This sentiment illustrates the extent and effect of all types of diabetes mellitus globally. Diabetes mellitus is an incurable non-communicable metabolic disorder that affects multiple systems within the human body and can result in death if poorly managed (American Diabetes Association, 2004:S6). This disorder is classified into four types, and 90% of all reported diabetes mellitus cases are type two (IDF, 2012: online). The IDF (2012: online) estimates that 371 million people globally are diagnosed with a type of diabetes and half of the global population with diabetes mellitus remains undiagnosed. More than 80% of people diagnosed with diabetes mellitus are in low- and middle-income countries of which South Africa is part.

According to the 2011 census, South Africa has a total population of about 51 million people of which 1.9 million have been diagnosed with a type of diabetes mellitus (IDF, 2012: online; Bertram, Jaswal, Van Wyk, Levitt & Hofman, 2013: online). The country is divided into nine provinces, of which the Free State makes up 5% of the country's population (Statistics South Africa [Stats SA], 2012:14) and in a study conducted in the rural southern Free State, Groenewald, Van Wyk, Walsh, Van Zyl and Van der Merwe (2009:503) found that 7.6% of the population in this province had diabetes mellitus at the time of their research. Their findings related to the prevalence of diabetes mellitus were above the national average and called for urgent mitigation strategies through the public health sector.

The public health sector in most African countries is the major health care provider (Coovodia, Jewkes, Barron, Sanders & McIntyre, 2009:820) and is responsible for providing mitigation strategies related to diabetes mellitus. South Africa's public health system is decentralised (Ataguba, Benatar, Doherty, Engelbrecht, Heunis, van Rensburg, Kigozi, McIntyre, Pelser, Steyn, van Rensburg & Waiters, 2012:88), with the Department of Health (DoH) operating at national, provincial and district level. The majority of patients receive free health services at various levels of care inclusive of the primary health care (PHC) clinics and community health care (CHC) centres (Ataguba *et al.,* 2012:98). The DoH is further responsible for appropriate legislature regarding the governance of health and all health-related issues in the country (South Africa. DoH, 2013: online). The Provincial Department of Health (PDoH) is evidence of the decentralisation of the public health system in South Africa. The mandate of the PDoH is to make operational-level decisions in the provinces, providing hospital-based services and PHC, inclusive of chronic diseases management through various programmes (Coovodia *et al.*, 2009:828). The PDoH can be found in each of the nine provinces of the country.

The Free State PDoH has a chronic disease management programme, which operates at provincial and district level. The chronic disease management programme is provided at district level through PHC clinics, which are nurse-driven and CHC centres which are led by physicians. The programme attempts to provide comprehensive health care to patients diagnosed with chronic diseases, inclusive of diabetes. The hallmark of this programme includes when health information is transmitted to adult patients with diabetes, avoidable death which is averted and diabetes outcomes which are favourable for the patients in the province (Wright, Spark & O'Hair, 2013: 10).

Health information is life-changing information related to the health of a particular patient with a disorder. The main purpose of health information is to influence and strengthen behaviours, correct presumptions, myths and misconceptions, to appraise and motivate patients but most importantly to improve disease outcomes (Freimuth & Quinn, 2004:2053). Adult patients with diabetes require health information regarding how they could manage their condition independently in the best way possible. Managing the condition independently is an expectation for patients with incurable diseases like diabetes, who are expected to make decisions regarding their health and lifestyle. Health information regarding diabetes has to be communicated effectively to the patient to achieve positive disease outcomes.

Health communication is the transfer of health information to persuade patients and communities to make judgements that foster well-being (Wright *et al.,* 2013:89). Health information is communicated differently and separately depending on the individual needs of the patient, the community and of the health care workers; thus, being culturally astute and in context. This information may be communicated through a variety of communication strategies, such as an interplay of interpersonal patient-provider interaction, group education, mass education in the form of campaigns and utilisation of a variety of media sources inclusive of electronic and print (Wright *et al.*, 2013:91). Interpersonal patient-provider interactions are common practice in most settings in the world, including South Africa. In a meta-analysis, Zolnerik and DiMatteo (2009:829-832) postulate that patient adherence to treatment significantly correlates with effective interpersonal communication by the health care worker. Interpersonal patient-provider interaction can be useful in directing health information to patients with diabetes for positive disease outcomes (Manary, Boulding, Staelin & Glickman, 2013: online). However, a study in Oman postulated that several challenges are met in the implementation of interpersonal patient-provider interaction. Patients expressed concern on the manner in which the interpersonal meetings took place. Patients expected to be treated with care, respect and dignity, to be addressed as adults and that their health matters treated with high confidentiality. Patients' expectations in interpersonal patient-provider interactions are a significant factor in determining how effective health communication will be. Some of the patients from the study in Oman, reported that health care workers never greeted them, some did not even establish eye contact as they were busy writing something on their pads and the amount of health information the patients received was usually shallow and to a large extent not addressing the reason why the patient sought health care initially (Abdulhadi, Shafee, Frendenthal, Ostenson & Wahlstrom, 2007: online).

Group education is different from interpersonal patient-provider interactions. Group education is an approach used in communicating health information to patients (Mash, Levitt, Steyn, Zwarenstein & Rollnoick, 2012:6). In group education, the health care worker facilitates dialogue within a group. The aim of group education is for group members to reflect and share experiences on how to live with the chronic disease, and to provide a platform for support (Mash *et al.*, 2012:6). Deakin, McShane, Cade and Williams (2005: online) propose that attending diabetic group education for a year improves diabetic health outcomes. Such improved health outcomes include reduced fasting blood sugar, reduced body weight and reduced blood pressure. In a study conducted in South Africa, group education sessions were perceived as advantageous to health care workers, considering the critical shortage of health care workers in PHC and the high numbers of patients diagnosed with diabetes (Mash, Levitt, Van Vuuren & Martell, 2008:50).

Wakefield, Loken and Hornick (2010:268) integrate the three major health communication approaches as suggested by Freimuth and Quinn (2004:2053), into one: campaigns. Wakefield *et al.* (2010:269) further mention that campaigns will utilise a variety of techniques within a given time frame. The media and mass education can be utilised simultaneously within a campaign. These strategies usually target a large population of patients and potential patients with an aim to inculcate strategies that reduce obstacles to healthy living while promoting positive behaviour change. Affluent countries are mainly associated with the utilisation of technology in the transmission of health information while middle- and low-income countries utilise verbal communication strategies and other forms of the media, which could be through broadcast or print media (Wakefield *et al.*, 2010:269). A large number of people are targeted in a campaign; however, the retention of the health message is usually low (Balamurugan, Rivera, Sutphin & Campbell, 2007:273)

Health information is communicated to restrain diabetes mellitus and its effects on patients (Bexci & Subramani, 2014:350-351). Considering that diabetes is a lifelong disease, approaches of its management are focused on empowering the patient with diabetes. Patients are empowered because they are expected to care for themselves effectively with minimal input from the health care worker. Kneck, Klang and Fagerberg (2012:2490) and Linsely, Kane and Owen (2011:103) suggest that self-care exists in a dependency-independency continuum. On the dependency end of the continuum, the patient with diabetes relies fully on the health care worker, while on the independency end, the patient is able to make and implement decisions, free from the direct aid of the health care worker. Health information is crafted to empower the patient with diabetes in such a way that he/she can achieve independency of care resulting in positive health outcomes.

Adult patients with diabetes are central to the management of their own condition (Funnell, Brown, Childs, Haas, Hosey, Jensen, Marynuik, Peyrot, Piette, Reader, Siminino, Wenger, & Weiss, 2009:588). They are in a position of self-determination and have the ability to make decisions regarding their lifestyle independently and thus have the power to influence the outcomes of the disease. The approach for the management of diabetes focuses on lifestyle modification (Inzucchi, Bergenstal, Buse, Diamant, Ferrannini, Nauck, Peters, Tsapas, Wender & Matthews, 2012:46). Wabe, Angamo and Hussein (2011:422) justify this approach as diabetes is essentially a lifestyle disorder, and rises in prevalence due to poor lifestyle practices. The modification of lifestyle includes exercise, regular blood glucose monitoring and a healthy diet (Ascot-Evans, Berg, Blom, Brown, Carrihill, Dave, Distiller, Ganie, Grobler, Heibrunn, Huddle, Jansen van Rensburg, Jivan, Joshi, Khutsoane, Levitt, May, Mollentse, Motala & Paruk, 2012:S32). Information related to modification of lifestyle for patients with diabetes is conveyed within PHC settings in South Africa for most patients with diabetes.

1.2 PROBLEM STATEMENT

Retention of health information is the hallmark of effective health communication strategies (Balamurugan *et al.,* 2007:274). Without health information, patients with diabetes die prematurely (Canadian Ministry of Health, 2013: online). Various diabetes-related health communication strategies are currently being utilised by health care workers in the management of adults with diabetes in the Free State. These health communication strategies have various outcomes within different populations and different settings (Damasceno, Zanetti, Carvalho, Araujo & Alencar, 2012:689-690). There is a darth in literature related to the exploration of the perceptions of patients regarding diabetes-related health communication strategies within the South

African context. Perceptions regarding health communication strategies affect adherence to disease management strategies and disease outcomes (Murphy, Casey, Dinnen, Lawton & Brown, 2012:1284). The present study sought to explore the perceptions of adults with diabetes regarding diabetes-related health communication strategies the Free State. Findings from the study will be incorporated to be part of a larger study aiming at developing a health dialogue model for patients with diabetes in the Free State public health sector.

1.3 RESEARCH QUESTION

The research question guiding the present study was:

> *What are the perceptions of patients regarding diabetes-related health communication strategies in the Free State?*

1.4 PURPOSE OF THE STUDY

The present study aimed to describe and explore the perceptions of patients regarding diabetes-related health communication strategies in the Free State.

1.5 PARADIGMATIC PERSPECTIVE

Our world view determines how we see and interpret the world around us (Neuman, 2009:68). This world view has an influence on the choices and actions the researcher will take during a study and is referred to as the research paradigm (Botma, Greeff, Mulaudzi & Wright, 2010:40). The research paradigm dictates what should be studied, how it should be studied and which rules to follow in interpreting the answers to the research question (Botma *et al.*, 2010:37). Because of its influence on the whole study, the research paradigm should be stated explicitly early in the research study (Botma *et al.*, 2010:39; De Vos, Strydom, Fouche & Delport, 2011:5). Scotland (2012:9) states that knowledge and ways of discovering it are truly subjective and are dependent on the researcher’s paradigmatic perspective.

Various research paradigms are utilised in social sciences research, and interpretivism is a common paradigm (Neuman, 2009:69). In the present study, the researcher followed an interpretivist approach. Interpretivism insists that social reality (Scotland, 2012:11) and knowledge is based on what people think about the phenomenon. The application of the interpretivist paradigm in the present study is discussed through the three main philosophical assumptions of a paradigm namely: ontology, epistemology and methodology:

- **Ontology** is the researcher's idea of what constitutes the nature and characteristics of reality (Botma *et al.,* 2010:40; Scotland, 2012:9). In this study, the researcher believed that reality is subjective and people experience reality in different ways. This subjective reality needs to be studied. People are social beings who individually create meaning and constantly make sense of their worlds (De Vos *et al.,* 2011:6). Adult patients with diabetes have experienced through interaction with health care workers, a variety of health communication strategies. The patients' perceptions of the nature of this interaction and that of various health communication strategies are subjective (Neuman, 2009:56 & De Vos *et al.*, 2011:7). The subjective reality forms part of the life of a patient, and informs his/her process of making decisions, and is thus essential to be studied. The nature of this subjective reality is demonstrated by the epistemology of the study (Botma *et al.*, 2010:40).

- **Epistemology** reflects the nature and forms of knowledge (Speziale & Carpenter, 2007:8). The focus of epistemology is on how knowledge can be created, acquired and communicated (Botma *et al.*, 2010:40; De Vos *et al.*, 2011:309). The epistemological questions express how the researcher can know reality and explain it (Scotland, 2012:10). In the present study, the researcher believed that knowledge is constructed, while theories are revisable and sensitive to context. The role of the researcher is to describe the multiple subjective realities (Botma *et al.*, 2010:40). These subjective realities were sought through the interaction with multiple adults with diabetes. Each individual's perception was considered as the individual's reality. The experience of patients with diabetes regarding health communication strategies was principled in the constructive nature of knowledge acquisition and in personal experiences as adults. This constructed knowledge requires rules and procedures of how it should be investigated, and the rules and procedures are expressed as the methodological assumptions (Botma *et al.*, 2010:40).

- **Methodological assumptions** reflect the way of acquiring knowledge. The main focus of methodological assumptions is the rules and procedures that specify how the researcher must study and investigate what he/she believes must be known (Botma *et al.*, 2010:40; De Vos *et al.*, 2011:309). Interpretive methodology is directed at understanding the phenomenon from the individual's perspective, investigating the interaction among individuals as well as the cultural and historical context of existence (Speziale & Carpeter, 2007:10). In the present study, the researcher tried to develop an understanding of the whole and a deep understanding of how each part relates to and is connected to the whole (Bunting, 1988:170). Perceptions are the overall whole; however, these perceptions are built upon a variety of subjective experiences that have been developed with the experiences of the adult. These perceptions are strongly influenced by and vested in personal and social values that are contextual (Bunting, 1988:172). The researcher believed that values are an integral part of social life and only different from each other. Qualitative research techniques through semi-structured interviewing were utilised in gathering, analysing and presenting the perceptions of the patients regarding diabetes-related health communication strategies. These techniques were applied in PHC clinics and CHC centres within the Free State.

1.6 RESEARCH DESIGN

The study utilised a qualitative, descriptive and exploratory design that was contextual in origin. The main aim of the present study was to describe and explore perceptions which were based on subjective experiences. The perceptions of the patients were explored through descriptive phenomenology.

1.7 RESEARCH TECHNIQUE

The study utilised semi-structured interviewing as a technique to gather data. The semi-structured interview attempts to understand the world from the participant's point of view. Its main purpose is to understand the experience of the participants and make meaning out of that experience.

1.8 POPULATION

Adults with diabetes and receiving chronic care at CHC centres and PHC clinics in the Free State public health sector were included as the population for this study. Difficulties existed in obtaining the exact number of adults diagnosed with diabetes who were receiving care at the CHC centres and PHC clinics in the Free State's public health since such data was not being captured at the time of the study. The study used an estimate by the National Household Survey (2012:78), namely 64 798 people. This estimated figure was reflective of all types of diabetes within the Free State at the time of the research, regardless of where they were receiving their health care.

1.9 UNIT OF ANALYSIS

The unit of analysis for this study was selected through purposive sampling from the population. The unit of analysis had to meet the following criteria to be included in the study:

- a medical diagnosis of diabetes for at least a year on their medical record;
- above the age of 18, verified through their national identification document;
- the ability to speak English, Afrikaans, Sesotho or Xhosa; and
- willing to participate in the study on the day the semi-structured interviews were conducted.

1.10 EXPLORATIVE INTERVIEW

The researcher identified a suitable venue for the explorative interview within a PHC clinic in Mangaung Metropolitan district. Two adults with diabetes were selected to be part of the explorative interviews. The critical data collected from these interviews included the length of time to conduct the interview and the clarity of the questions. The responses were analysed regarding their consistency and validity, determining whether the participants' responded appropriately to the questions asked. The data from this explorative interview were incorporated to the main data, as no changes to the interview questions were made after analysis.

1.11 DATA COLLECTION

Permission to conduct the study was sought from Faculty of Health Sciences Ethical Committee UFS (Addendum A) and the Free State DoH (Addendum B). After permission had been granted, dates when data would be collected were identified in collaboration with the PHC clinics and CHC centres. Nine CHC centres in the Free State province were utilised as sites for data collection in the study. Stratified sampling was utilised in determining the six PHC clinics to be included according to the main towns within Motheo District only. Semi-structured interviews were conducted until data saturation was reached. Data saturation was deemed to have been reached when no new information was added to interviews, irrespective from which site data originated.

1.12 TRUSTWORTHINESS

The quality of this study was ensured through the utilisation of the trustworthiness framework by Lincoln and Guba (1981). The trustworthiness framework was applied based on four epistemological standards, namely credibility, dependability, confirmability and transferability. This framework and its application will be discussed in Chapter 2.

1.13 ETHICAL CONSIDERATIONS

The study was guided by the three primary ethical principles on which standards of ethical conduct in research should be based, as expressed in the Belmont Report. The three primary principles include the principles of beneficence, respect for human dignity and justice. The application of these principles is discussed in depth in Chapter 2.

1.14 DATA ANALYSIS

Data analysis was done through the editing analysis style superimposed on steps developed by Creswell (2009) and inductive reasoning to generate the perceptions of patients with diabetes regarding health communication strategies in the Free State. Computer Assisted Qualitative Data Analysis Software (CAQDAS) particularly ATLAS.ti was utilised as a platform for data analysis.

1.15 CONCLUSION

This chapter provided an overview to the study. A discussion of the problem statement, the purpose of the study and the paradigmatic perspective followed in the present study were detailed. The research design that was used and also the research technique, data collection and analysis utilised were highlighted. Sensitisation regarding the trustworthiness framework that was applied and the ethical principles the study adhered to was also discussed. The following chapter reports on the detailed methodology of this study.

CHAPTER 2

Methodology

2.1 INTRODUCTION

The purpose of the present study was to determine the perceptions of patients regarding diabetes-related health communication strategies in the Free State, South Africa. The first chapter provided an overview of the study. This chapter reports on the methodology relevant to this study.

Methodology relates to the ‘how’ aspect of research (Botma *et al.*, 2010). Specifically, this methodology chapter describes in detail the research design employed and provides the background context of this study. Aspects pertaining to the technique the researcher used in the generation of data including the advantages or strengths and limitations of using such a technique are discussed here. The chapter will also highlight the population of the study and the way the study participants were selected. The data collection process and how the data was analysed are also discussed, including the utilisation of CAQDAS, specifically ATLAS.ti.

The quality of a research study is critical, and it can be ensured by the credibility of the study findings (Botma *et al.*, 2010:67). This methodology section presents means engaged by the researcher in ensuring the trustworthiness of the study findings. Lastly, the researcher upheld specific ethical principles in conducting the study. The application of ethical principles for this study is discussed later (see 2.10). The chapter starts with a discussion of the research design used in this study.

2.2 RESEARCH DESIGN

Perceptions of patients regarding diabetes-related health communication strategies needed to be explored in a systematic and methodologic way so as to enhance the credibility of the study findings. Polit and Beck (2012:185) mention that a systematic and methodologic process is required to address a research question. The systematic and methodologic process is described as the overall plan of the study, the 'backbone' of the study or the research design (Botma *et al.*, 2010).

The research design provides the structure of the methods and decisions needed for the research question to the answered (De Vos *et al.*, 2011:141). In its broadest sense, the research design refers to decisions that the researcher makes regarding the sampling and the data collection and analysis, consequently drawing closer to answering the research question accurately (De Vos *et al.*, 2011:143). The main purpose of the research design in the present study was to answer the research question, namely:

> *What are the perceptions of patients regarding diabetes-related health communication strategies in the Free State province in South Africa?*

Creswell (2009:88) states that the overall decision on which plan or research design to be used in a particular study should be informed by the world view assumptions that the researcher brings to the study, procedures of inquiry and the specific methods of data collection and analysis. Botma *et al.* (2010:189) elaborate that the research design should address the nature of the study, the main aim of the study, and the context in which the study is conducted. Based on the concepts presented by Botma *et al.* (2010:189) and Creswell (2009:88), the researcher utilised a qualitative, descriptive and exploratory research design, which was contextual in origin through a phenomenological approach. The following discussion expands on how each concept of the research design was used in this study.

2.2.1 Qualitative research design

Intricate phenomena exist in the day-to-day living of humans within societies (Speziale & Carpenter, 2007:2). Such phenomena are perplexing, and the manner in which humans and society deal with such intricate phenomena should be described. Qualitative research brackets all the methods and means researchers use in describing and interpreting perplexing human and societal phenomena (Creswell, 2009:19; Speziale & Carpenter, 2007:2). Polit and Beck (2012:739) and Botma *et al.* (2010:182), suggest that the ideal of understanding such phenomena is typically through an in-depth holistic approach that examines the essence of what the researcher seeks to understand. Neuman (2009:105) also mentions that understanding human and societal phenomena requires an interpretive slant. The interpretive approach requires the researcher to understand the phenomena of interest from the context of the society experiencing it (De Vos *et al.*, 2011:65). Interpretivism describes and creates an understanding of phenomena from the participant’s point of view (Speziale & Carpenter, 2007:2; De Vos *et al.*, 2011:64). The purpose of qualitative research is to understand phenomena where little or no research has been done or that phenomena are unquantifiable (Creswell, 2009:19; Botma *et al.*, 2010:182; De Vos *et al.*, 2011:65).

Human perceptions are an unquantifiable phenomenon that develops as humans experience life or interact with society (Bruner, 1957:144). It is during such interaction or lived experiences that humans ascribe a meaning to such life experiences. The assigning of meaning to individual experiences is influenced by everything internal and external to the individual (Speziale & Carpenter, 2007:77). The meaning ascribed to an experience is crafted in association with previous experience and each individual’s perception of a particular phenomenon (Bruner, 1957:146).

Patients’ perceptions are influential in the success or failure of any intervention on that patient and thus warrant exploration (Bruner, 1957:1377). The nature of such an exploration is through a flexible research design or an unstructured investigation which is imbedded in qualitative research (Polit & Beck, 2012:129). The flexibility of a qualitative research design makes it appropriate for the exploration of the nature of unquantifiable human phenomena such as human perceptions. In the context of this study, the unquantifiable human phenomena that were investigated were the perceptions of patients regarding health communication strategies in the Free State, and these were explored through qualitative research methods.

Patients with diabetes are exposed to health information through a variety of communication strategies. These patients develop perceptions related to the various strategies used in conveying health information. In exploring these perceptions, the researcher utilised a flexible research design through an interpretive qualitative method. Qualitative research is conducted using several approaches, and one such approach is phenomenology (De Vos *et al.*, 2011:288).

2.2.2 Phenomenological approach

The phenomenological approach to qualitative research is a concept embedded in phenomenology. Phenomenology is described as a science whose main aim is to describe particular phenomena or the appearance of things as lived phenomena (Speziale & Carpenter, 2007:76). This particular method of inquiry was discussed concisely at the beginning of the first decade of the twentieth century, and the philosophic movement has grown since then (Speziale & Carpenter, 2007:86). Spiegelberg and Merleau-Ponty (1985) in Speziale and Carpenter (2007:87) describe phenomenology as both a philosophy and a methodology, and it is on these two major classifications that the discussion that follows is based.

Phenomenology as a philosophy is concerned with the way of looking at ourselves, others, our contacts, the environment and everything else in the realm of living. This ‘looking’ is described as lived experience (Flick, 2009:110). The lived experience is the total sphere of the everyday life, which is central to the phenomenological inquiry. This lived experience gives meaning to what is true and real to the individual, thus giving sense to an individual perception of a particular phenomenon (Speziale & Carpenter, 2007:87; De Vos *et al.*, 2011:88).

Polit and Beck (2012:117) and Pope and Mays (2006:79) highlight that the concept of lived experiences can be further explained to encompass a variety of forms of human experience. Of particular concern to the present study was the lived human relation. Lived human relation highlights the meaning that is generated by individuals during their process of interacting and living with other humans and/or the environment. The meaning or essence of such interactions by individuals is the crux of a phenomenological inquiry (Speziale & Carpenter, 2007:68; De Vos *et al.*, 2011:98). In this particular study, using phenomenology as a philosophy, the researcher was interested in the meaning or lived experience generated or developed by patients with diabetes as they interact with other individuals and the environment related to health communication. The experience of inquiry was focused on health communication strategies related to diabetes within the Free State.

In determining the lived experiences generated by the participants, the researcher needed to describe the 'how' aspect. This 'how' aspect is reflective of phenomenology as a methodological approach to qualitative research (Speziale & Carpenter, 2007:81). According to Speziale and Carpenter (2007:82), scholars interpret phenomenology as a qualitative method in a variety of ways. In determining the most appropriate interpretation of phenomenology as a qualitative method, the researcher needed to be grounded in the philosophic underpinnings of the study and be clear on the intentions of the study (Neuman, 2009:65). Consequently, the study aimed at describing as accurately as possible the phenomenon of interest or the lived experience of the participants without any pre-given framework (Groenewald, 2004:3-5). The overall aim of this study was to describe the perceptions of patients with diabetes regarding health communication strategies in the Free State province in South Africa.

Implications of describing the experiences of the participants and the generation of their perceptions meant that the overall outcome of the study had to thoroughly reflect participants' lived experiences. This meant that the researcher had to utilise the most naturalistic methods in gathering data and avoid as far as humanly possible to contaminate the data with preconceived ideas and notions related to the subject (Hamil & Sinclair, 2010:16-18). The level and quality of methods employed had to be rigorous and trustworthy (Polit & Beck, 2012:124).

The naturalistic methods of generating data implied that the researcher had to gather data through conversation with the participants experiencing the phenomena of interest, which in this study was the health communication strategies. Naturalistic methods reduced any chances of experimentation and/or introduction of any concept that was not related to the phenomena of interest (Groenewald, 2004:16-19). The researcher was also expected, as generation of high-quality data which was reflective of participant's experiences, not to contaminate the process. This was achieved through the adoption of the 'Husserlian' phenomenological approach or descriptive phenomenology, which emphasises the concept of bracketing (Groenewald, 2004:18; Hamil & Sinclair, 2010:3-9).

Bracketing is temporarily holding in abeyance the foreknowledge of the researcher about the phenomena of interest (Hamil & Sinclair, 2010:7). The purpose of bracketing is to ensure that the quality of the description of the study is a reflection of the participants' perceptions and experiences over and above that of the researcher (De Vos *et al.*, 2012:165) The researcher was expected to bracket assumptions, judgements, biases and beliefs, presumptions, experiences and issues (Hamil & Sinclair, 2010:19) regarding health communication strategies and diabetes. These concepts were to be bracketed during the data-generation process, the data analysis and presentation of results. Hamil and Sinclair (2010:23) state that the process of bracketing ends when the research is finished.

To enhance bracketing the researcher created a journal prior to the data collection, which was used for reflection. Initially, the researcher wrote all the aspects of the subject that were known to the researcher down, and these were presented to and discussed with the supervisor. During data collection, the experiences, thoughts, feelings and perceptions of the researcher were constantly included in the journal and the researcher checked himself against them during data analysis, especially to determine whether they had an effect on the data-generation process (Flood, 2010:11). Lastly, the literature review was conducted after the data had been collected and analysed to enrich the results further.

The techniques described emphasised the utilisation of phenomenology as a methodology. Phenomenology is used to describe phenomena (Botma *et al.* 2010:40), and it was deemed an appropriate research approach for this study whose aim was to describe the perception of patients with diabetes regarding health communication strategies accurately. Giorgi (1997:240) states that the main operative word for descriptive phenomenology is *"describe".* The following discussion introduces descriptive research and how such a research design was applied in the present study.

2.2.3 Descriptive research

A descriptive research design is a non-experimental research design used when the main aim of the study is to describe the variable of interest as it naturally occurs (De Vos *et al.*, 2011:317). The main purpose of descriptive research designs is to observe, describe and document aspects of a situation as they naturally occur and sometimes to serve as a starting point for the generation of a hypothesis or theory (Polit & Beck, 2012:228). This study aimed to describe aspects of a phenomenon as they naturally occur. Patients with diabetes experience a variety of health communication strategies and they develop perceptions regarding such experiences. The perceptions generated through experiences with health communication strategies are essential in the future management of diabetes.

A descriptive research design is used when little is known about a topic or to explore the research question as the initial step in a line of research (Botma *et al.*, 2010:88). This study formed part of a larger research project working towards the development of a model for health dialogue for patients with diabetes attending public health facilities in the Free State. The perceptions of patients regarding diabetes-related health communication strategies will be incorporated into the overall structure of the health dialogue model. A descriptive research design correlated with the overall approach of the present study, which was a qualitative inquiry.

The population that is studied in descriptive designs through a qualitative approach is non-randomised (De Vos *et al.*, 2011:96). The non-randomisation of the population gives the researcher an opportunity to engage with participants who can provide an overall thick description of their lived experiences. The outcome of such a study is only applicable to that specific population because of the nature of the inclusion criteria (Botma *et al.*, 2010:42). Benefits of descriptive research designs include an intensive examination of phenomena and a thorough exploration of their deeper meaning thus reflecting what is really happening in a particular circumstance (Polit & Beck, 2012:229). A descriptive research design also affords the researcher the opportunity to document and describe phenomena that have not yet been explored. This correlates with the need for the utilisation of an exploratory research design. The following discussion expands on an exploratory research design and how it was applied in this study.

2.2.4 Exploratory research

The essential part of qualitative phenomenological research is based on the essence of an experience. However, if little or no basic information is known regarding such an experience then there is need for the researcher to get acquainted with such information (Botma *et al.*, 2010:185; De Vos *et al.*, 2011:95). Perceptions of patients regarding how diabetes-related health information is conveyed to them, required exploration. The dimensions of this phenomenon were not clearly known, particularly within the province of Free State in South Africa. De Vos *et al.* (2011:95) describe exploratory research design as a design that aims to create a general picture of the situation as it naturally occurs. As the present study formed part of a larger study aimed at developing a health dialogue model, the experiences or perceptions of patients with diabetes are important in the development of the whole model. An exploratory research design is used to explore the dimensions of a phenomenon or to develop or refine a hypothesis about relationships between phenomena (Polit & Beck, 2012:727). In the present study, the researcher utilised an exploratory research design to explore the perceptions of patients with diabetes regarding health communication strategies in the Free State. These experiences were explored within the specific context of the PHC in the Free State.

2.2.5 The context of the study

South Africa is a multi-cultured, multi-racial country located on the southernmost part of the African continent. The country is divided into nine provinces, which are different based on historical, cultural and racial variations. The Free State is one of the nine provinces in South Africa which is located in the central interior of South Africa and is land locked. This province is bordered by Gauteng to the north, North-West province to the northwest, Northern Cape to the west, Western Cape to the south west, Eastern Cape to the south east, Lesotho and KwaZulu-Natal to the east and Mpumalanga to the north-east.

Free State is divided into five administrative districts, namely Xhariep, Thabo-Mofutsanyane, Motheo, Fezile Dabi and Lejweleputswa. Figure 2.1, which depicts the districts within Free State, also reflects the geographical location of Free State in South Africa and the division of the province into the five administrative districts.

Free State is estimated to have a population of about 2.7 million people (Stats SA, 2012: online) with the majority being black. The majority of people in the Free State speak Sotho (64.2%), followed by Afrikaans (12.7%) and Xhosa (7.5%) (Stats SA, 2012: online). The variation and distribution of the population have historical connotations that date back to the establishment of Free State as a province in 1910.

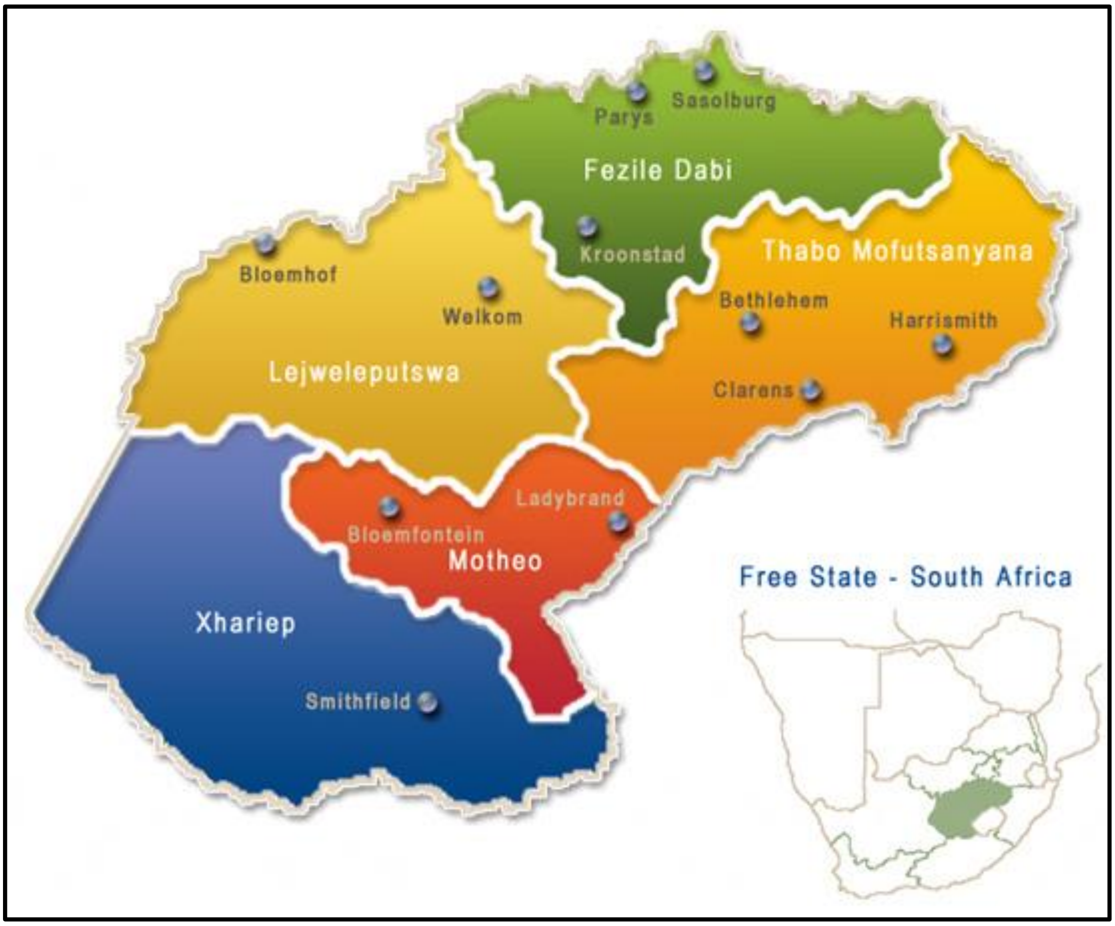


FIGURE 2.1: Districts within Free State

When South Africa gained independence in 1994, the health delivery system was fragmented (Sibiya, 2009:49). Prior to independence, the fragmentation of health services was based on racial lines with the majority of blacks who populated the rural areas receiving poor health care through the public health system compared to the minority who occupied urban areas and receiving better health care. After independence, national reforms lead to changes in the health care policies. Such changes led to the adoption of the principles of primary health care and redistribution of health care services to include marginalised societies and communities. Essential to primary health care are concepts that include community development and community participation in health and the ability of the health services to be closer to the people requiring it (Ataguba *et al.*, 2012:32).

The inclusion of primary health care meant that the health care system had to be decentralised. Primary health care facilitated the decentralisation of health care services, thus strengthening relationships between the national DoH (NDoH) and the provincial DoH (PDoH). The NDoH was made to be responsible for setting health-related policies, and the PDoH became responsible for implementing policies and changes (Sibiya, 2009: 138). This meant that the health delivery in the Free State is currently under the direct control of the PDoH (FS Health, 2015: online). The PDoHs are statutory bodies within provinces in South Africa who are mandated to administer the day-to-day affairs of the health care system within the provinces. A further step down from the provincial departments is the District DoH (DDoH), which is in charge of the day-to-day running of health issues in a particular district (Ataguba *et al.,* 2012:68).

The decentralisation of the health delivery services in South Africa allows for the provision of multiple levels of health care (Ataguba *et al.* 2012:69). The co-ordination and chain of communication between these multiple levels of health care delivery are required for the provision of quality health care. The nature and scope of the chain of communication between the various levels of health care within the decentralised public health system in the Free State, are reflected through the referral system. In a study on the health system's referral system in South Africa, Van Zyl *et al.* (2000) in Ataguba (2009:178) managed to categorise the various levels of primary health care systems and interconnections generated by such systems within the South African context. Figure 2.2 depicts the interrelations between the levels of health facilities within the South African context. This system is applied in all provinces and typically within the Free State.

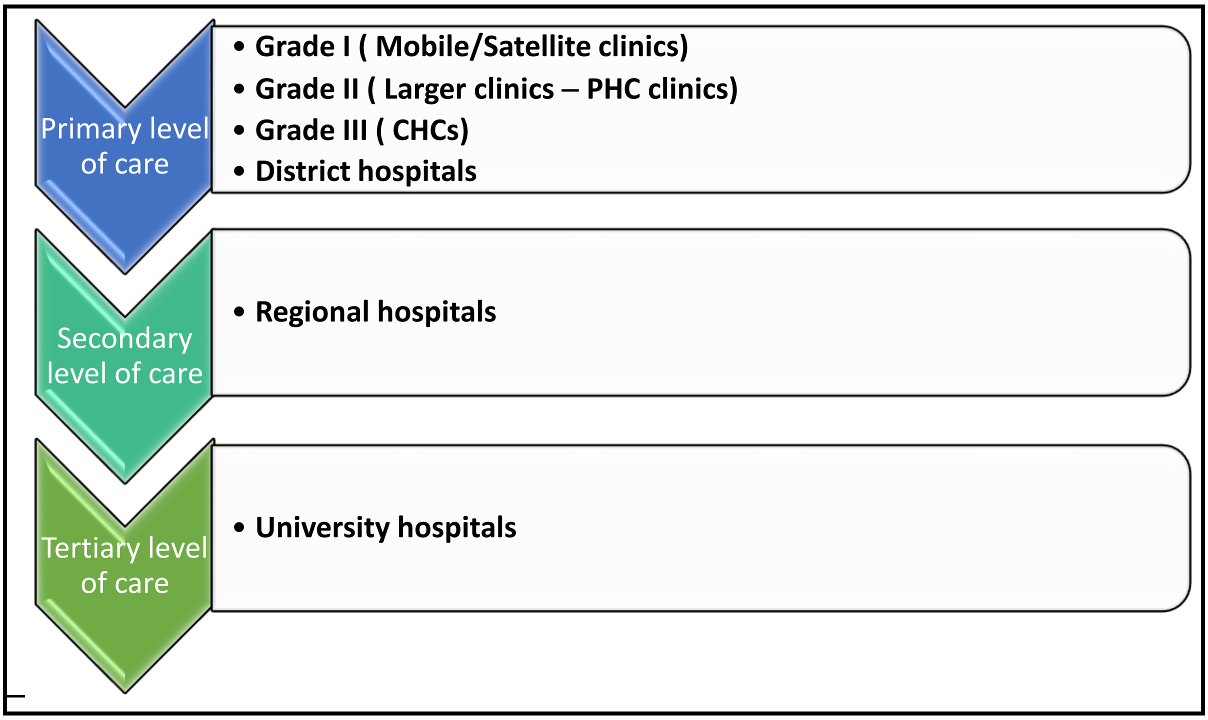


FIGURE 2.2: Interrelation of the public health referral system in South Africa

The underpinning principles of the health delivery system in the Free State and South Africa are that health services need to be of high quality and close to the people who require it (FS Health, 2015: online). The majority of the people within the Free State utilise the public health system at various levels to receive health care (Mojaki, Basu, Letskokgohka & Govender, 2011:109). The typical patient seen within the public health system is black, middle-aged with a monthly income between R0 to R10,000. This typical patient is seen through various levels of health facilities within the Free State. The differences among these health facilities is based on who drives the centre, the type of services provided and the times available for the patients (Ataguba *et al.*, 2012:68). The discussion here will mainly elucidate the health facilities that were utilised by the researcher in collecting data.

Health facilities at primary level of care serve ambulatory patients within a catchment area of about 5 km radius and are referred to as primary health care (PHC) clinics. They operate only on working days and are limited to 8 hours a day, although some of the PHC clinics are open 24 hours a day to allow for uncomplicated child births. These PHC clinics are manned and driven by professional nurses with a variety of professional and support staff. Some of the PHC clinics are visited by medical officers intermittently depending on a set schedule (Ataguba *et al.*, 2012:72).

In terms of diabetes, PHC clinics are involved in the screening and continued treatment of patients with diabetes. Professional nurses who manage the PHC clinics are expected to refer any patient to the next level of care based on clinical suspicion of diabetes (Ataguba *et al.,* 2012:77). Clinical suspicion of the condition is done through a combination of symptoms and readings from random blood sugar tests. The next level of care is the community health care (CHC) centre. At CHC centres, medical officers then diagnose and initiate diabetes treatment if indicated. After the initiation of treatment, it is expected that such patients should return to the PHC clinic for support and continuation of treatment (Ataguba *et al.,* 2012:72).

CHC centres are larger health centres with extended programmes and more services relative to PHC clinics. CHC centres operate 24 hours a day. A variety of health professionals are available at CHC centres (Ataguba *et al.*, 2012:78). The variety of health professionals enhance the comprehensive nature of patient care and thus their services are of a broader scope. Part of the broader scope of the services offered at CHC centres includes minor surgical procedures, like suturing and also delivery of uncomplicated pregnancies. With regard to diabetes, the CHC centres are responsible for the diagnosis of patients with diabetes and commencement or initiation of therapy. The CHC centres refer patients requiring hospitalisation to district hospitals. Patients somehow choose to stay at CHC centres after being diagnosed and receiving their initial treatment, rather than receiving their follow-up diabetes care at the PHC clinic nearest to them. The majority of patients with diabetes are therefore clustered in the CHC centres The PHC clinics and CHC centres provide an appropriate environment for the communication of health information related to diabetes.

In qualitative research, data is collected in the field where participants experience the specific phenomena being investigated (De Vos *et al.*, 2011:178). The specific phenomena are studied within their context due to the intricate and immediate contextual significance (Creswell, 2009:175; Botma *et al.* 2010:189). The present study was conducted at the CHC centres and PHC clinics within the Free State. Such health centres were an apt context for patients with diabetes as that is where they receive diabetes care. Figure 2.3 graphically displays the geographical distribution of the data collection sites. The geographical distribution is represented by black stars and does not necessarily reflect the number of interviews carried out per site. A detailed description of the data collection process follows in Section 2.7.

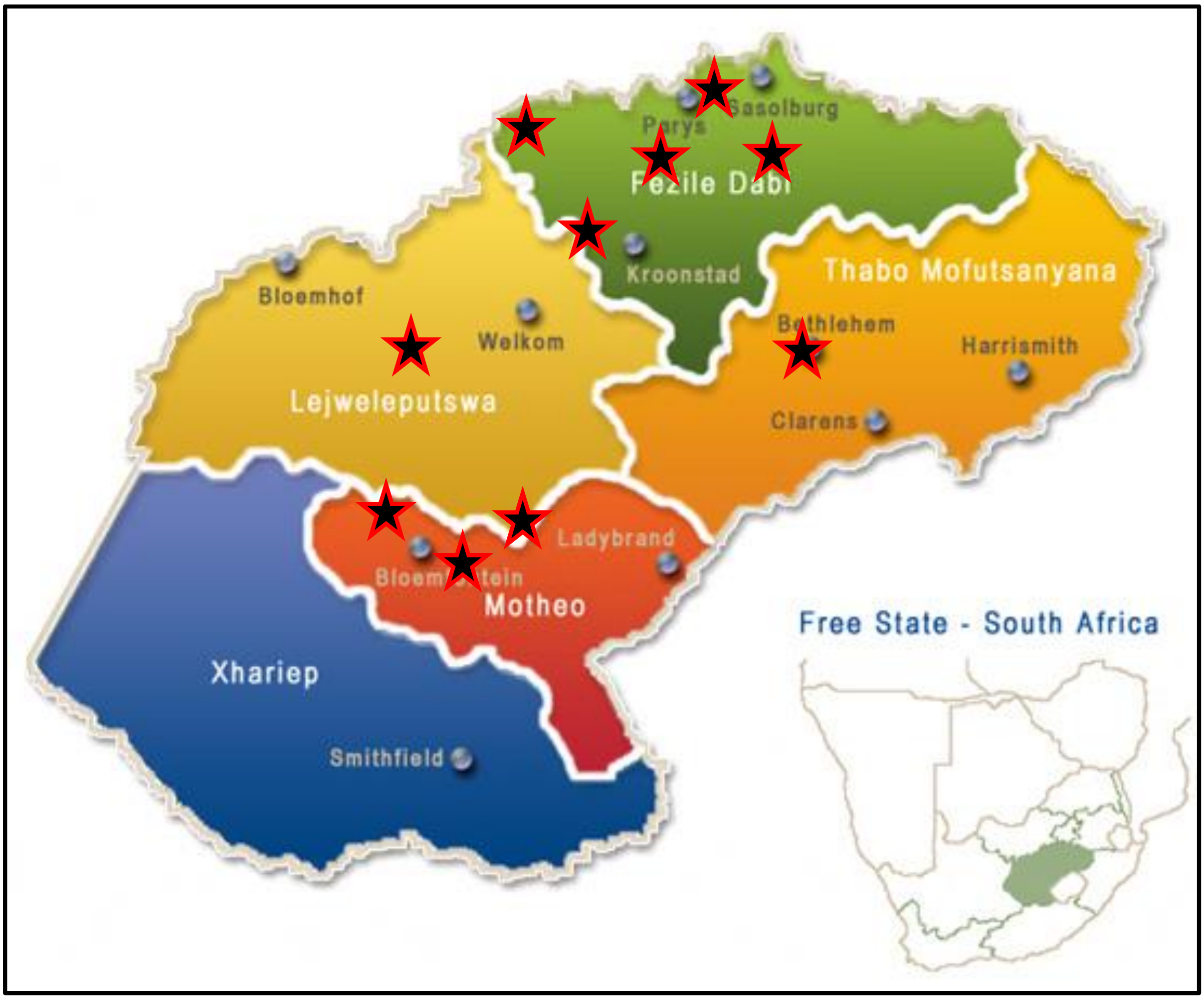


FIGURE 2.3: Geographical display of data collection sites in the Free State

The CHC centres and PHC clinics used in this study, reflected the situation as described above although variations related to operations were observed during the research period. The manner of operations in clinics was situational with some centres preferring a supermarket approach to diabetic patient management, while most of the CHC centres and the PHC clinics in Botshabelo and Thaba Nchu had specific days for the management of patients with diabetes. Most of the health care centres were short-staffed and the number of professionals in the centres were not in line with the flow of patients. This made the turnaround time for patients very long although all patients received their services. The following discussion will highlight the research technique used to generate data from the patients with diabetes.

2.3 SEMI-STRUCTURED INTERVIEWS AS RESEARCH TECHNIQUE

Data gathering in qualitative research could take place through a dialogic process (Speziale & Carpenter, 2007:38). This dialogue is an engagement between the researcher and the research participants within the context of the research problem. The dialogue is also referred to as an **interview** (Speziale & Carpenter, 2007:38; De Vos *et al.*, 2011:348). Several interview techniques are utilised in generating data for nursing-related research. The appropriateness of an interview technique is dependent on the nature of the research question, the philosophical assumptions of the researcher, and the nature of the research design of that particular study (Botma *et al.*, 2010:206). Based on the standards set by Botma *et al.* (2010:206) applicable to this study, the researcher utilised semi-structured interviews as the research technique for this study.

Semi-structured interviews give a full picture about the participants’ experience, perception and even beliefs about a particular topic (De Vos *et al.*, 2011:350). This type of interview technique gives the researcher the flexibility to follow interesting and relevant avenues (De Vos *et al.*, 2011:352). In semi-structured interviews, the researcher has to formulate some questions that guide the progression of the interview De Vos *et al.*, 2011:353). In the present study, the questions crafted for the interview guide (Addendum E) were derived from literature related to health communication and taking into consideration that this study was part of a larger research study that was aimed at the development of a health dialogue model for patients with diabetes in the Free State. The focused literature search resulted in the formulation of four main or guiding questions. The questions were flexible enough to allow the participants to explore their perceptions regarding health communication strategies in the Free State. Semi-structured interviews have advantages and disadvantages in their utilisation as a research technique in qualitative research. The following discussion will detail the strengths and limitations of semi-structured interviews as a technique for generating data.

2.3.1 Strengths of using semi-structured interviews

The researcher capitalised on the strengths of the semi-structured interview as a data-generation technique to ensure that the research question was thoroughly responded to. The following discussion elucidates how the strengths of the semi-structured interviews were utilised in the study.

- The process of semi-structured interviewing creates a platform for the generation of comprehensive information that is critical for the understanding of the phenomenon in question (Polit & Beck, 2012:259; Pope & Mays, 2006:38). The questions that were generated to guide the data-generation process regarded the participants as experts of the topic of inquiry. Comprehensive information was generated based on the subject or area of discussion of the question. The facilitator allowed the participants to respond to the questions in a logic determined by them. This process made the participants more comfortable in relating their story and thus in the generation of more comprehensive data;

- In semi-structured interviews, the response rate of participants is usually higher compared to other data collection techniques, such as a questionnaire (Polit & Beck, 2012:259). Participants are more likely to agree to be part of the study after being requested face to face to do so. All patients with diabetes that met the inclusion criteria and who were approached to be part of the study agreed to participate in the study. A total of 34 participants eventually participated in the study;

- Semi-structured interviewing is a technique that accommodates a variety of members within a society (Pope & Mays, 2006:38; De Vos *et al.*, 2011:356; Polit & Beck, 2012:259). This characteristic of semi-structured interviewing allows even illiterate persons to be included in the study, which would not be possible with other data collection techniques, for example a self-administered questionnaire. Allowing illiterate people to be part of the study reduced the probability of sampling bias, which would occur if certain elements of the population are not included as the unit of analysis (Botma *et al.*, 2010:13). Seven of the participants were illiterate.

When utilising semi-structured interviewing as a research technique, there are reduced chances of misinterpretation of information or of the questions being asked (Polit & Beck, 2012:259). Semi-structured interviews are conducted face to face, areas that require clarification can thus be cleared up during the data collection process and the responses can immediately captured by the facilitator in the notes of that particular interview (Pope & Mays, 2006:38-39). In the present study, the participants made use of the opportunity to clarify questions they were unsure of and because semi-structured interviews are conducted face to face, information can also be gathered through observation of non-verbal cues (De Vos *et al.*, 2011:356; Polit & Beck, 2012:259). During the face-to-face interviews, the facilitator followed up the non-verbal cues with questions to enhance understanding. Some of the non-verbal cues were indicative of the level of understanding of the participants, their degree of cooperativeness and, at times, their lifestyle. Such information, which was noted during the interview process, was useful in data interpretation during data analysis.

Section 2.3.2 highlights the limitations of the semi-structured interview as a technique of data gathering.

2.3.2 Limitations of the semi-structured interviews

The utilisation of semi-structured interviews as a data collecting technique has several limitations (Botma *et al.*, 2010:208; De Vos *et al.*, 2011:350). During data collection in the present study, these limitations were combated by the researcher to enhance the quality of the data generated through semi-structured interviews. The discussion below highlights each limitation and the way the researcher aimed to minimise its adverse effect during the data collection process.

Greater skill and ability on the side of the researcher are required for semi-structured interviews to be conducted effectively (Botma *et al.*, 2010:207). De Vos *et al.* (2011:350) further emphasise that the researcher requires a high level of self-awareness with regard to his/her own interviewing skills, experience and capability. Without appropriate interviewing skills, the researcher could jeopardise the whole study, and issues essential to the research question may not be addressed. In order to address this limitation the researcher underwent intensive training on data collection utilising interview techniques, and was evaluated prior to exploratory interviews and data collection. Because the researcher was only proficient in Sotho, Xhosa and English – three of the four languages used for data collection – there was a need to include an experienced interviewer for the Afrikaans interviews. An experienced interviewer, who has conducted several interviews in different settings was therefore utilised to conduct the semi-structured interviews in Afrikaans.

Semi-structured interviews need to be *conducted within a societal context that allows the participant to be more able to share information freely* (De Vos *et al.*, 2011:350; Speziale & Carpenter, 2007:39). Societal contexts vary depending on the participants and may include the participants' home or clinic (De Vos *et al.*, 2011:350), or in the context of this study, where patients with diabetes receive their health care. However, such societal contexts require certain societal expectations to be met by the researcher in order to establish rapport with the participants (Speziale & Carpenter, 2007:37). These societal expectations include history, culture, age, social class, race and ethnicity. Societal expectations affect the development of rapport, how the participants respond to the questions asked and thus the overall success of the semi-structured interview. If these societal expectations are not addressed, the interview process results in fallacies and biases (Botma *et al.*, 2010:85-86). In combating this limitation of the semi-structured interviews, the researcher used himself as a tool for collecting data whilst acting as facilitator of interviews to meet the societal expectations. The fact that the researcher was young, black and spoke English, Sotho and Xhosa, met some of the societal expectations which were necessary to establish rapport with the study participants of whom majority were black and spoke Sotho. Three of the interviews were conducted in Xhosa while three of the semi-structured interviews were conducted in Afrikaans by a professional interviewer who was a female, white and spoke Afrikaans.

Lastly, the success of semi-structured interviews rests upon maintaining a *balance between flexibility of the questions asked and the consistency of the questions asked* to all the participants (Botma *et al.*, 2010:207; De Vos *et al.*, 2011:349). Semi-structured interviews are based on key or central questions that should be explored with each participant to elicit the participant’s story (Polit & Beck, 2012:288). The central questions have to be the same with all participants. If a balance between flexibility and consistency is not maintained during the semi-structured interview process, the researcher might not be able to determine similarities and differences relating to the participants’ responses from the data generated from all the semi-structured interviews and thus affecting the quality of the study findings. The facilitators maintained the four central questions that supported the semi-structured interviews with all the participants from the various sites were the study was conducted (Addendum E). The variety of probes and any support question asked to any participant for enhancement of the data were recorded in a reflective journal and also as part of the notes from the individual interview.

The researcher addressed these limitations to enhance the overall strength of the semi-structured interviewing as a research technique and thus to generate high-quality data from the interviews. Section 2.4 below introduces the population from which the participants of the study were drawn.

2.4 POPULATION

Population is defined as all elements or an aggregation of cases that meet certain specified criteria set up for the study (Botma *et al.*, 2010:200; Polit & Beck, 2012:274). These elements best respond to the research question and have common characteristics. When elements meet the specific requirements of the criteria set they become part of the population of the study (Polit & Beck, 2012:274). Setting the criteria used for defining the population required the researcher to take certain factors into account when defining the population closely (De Vos *et al.*, 2011:278; Polit & Beck, 2012:274). The specific factors considered in this study are:

- what the researcher wanted to know, in other words the purpose of the inquiry;
- the costs, practicality and/or the resources for the study;
- the ability of the people to participate in the study;
- issues concerning the study design; and
- the credibility of the study.

The discussion below highlights how each of these facts was considered by the researcher in determining the population of the study.

Purpose of the study – the researcher sought to determine the perceptions of patients regarding diabetes-related health communication strategies in the Free State, South Africa. This fundamental purpose meant that the study required patients from the Free State diagnosed with diabetes who have experienced diabetes-related health communication strategies.

Costs and practicality – the study setting was to be limited to the public health sector in the Free State due to practicality and cost factors that the researcher had to consider. The CHC centres and the PHC clinics were the most practical areas for gathering information regarding the perceptions of patients with diabetes. The reason was that the majority of the patients with diabetes within the Free State receive their chronic care from the CHC centres and PHC clinics, which are run by the PDoH (Mojaki *et al.,* 2011:109). The CHC centres and the PHC clinics were also considered as areas to collect data due to cost implications. As this study was part of a larger study, which consisted of other sub-studies geared towards the development of a health dialogue model for patients with diabetes in the Free State, the researcher had to collect data in the same places where and at the same time as his colleagues were collecting data.

Ability of the people to participate in the study – the study required the participants to be patients with diabetes and receiving health care at a PHC clinic or CHC centre within the Free State. Because the study was conducted within the settings where the participants normally received their health care and also during the normal CHC centre and PHC clinic opening hours, there was no extra cost for the participants. This increased the participants' ability of participating in the study.

Design and credibility – the main approach of the study was based on phenomenology. This implied an in-depth understanding of the lived phenomena from the participants' point of view (De Vos *et al.*, 2011:278). The participants had to be patients diagnosed with diabetes and should have had health information being conveyed to them for a period of time. It was expected that after being exposed to various diabetes-related health communication strategies, such patients would have developed a perception regarding health communication strategies. These patients would be able to relate their experience of such communication strategies.

Having considered these facts, the researcher defined the population of the study as people with diabetes receiving health care from CHC centres (N=10) and PHC clinics (N=12) within the Free State's public health sector. According to the National Household Survey (2012:10), the Free State had about 64 789 patients with diabetes in 2012. This statistic may be unreliable for this study because of the age of the source and also the fact that there was no demarcation between the various types of diabetes mellitus in the survey nor where the patients received their health care. However, since the present study was of a qualitative nature, the number of patients with the condition had minimal bearing on the quality of the results (Creswell, 2009:42). In the next section, the itemised criteria for each unit of the population are discussed.

2.5 UNIT OF ANALYSIS

Qualitative research emphasises the collection of individual, detailed and in-depth information. Elements that provide such in-depth information are key to research and are known as the unit of analysis (Botma *et al.*, 2010:289). The unit of analysis could be people, events, specimens and even documents (Botma *et al.*, 2010:290; De Vos *et al.*, 2011:391). In other literature sources, the unit of analysis is also called a **sample**, and it is drawn from the main population of the study (Speziale & Carpenter, 2007:95). The unit of analysis, which could be people, has to meet specific criteria, and when those criteria are met, the unit of analysis becomes the study participants. In this study, patients who met the criteria set for the unit of analysis were deemed the study participants.

Criteria for the unit of analysis – the following criteria were used to determine the unit of analysis, namely that participants:

- had to have a medical diagnosis of type two diabetes for a minimum of a year on their medical record;
- had to be above 18 years of age verified through their national identity document;
- had to have attended the PHC clinics or the CHC centres in the Free State for health care on the date of the interview;
- had to speak either English, Afrikaans, Sesotho or Xhosa; and
- had to be willing to participate in the study on the day of data collection.

Essentially after data saturation, the unit of analysis consisted of 34 men and women who met the inclusion criteria. The participants all attended CHC centres and PHC clinics in the Free State.

Sampling – identification or determination of the unit of analysis is crucial to the validity of the research findings. The determination of the unit of analysis or the study participants is based on the judgement made by the researcher based on the selection criteria (Creswell, 2009:180; De Vos *et al.*, 2011:392), a firm understanding of the research question and the purpose of the study. Sampling followed a stepwise process. All CHC centres were included and PHC clinics in Mangaung Metro were selected through stratified sampling techniques. The strata were the three main towns in Mangaung metropolitan municipality, namely Bloemfontein, Thaba Nchu and Botshabelo. The PHC clinics were drawn from the Mangaung Metro district also because this district has more PHC clinics than all other districts in the Free State (Ataguba *et al.,* 2012:89). After selection of health facilities, the researcher utilised purposive sampling to identify participants attending these health facilities.

Purposive sampling is based on the researcher's knowledge about a particular population and is defined as the selection of elements from a population that will best provide the information required to respond to the research question(s) (Botma *et al.*, 2010:126; Polit & Beck, 2012:526). This knowledge is the basis of the handpicking of particular elements from the population to be the unit of analysis.

Purposive sampling was utilised in this study, because this type of sampling facilitates the exploration and description of the actual participants that best provide the information required by the researcher (De Vos *et al.*, 2011:267). The unit of analysis that was identified from the population met specified criteria. On arrival at the PHC clinics and CHC centres, the researcher specified the inclusion criteria to the nurse managers and also explained the type of participants he was interested in. The researcher then did the sampling after the nurse had identified the group.

2.6 EXPLORATIVE INTERVIEW

Interviewers need to try out their data collection design with a small number of participants before the actual data collection of the main study (Botma *et al.*, 2010:210; De Vos *et al.*, 2011:350; Polit & Beck, 2012:196). This test of the data collection design is referred to as an **explorative interview** and in some texts as a **pilot study** (Polit & Beck, 2012:196). The key purpose of such an interview is to determine the feasibility of the study. This feasibility includes getting to grips with the practical aspects of establishing access, making contact with the participants, as well as conducting the interview, which should focus mainly on the time, costs and the recording issues (Polit

& Beck, 2012:197). The pilot study also engages the researcher to be alert of his/her interviewing skills (De Vos *et al.*, 2011:350). From this discussion, it can be inferred that the primary aim or purpose of this explorative interview is not to answer the research question but to determine the practicality of the data collection process (Polit & Beck, 2012:196).

The explorative interviews for this study were conducted at a PHC clinic in Mangaung Metropolitan Municipality in the Motheo District in the Free State. This clinic was chosen based on practicality issues mentioned by the researcher and because it represented a typical PHC clinic in the Free State. Entry to the PHC clinic was granted through telephonic communication with the professional nurse in charge of the clinic.

On arrival at the PHC clinic, a room was identified which was suitable for audio recording, and the necessary preparations were made to ensure comfort of the participants. Two patients with type two diabetes who met the inclusion criteria were identified with the assistance of professional nurses at the clinic. The researcher explained the purpose of the study by going through the information brochure (Addendum C) with each of the participants, as each of the participants confessed that they had developed visual problems related to diabetes. Consent to participate in the study was given by signing the consent form (Addendum D).

Of the two participants identified for the explorative interview, one was a middle-aged man who was 43 years old and who has had diabetes for six years. He spoke Sotho. He could not write but was able to sign the consent form to participate in the study. The second participant was an elderly woman who had been diagnosed with diabetes for ten years. She could neither read nor write, and additionally could not see clearly however, she gave her consent to participant through making a mark on the consent form. The two identified participants were ushered to the identified room at different times. Introductory pleasantries were done and consent to participate in the study was re-confirmed. The researcher explained the purpose of the meeting, functions of the audio recorder and that the researcher would be taking notes during the interview. A timer was set to estimate the length of each interview. The two interviews were conducted for an average of twenty minutes each.

The interview questions were clear to the participants as they responded appropriately. Probing questions were utilised to elicit and clarify responses given by the participants. However, no changes were made to the semi-structured interview questions after the exploratory interviews. The data generated from the exploratory interviews was incorporated into the main data of the study during data analysis.

2.6.1 Role of the facilitator

This section describes what was done during the semi-structured interviews. The researcher facilitated all the semi-structured interviews conducted in English, Sotho and Xhosa, while an expert in interviewing conducted the interviews in Afrikaans. This process required the facilitator to be fully engaged in the research process and data-generation process (Botma *et al.*, 2010:207). The responses of the participants were to be understood in a wider perspective while maintaining the necessary flexibility and consistency. The next section highlights the major roles of the facilitators during the study.

- *Ethical approval of the study* – the researcher obtained ethical approval for this study from the Faculty of Health Sciences Ethical Committee of the UFS (Addendum A).

- *Gaining entry and making appointments* – the appointments and entry required the researcher to acquire permission to enter a specific community to conduct a study. Telephonic appointments were made to a variety of health facilities in the Free State. Appointments were made with 12 PHC clinics in Motheo District. These PHC clinics were distributed within Bloemfontein, Botshabelo and Thaba Nchu. Appointments were also made with CHC centres in all the districts of the province and a total of 10 CHC sites were included in the study. The schedule for data collection was set up through telephonic conversations, which took into account when the PHC clinic or CHC centre would have sufficient patients meeting the inclusion criteria. Some of the institutions professed to have specific days to care for patients diagnosed with diabetes while other health care centres did not work on scheduled days to provide care for patients diagnosed with diabetes. This information then facilitated the development of a data collection schedule that was convenient for the CHC centres and PHC clinics, and which enabled the researcher to interview the identified participants.

- *Securing a venue for the semi-structured interviews* – the researcher, through the professional nurse in charge of the PHC clinic or CHC centre, managed to identify a room that was suitable for audio recording although not all the rooms were very quiet. Some of the sites were very busy; hence, even the room provided was not as quiet as expected. Two sites had no space to accommodate recording and the researcher had to record two interviews in a car. At the centres where a room was provided the room was clearly marked that no disturbance was allowed, although two interviews were interrupted regardless of the notice.

- *Identifying and linking with the mediator* – the researcher had to identify a link or a mediator who had to connect the researcher with the potential participants (Creswell, 2009:89; Botma *et al.*, 2010:207). The researcher identified the professional nurse in charge of a PHC clinic or of a CHC centre, with whom prior communication took place through the telephonic appointments. Most of the centres were receptive and already waiting for the researcher, especially because the appointments were kept. The professional nurses had a discussion with potential participants related to study before assisting the researcher to identify participants.

- *Conducting the semi-structured interview* – when meeting the participants, the facilitator established rapport and ensured the comfort of the participants. Issues pertaining to the objectives of the research were explained to each participant, and the researcher ensured that the participants knew what was expected from them including the nature of data that was to be collected and the length of the interview. Trust is a typically important part of the data-generation process (Polit & Beck, 2012:534), as some of the sentiments that were expressed were sensitive but essential in the determination of the essence of the patients' perception regarding diabetes-related health communication strategies. The facilitators of the semi-structured interviews reflected on their personal influence in the research and data collection process (Speziale & Carpenter, 2007:36; De Vos *et al.*, 2011:348). A separate notebook was used to capture the bias, prejudices and emotions generated during the data collection process. The researcher sensitised himself in terms of the possible biases, prejudice and emotions during the data analysis process.

Section 2.7 provides an in-depth narration of the process that was followed during the data collection.

2.7 DATA COLLECTION

Data collection is crucial in any research study. The manner in which the data is collected will determine the authenticity of the research study and its findings (Speziale & Carpenter, 2007:38). Several cardinal questions are responded to as the researcher enlightens the data collection process of his study (Botma *et al.*, 2010:290). The discussion of this data collection process is based on the following questions:

- who collected the data;
- from whom was the data collected;
- how was the data collected;
- which data was collected;
- when was the data collected; and

- where was the data collected (Botma *et al.*, 2010:291; Burns & Grove, 2009:198).

Figure 2.4 depicts a representation of the major questions that guided the data collection process. Responses to these questions will be discussed after the graphical representation.

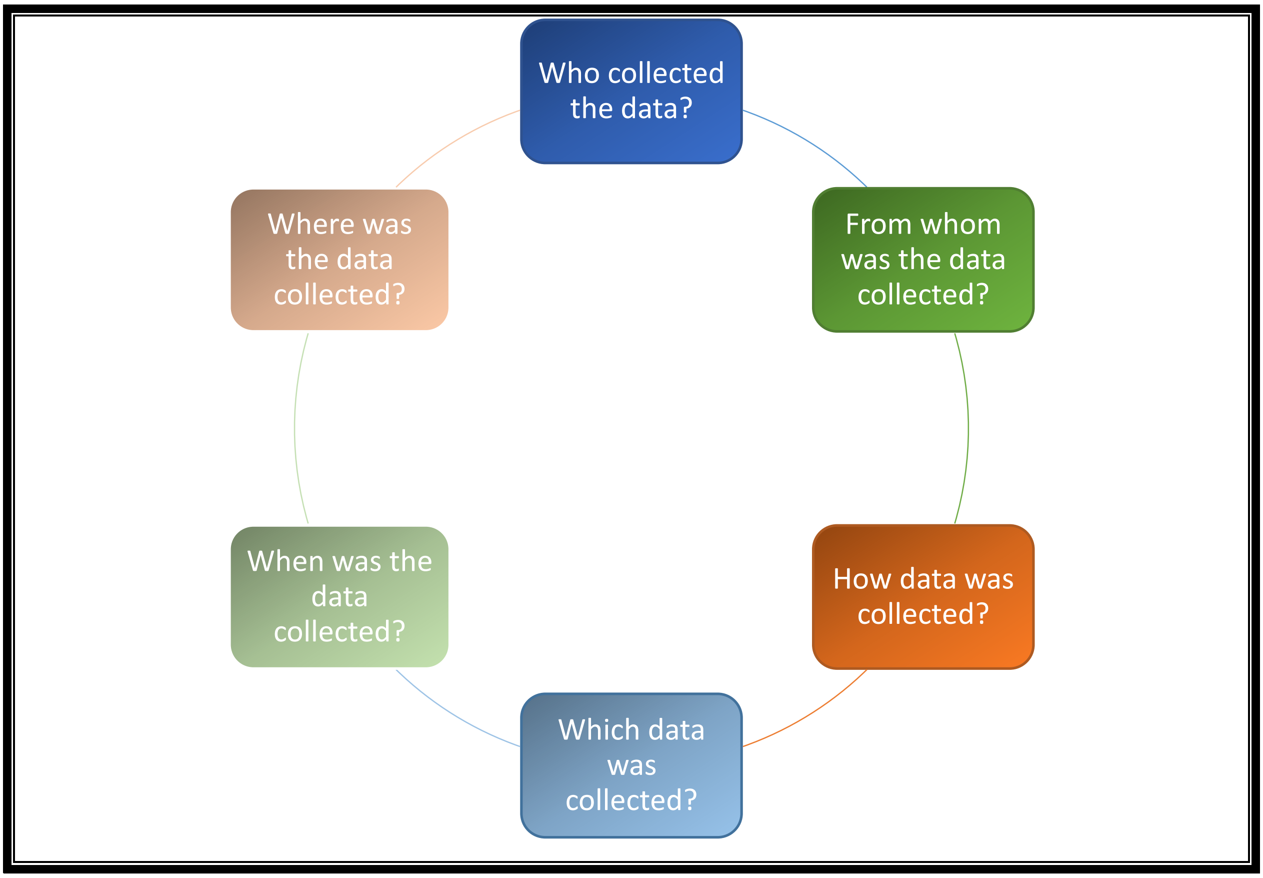


FIGURE 2.4: Questions informing the data collection process

- *Who collected the data?* The person collecting data in a qualitative study should be engrossed in the study, be well aware of the research question and the purpose of the study (De Vos *et al.*, 2011:343). The data collector should also uses self as a tool for data collection, as this is crucial for establishment of rapport (Botma *et al.*, 2010:207; Polit & Beck, 2012:534). In the present research, the researcher facilitated the semi-structured interviews in English, Sotho and Xhosa, after having undergone intensive training and being evaluated in conducting qualitative interviews. The interviews with Afrikaans-speaking participants were facilitated by an Afrikaans-speaking facilitator who had extensive experience in qualitative interviewing and also an orientation to the broad research question and the central questions. From this point on, **facilitator** will therefore refer to both the researcher and the facilitator of the Afrikaans interviews.

- *From whom was the data collected?* The person from whom the data is collected enhances the credibility of the research findings (De Vos *et al.*, 2011:100). The data was collected from patients diagnosed with diabetes attending CHC centres and PHC clinics in the Free State and who met the inclusion criteria set for the unit analysis. Biographic data collected as part of the interview reflected the demographic elements of the participants. Preliminary data analysis was conducted immediately after each interview. This preliminary analysis was used to focus the research. Data saturation emphasises that the quality of the research is enhanced with the depth of the information more than the frequencies (O'Reilly & Parker, 2013:193). The preliminary analysis after each interview within various sites in the Free State provided the researcher with an idea of the breadth of data that had been generated and this was done throughout all the sites until no new data or new patterns were identified (Burns & Grove, 2009:98). Data collection was stopped after 34 semi-structured interviews.

- *How was the data collected?* Creswell (2009:178) and Hamil and Sinclair (2010:17-21) accentuate the utilisation of phenomenology as a methodology. Creswell (2009:178) highlights that the process of data collection should be described from the ethical and institutional approval to the conduct of the study. This aspect highlights how the rights of the participants were protected in the whole research process. Ethical approval was granted by the Faculty of Health Sciences Ethical Committee of UFS (Addendum A) and from the Free State PDoH (Addendum B).

Professional nurses in charge of 10 CHC centres at all the districts of the Free State and of 12 PHC clinics in Motheo District were contacted telephonically regarding the study. Appointments were arranged with the respective CHC centres and PHC clinics within the weeks between 7 and 17 April 2014. Information generated through the telephonic conversations was used to set up the data collection schedule. The process of data collection was similar to that explained in the exploratory interviews. After the discussion of the key issues, the semi-structured interviews based on central questions commenced and were audio-recorded.

Audio recording was done utilising Livescribe 3 smart pen (see Addenda F). This smart pen reduced the intrusiveness of audio-recording devices and thus made the participants less aware of the fact that the interview was being recorded (Botma *et al.*, 2010:207; De Vos *et al.*, 2011:351). The Livescribe 3 smart pen allowed participants to be at ease during the semi-structured interviews. The central questions asked are reflected in section below, which highlights the data that was collected. At the end of the semi-structured interviews, participants were thanked and the audio recording stopped.

- *Which data was collected?* The semi-structured interviews were based on the following central questions that were asked to all participants;
    - Tell me what you know about diabetes.
    - How was this knowledge conveyed to you? By whom?
    - Which information was helpful/not helpful to you? Tell me why it was helpful/ not helpful.
    - Tell me why you think the information that you received motivated you to change/did not motivate you to change.

The researcher utilised several probes during the semi-structured interviews when such probes were required. The probes were employed to deepen the response to a question, increase the richness of the data obtained and also to give clues about the level of response expected from the participants (De Vos *et al.*, 2011:345-346). The following, major techniques of probing were utilised during different semi-structured interviews: challenging the responses given, asking direct questions, acknowledging and showing understanding of what the participant said, and allowing time for the generation of a response (De Vos *et al.*, 2011:345).

- *When was the data collected?* The semi-structured interviews for this study were conducted between 7 and 17 April 2014, during the time which the clinics operated and participants came for routine follow-up visits to the health care centre.

- *Where was the data collected?* Data collection utilising semi-structured interviews within qualitative research of a phenomenological approach should be contextual to the setting of the participants (Botma *et al.,* 2010:205). The present study took the form of a contextual study that was conducted through semi-structured interviews in various health care facilities in the Free State, a province of South Africa.

In as much as the researcher had intended to cover all the sites with which prior appointments had been made, data was only collected from 9 CHC centres within the Free State and 6 PHC clinics in Motheo District. The data collection process started at the CHC centres. The appointments were based on the schedule developed based on the information provided through the telephone conversations. Data saturation was reached when no new information was added to interviews (De Vos *et al.*, 2011:346), irrespective from which site data originated.

With regard to the PHC clinics, the researcher focused on the PHC clinics in Mangaung Metropolitan Municipality within Motheo District. These PHC clinics were randomly selected by a statistician from the Faculty of Health Sciences at the University of the Free State. This study was part of a larger study, involving researchers who collected some data from various role players at the same sites. Table 2.1 depicts the number of participants per district of the Free State who were included in this study.

TABLE 2.1: A summary of CHC centres and PHC clinics utilised in the study

DISTRICT	CHC CENTRES	PHC CLINICS	
Motheo	1	Bloemfontein	1
		Botshabelo	3
		Thaba Nchu	2
Lejweleputswa	1		
Fezile Dabi	5		
Thabo Mofutsanyane	1		
TOTAL	**9**	**6**	

2.8 DATA ANALYSIS

Qualitative data analysis serves to organise, provide structure to and elicit meaning from the text and images that may have been acquired during the data collection or data-generation process (Speziale & Carpenter, 2007:46-48; Polit & Beck, 2012:586). This is a procedure of interpreting the data generated from the semi-structured interviews to make meaning and thus respond to the research question. A variety of qualitative data analysis prototypical styles exist in social science research (Polit & Beck, 2012:587; De Vos *et al.*, 2011:347). The determination of which prototypical style to be used in a particular study, is based on the nature of the inquiry, philosophical underpinnings of the study, and the study design (Polit & Beck, 2012:556).

Therefore, the editing analysis prototypical style of data analysis (Polit & Beck, 2012:555) was utilised throughout the analysis of data in this study. The editing analysis prototypical style implies that the researcher reads through the data in search of meaningful segments and units (Polit & Beck, 2012:556) and these meaningful segments facilitate the development of codes and categorisation schemes that can be used to sort and organise all the data generated from the semi-structured interviews into themes. The researcher then searches for patterns and structures that will connect the themes to make meaning and purposely respond to the research question (Saldãna, 2009:26).

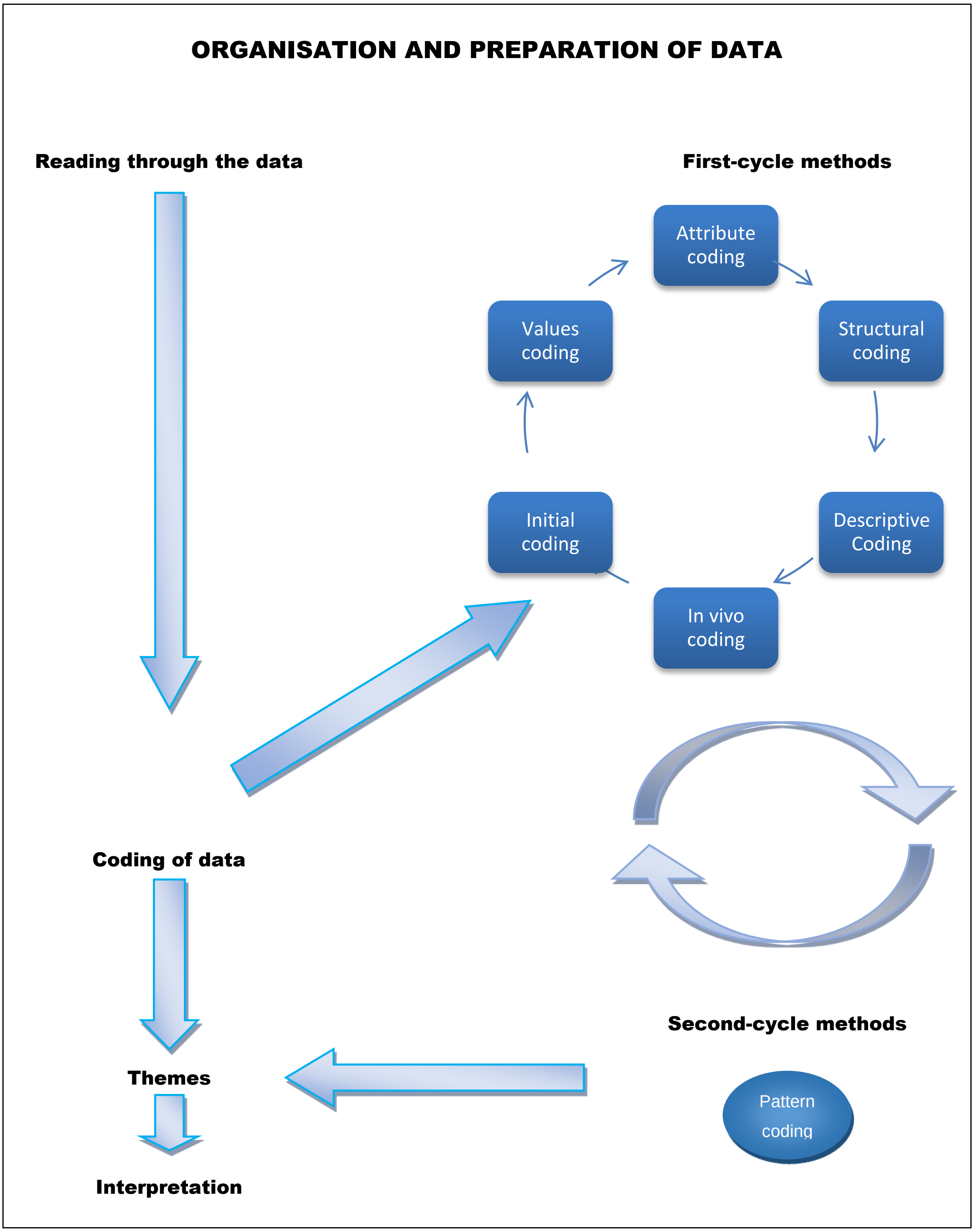


FIGURE 2.5: Flow of the data analysis process

Data analysis for this study combined the phenomenological methodology of data analysis as suggested by Creswell (2009) with CAQDAS, specifically ATLAS.ti. Figure 2.1 shows diagrammatically the flow of the data analysis process for this study. Section 2.8.1-2.8.6 describes in detail the steps the researcher followed in analysing the data generated from the semi-structured interviews.

2.8.1 Organisation and preparation of the data

All semi-structured interviews were audio recorded through the utilisation of Livescribe 3 smart pen and storage was done by way of the Livescribe desktop application as voice recordings. The voice recordings on the application were individually stored based on the site were a particular interview was conducted. The desktop application with the interviews was password protected with only the researcher and the supervisor having access to them. Backup was established when the folders were saved on a CD-ROM, which was stored in a lockable cabinet and the voice recordings were immediately deleted from the smart pen.

All the audio recordings were transcribed verbatim by a professional transcriber from their respective languages into text. The transcription process was guided by a transcription manual that was developed by the researcher based on the suggestions by Flick (2009:301). The researcher confirmed the transcriptions by comparing the transcriptions with the audio recordings from the semi-structured interviews (Flick, 2009:300), except in cases where the semi-structured interviews were conducted in Afrikaans, where confirmation was done by the facilitator for the Afrikaans interviews.

Digital texts from the transcriptions of the semi-structured interviews conducted in Sotho, Xhosa and Afrikaans were then sent to professional translators for translation to English. Translation was done in order to standardise the data analysis process in having one language for all the data generated. However, the researcher made exceptions for special phrases and nuances that were uttered by participants in their original language, and which would have lost meaning in translation, by highlighting them in the transcripts. Reverse translation from English to Sotho, Xhosa and Afrikaans was done by the same translators, guided by the South African Translators'

Institute's (SATI) Code of Ethics (SATI, n.d.: online) to ensure consistency and accuracy of the translation. The reverse translated scripts were also stored as reference throughout data analysis thus allowing pertinent data as spoken and better expressed in the language of the participant to be available for possible later use.

All translated digital documents in English were stored in a Hermeneutic Unit (HU) of the ATLAS.ti software package under the title *"Perceptions of patients regarding health communication strategies in the Free State",* as primary documents. Backup was established through the creation of a copy bundle of the HU that was stored within an electronic folder in Dropbox. The electronic folder in Dropbox was only accessible by the researcher and the supervisor. The copy bundle of the study was constantly being updated as the data analysis progressed. The researcher ensured that the interview scripts did not reflect information linking the data to individual participants. Each site where data was collected from, was represented by a letter from the alphabet while each interview had a number. To enhance the understanding of terms of the discussion on data analysis, section 2.8.2 will provide a definition of terms and concepts related to ATLAS.ti, and their application in this study.

2.8.2 Terms related to ATLAS.ti

Hermeneutic unit (HU) – provides structure for each project through being similar to a folder were all the items relevant to the project are stored. A hermeneutic unit may be named based on the project one is working on to enhance co-ordination and structure of the project. The hermeneutic unit for this study was named *"Perceptions of patients related to diabetes-related health communication strategies in the Free State".*

Primary documents (PD) – the PD is a folder within the HU. This folder is a representation of all the data that is added to the project hosted on the ATLAS.ti platform. These PDs can be texts, images, audio, videos and geographical images. In this study, documents stored in the PD were the English translated transcripts of the semi-structured interviews.

Codes folder – the codes folder is within the HU. Within this codes folder, the codes generated from data analysis were stored automatically.

Network view – allows the researcher to conceptualise the structure or relationship of key sets in a project through connecting sets of similar elements together in a visual diagram. In the present study, the network view was used to generate a graphical display that portrayed an interrelation of the themes, categories and subcategories generated from the data analysis process, and it is presented as Figure 3.1

These were some of the concepts of ATLAS.ti that were referred to in the data analysis process discussion of this study. The next discussion focuses on the reading through process as the initial stage of data analysis.

2.8.3 Reading through

The researcher read through all the transcripts within the PD folder of the HU. The purpose of this reading was to acquire an understanding and feel of what the participants were really saying throughout the semi-structured interviews regarding the health communication strategies within the Free State.

2.8.4 Coding the data

Coding is the process of assigning a symbolic summation to an attribute or data (Speziale & Carpenter, 2007:46; Saldãna, 2009:25). The process of coding and development of themes from the semi-structured interviews transcripts for this study was informed by the works of Creswell (2009), Saldãna (2009) and Tesch (1990). The works guiding data analysis will be reflected in the discussion on how the data generated from the semi-structured were coded (see 2.8.5).

Saldãna (2009:46) points out that in qualitative data analysis, there are seven broad methods of coding. Within each method, there are 29 coding sub-categories. The selection of which method and specific subcategories to be used in coding data is based on the nature of the study, the specific research question to be answered bearing in mind that *“each qualitative study is unique”* (Quinn [2002] in Saldãna, 2009:19) and these coding subcategories are revised with the process of analysis (Mayring, 2000: online). The integration of the various methods and subcategories of coding results in a framework that can be used by the researcher to guide the coding and data analysis process.

Consequently, the present researcher utilised a ‘generic’ framework for coding, as suggested by Saldãna (2009:45). The ‘generic’ framework is a splicing of the several coding methods and their subcategories. The spliced methods and subcategories are applied in data analysis through two cycles of coding. This ‘generic’ framework was used in the present research to code data generated from the semi-structured interviews, thus allowing all the interview scripts to be coded in two cycles of data coding. The ‘generic’ framework is consistent with phenomenology (Saldãna, 2009:48), which was the philosophy underpinning this study.

Creswell (2009) identifies the process of coding data as a crucial step that the researcher should perform immediately after data collection. The concept of inductive reasoning guided the development of the codes, which is the utilisation of data to generate ideas (O’Reilly & Parker, 2013:195). Coding and thematic development were immediately done in two cycles as suggested by Saldãna (2009) and described by De Vos *et al.* (2011:410). The two cycles are discussed in sections 2.8.5 and 2.8.6.

2.8.5 The first-cycle methods

Data coding methods that were able to appropriately extract and make the perceptions of these patients visible accurately were incorporated into the study (Saldãna, 2009:45). The first-cycle method of data coding occurred as an initial step in the coding of data to produce a solid foundation to refine the analysis in the second-cycle methods of data analysis further (De Vos *et al.*, 2011:410; Saldãna, 2009:45).

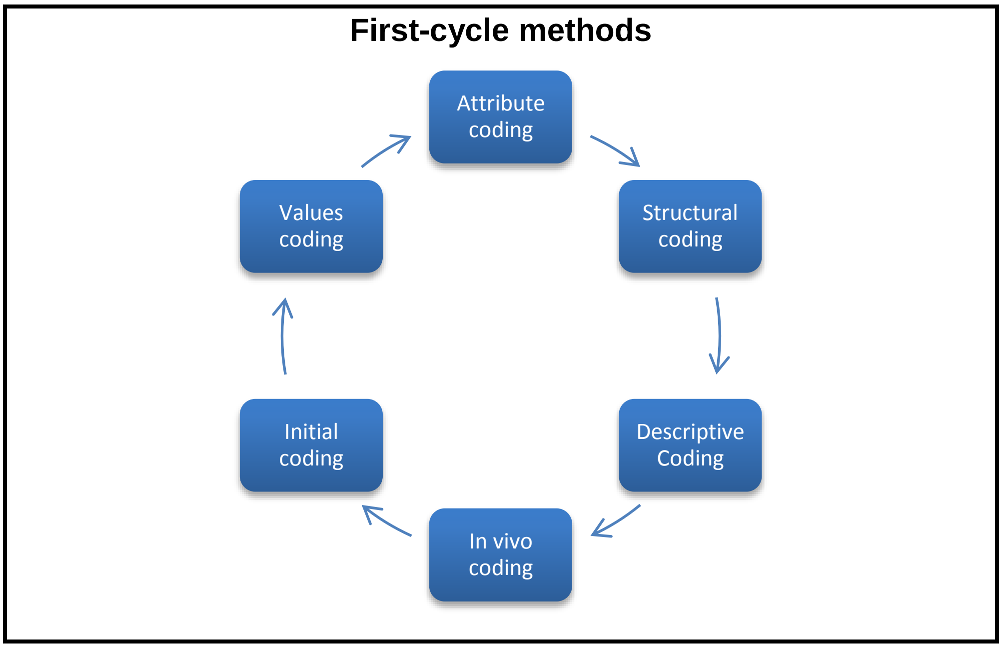


FIGURE 2.6: Coding of data following the first-cycle methods

The coding methods, which make up the 'generic' framework, which were incorporated into this study for the first-cycle methods include the attribute coding method, the structural coding method, the descriptive coding method, the in vivo coding method, the initial coding method and the values coding method (Saldãna, 2009:48). These coding methods are depicted diagrammatically in Figure 2.6 and are an extrapolation from Figure 2.5. The discussion in the next section describes how the researcher applied each coding method in the analysis of the interview transcripts during the first-cycle methods, starting with attribute coding.

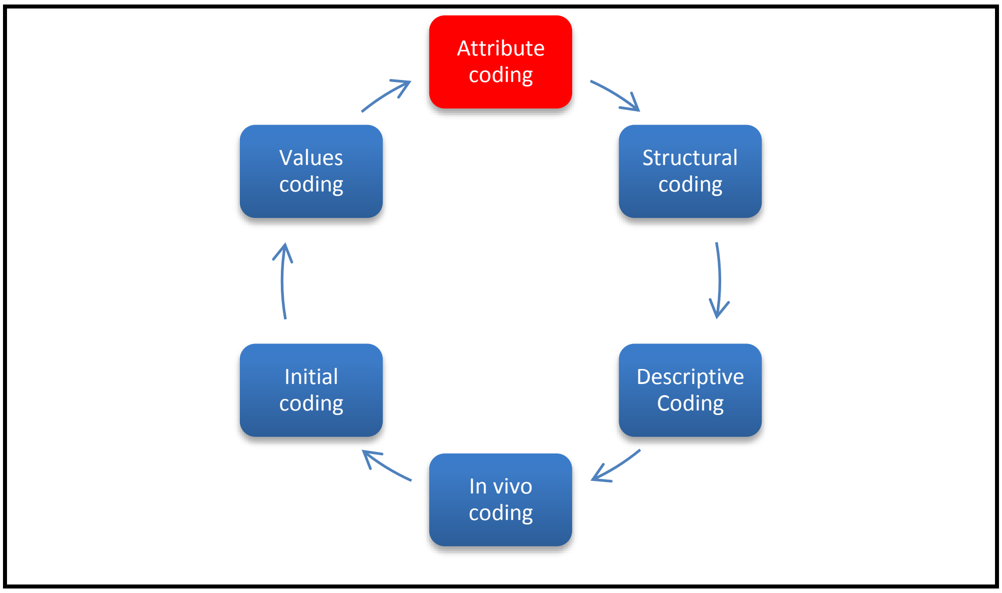


FIGURE 2.7: Attribute coding as part of the first-cycle methods

- *Attribute coding methods* (Saldãna, 2009:55) – This section describes attribute coding methods as the basic descriptive information about an interview script. Figure 2.7 illustrates the position of the attribute coding method within the first-cycle coding methods. This descriptive information was saved in the HU as basic identification information. Considering that the study was done in multiple sites within the Free State, the researcher saw it necessary to include this type of coding method. The key issues captured based on this coding method included participant characteristics (inclusive of their gender, age and ethnicity), the date and time the semi-structured interview was conducted, and the site where the data was collected whether at the PHC clinic or the CHC centre. The attributes were highlighted within each primary document. The attribute codes were utilised in data analysis to link qualities generated from the interviews with specific attributes. The attribute coding method provided a platform for the researcher to compare data from the participants along demographic variables and site differences within the first and second cycle of data analysis and thus identifying possible patterns.

- *Structural coding methods* – this method applies an abstract phrase in lieu of a topic of inquiry to a portion of data that represents a question used to frame the semi-structured interview (Saldãna, 2009: 65). Figure 2.8 illustrates the position of the structural coding within the first cycle of coding methods. The semi-structured interviews were structured under four main questions. The structural codes developed for the first-cycle method of coding were based on the four central questions that were asked to all the participants (see 2.7). These four structural codes were entered into the HUs as codes.

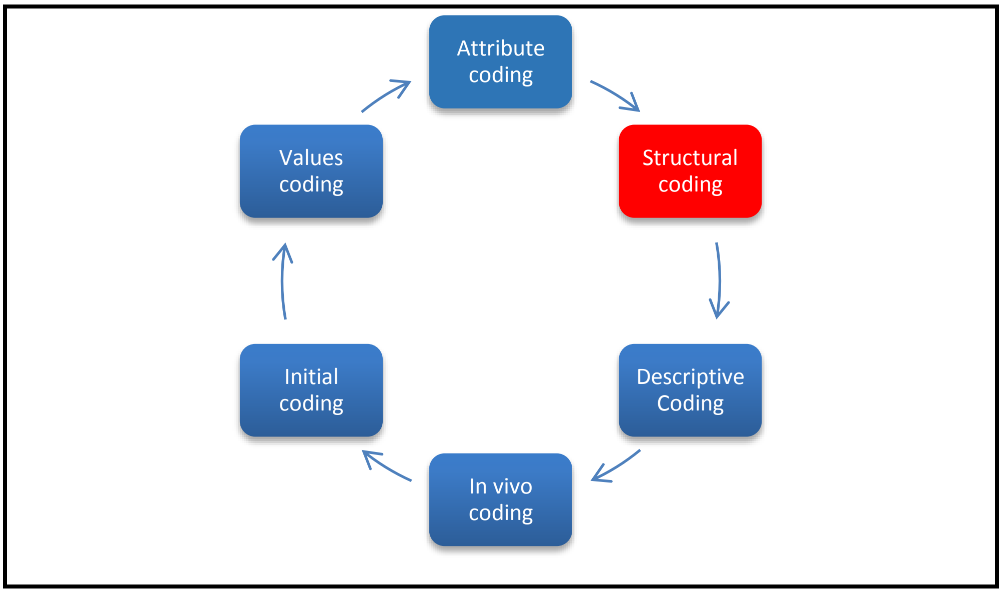


FIGURE 2.8: Structural coding in the first cycle of data analysis

Structural coding resulted in data being separated into four major chunks of text or categories, and these were extrapolated utilising the output option of ATLAS.ti. A separate folder for this output was analysed in depth using open-coding methods to enrich the structural codes. In the in-depth analysis of the similarly coded data or topics, the researcher compared data from within the same structural code and amongst the four structurally coded portions of the transcripts.

The codes generated through structural coding were stored under the codes folder within the HU. The following discussion highlights descriptive coding as used in the data analysis of this study.

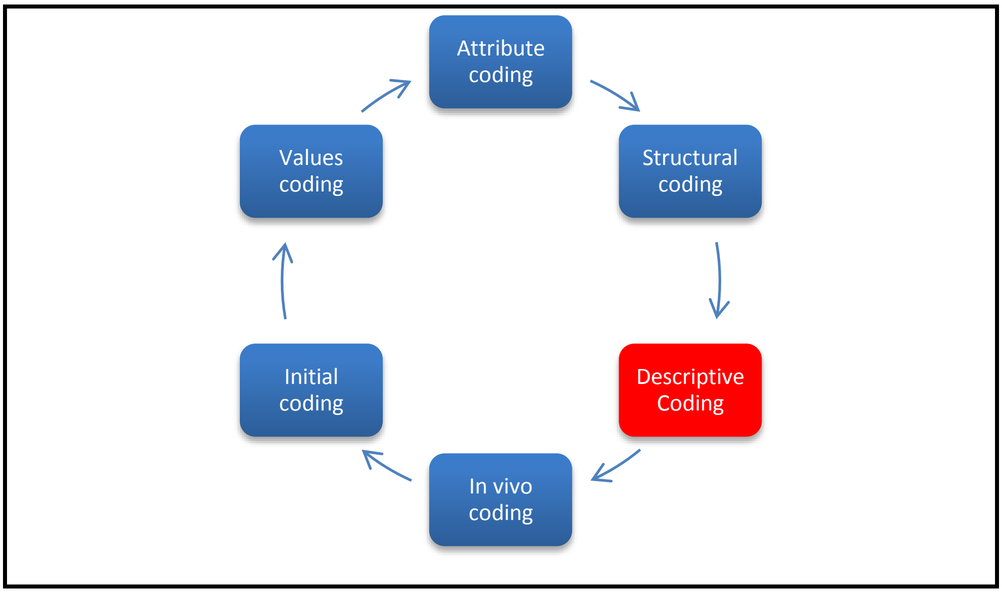


FIGURE 2.9: Descriptive coding as part of the first-cycle methods

- *Descriptive coding methods* – descriptive coding methods reflect a summation of what is being said by the participant in a line, sentence or passage of the semi-structured interview script (Saldãna, 2009:70). Figure 2.9 illustrates the location of descriptive coding within the first cycle of data coding. A descriptive code literally summarises what the participant was saying during the semi-structured interview. Flick (2009:323-327), adapting the work of Mayring, 2000: online) reflects that determination of what the participant is saying takes place through utilisation of multiple levels of paraphrasing.

The researcher followed a line-by-line approach in determining descriptive codes within the semi-structured interview scripts. Essentially, the researcher coded all of the interview transcripts although some of the codes were easily implied or maintained throughout the later interview transcripts with the assistance of the functions of ATLAS.ti.

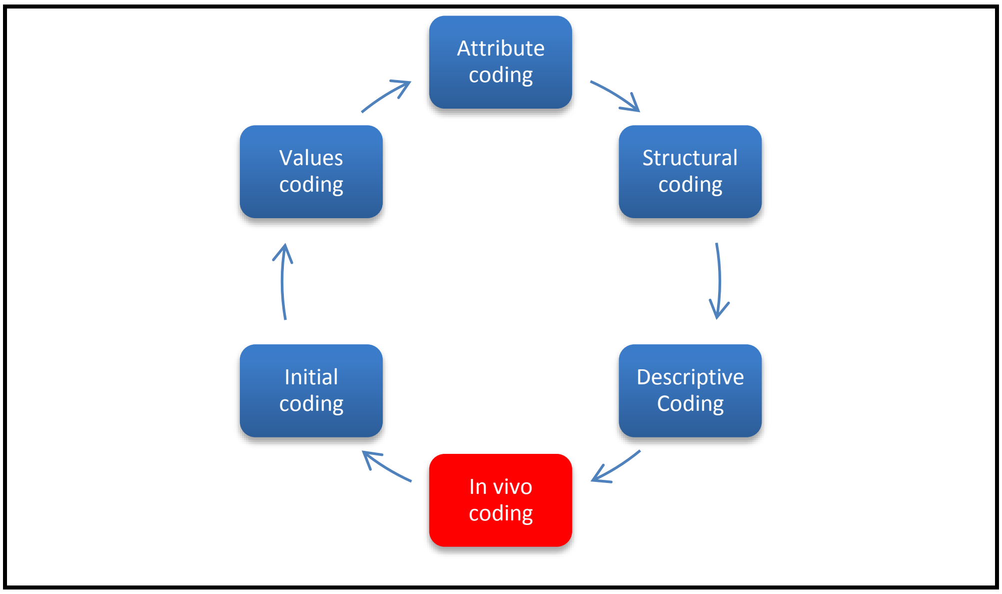


FIGURE 2.10: **In vivo coding as part of the first-cycle methods**

- *In vivo coding methods* – this method incorporates a word or short phrase pulled from the qualitative interview transcripts in the language of the participant (Saldãna, 2009:74). This coding method is therefore the extraction of indigenous words from the interviews. Figure 2.10 illustrates the location of in vivo coding methods in the first cycle of data coding. The researcher searched for salient phrases in the interview scripts, which included ironic phrases, similes, metaphors and impact nouns and highlighted them as some of the in vivo codes. The in vivo codes were reflected in the original language which the participants used, being sensitive to avoid the loss of such nuances during translation. Since the researcher was only proficient in three of the four languages used in the data collection, the supervisor was utilised to check for in vivo codes in the Afrikaans interviews as the supervisor was proficient in Afrikaans. In vivo codes were saved in the codes folder of the HU. Differentiation from the rest of the codes was made by incorporating quotation marks to indicate that these codes were participant-generated as opposed to the rest of the codes which were researcher-generated.

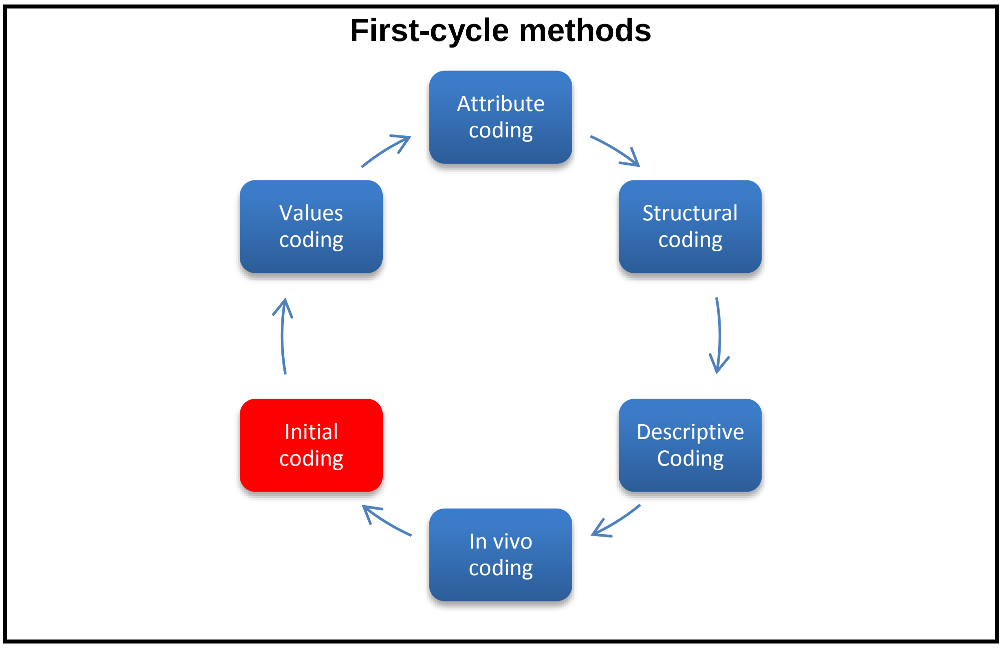


FIGURE 2.11: Initial coding as part of the first-cycle methods

- *Initial coding methods* – these methods are known as ‘open coding’. This coding method involves breaking down qualitative data into segments or discrete parts (Saldana, 2009:67) and the researcher closely examined those parts for similarities and differences. Initial coding was done immediately after the reading through step. Figure 2.11 illustrates the position of initial coding within the data analysis process of the study.

The researcher followed a paragraph-by-paragraph approach (Polit & Beck, 2012:367; Botma *et al.*, 2010:89) to determine the initial codes for the interview scripts. The codes generated reflected further examination as the researcher coded the generated data meticulously but spontaneously. The researcher explored the deep nuances and the general meaning of statements as they were said by participants. Initial coding became almost a starting point for the researcher with analytic leads for further probing (Saldãna, 2009:81). The codes developed from initial coding methods incorporated in vivo coding methods intertwined with some form process and descriptive coding. The researcher extrapolated these codes from the scripts that were used to determine the descriptive codes. The initial codes generated from this method were also stored in the HU in the codes folder.

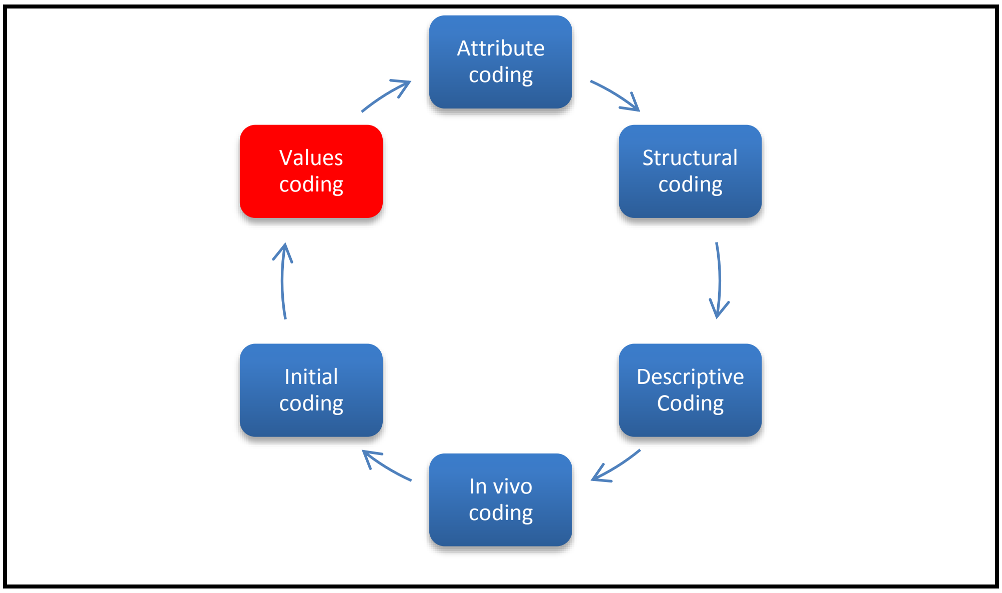


FIGURE 2.12: Values coding as part of the first-cycle methods

- *Values coding methods* – Figure 2.12 illustrates the position of values coding within the first-cycle methods of data coding. Values coding methods comprise an extrapolation of codes that reflect participants' values, attitudes, beliefs and perspectives or world views. This coding method is crucial in the exploration of intrapersonal experiences. The key attributes that were highlighted were values, beliefs and attitudes (Saldãna, 2009:89). Analysis using values coding methods ensured that the researcher explored the origins of the participants' values, attitudes and belief systems, derived from individual, institutional and societal systems (Saldãna, 2009:90; Creswell, 2009:45). This coding system chiefly resonated with the overall research question, which sought to explore the perceptions of patients regarding diabetes-related health communication strategies in the Free State, South Africa. The codes developed from this coding method were also entered into the codes folder of the HU.

At the end of the cyclic determination of codes through the first cycle, the researcher had a list of 326 codes in the codes folder of the HU. The process of coding the other remaining scripts required a scholar who was familiar with the purpose of the study, the interview themes and all the theory applied to the study to work with the researcher (Onwuegbuzie & Leech, 2007:235). Loh (2013:6) further suggests that such a scholar, who is in the same field of research, would be able to validate the process of data interpretation better than any scholar with just experience in qualitative research. The supervisor was incorporated to ensure consistency in coding.

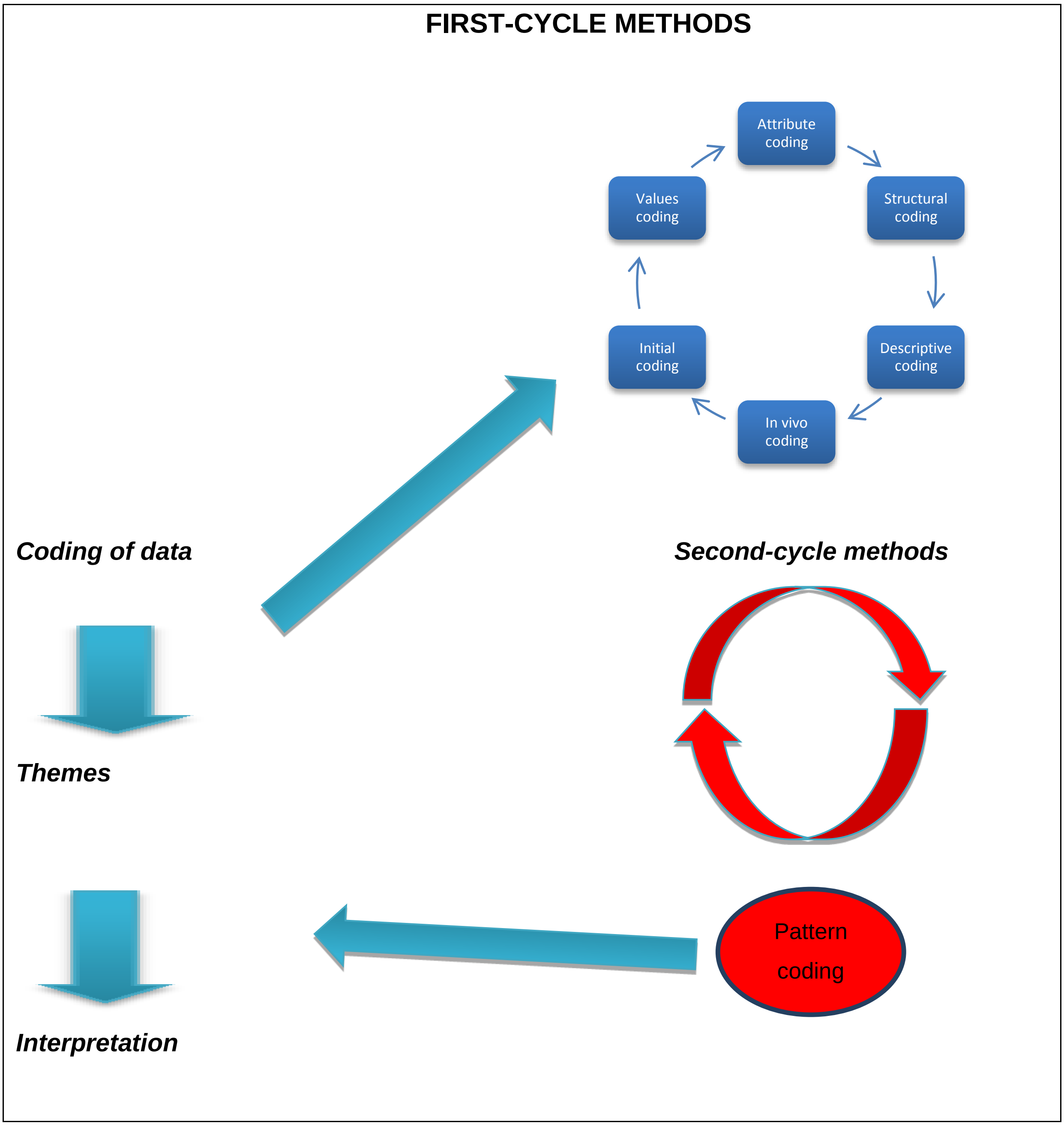


FIGURE 2.13: Interrelation of the two main cycles of data analysis

2.8.6 Second cycle of data analysis

The second cycle of data analysis was built upon the work that has been developed from the first cycle of data analysis. Figure 2.13 depicts the progression of the data analysis process. The second cycle of data analysis involved a method of re-ordering and re-analysing of the themes developed in the first cycle of data analysis (Saldãna, 2009:89). The primary goal of this second cycle of data analysis was to develop a sense of categorical, thematic, conceptual and/or theoretical organisation of the array of codes developed in the first cycle of data analysis (Saldãna, 2009:149). Saldãna (2009:150) suggests that in the second cycle, pattern-coding methods are utilised solely in examining the patterns among codes or within coded data. Utilisation of pattern coding for this study was also based on the nature and philosophical approach of this study. The study sought to explore perceptions of patients diagnosed with diabetes, and pattern coding extracted these lived experiences. The following discussion highlights the application of pattern coding in this study.

- *Pattern coding:* Pattern coding results in the development of a meta-code or a category label that identifies similarly coded data while attributing meaning in that organisation (Saldãna, 2009:159). Meta-codes are exploratory or inferential codes that identify an emergent theme, configuration or explanation. This type of coding is critical in the development of themes, and is heavily influenced by the researcher’s judgement.

The researcher worked through the codes folder and the family manager unit. The first cycle of coding generated 326 codes, and through the utilisation of pattern coding, the researcher was expected to identify patterns resulting in categories and themes from all the codes. The 326 codes had low frequencies and low connections, which according to ATLAS.ti, signify low density and gravity (Friese, 2014:50). Some of the codes identified during the first cycle methods were repetitive and others meant the same thing. The researcher had to reduce these codes and generate overarching themes (Friese, 2014:50-92). The technical process of generation of themes led to a reduction of codes and clustering them into main sub-categories, categories and themes, which are presented as the results of this study.

The discussion in 2.9 presents the quality assurance issues that were engaged in this study to enhance rigour.

2.9 TRUSTWORTHINESS

The data analysis process generates research findings that reflect the lived human experiences especially when utilising the phenomenological approach in qualitative research (Speziale & Carpenter; 2007:16). These findings however, have to reflect the true state of the human experience so as to gain believability (Polit & Beck, 2012:582). The credibility of research findings is demonstrated through the concept of rigour and demonstrating high-quality research (Loh, 2013:2). The goal of rigour in qualitative studies is to represent the experiences of the study participants as accurately as possible (Speziale & Carpenter, 2007:97-98). A variety of frameworks exist that are utilised by qualitative researchers in enhancing the believability of study findings, and trustworthiness is one such framework (Botma *et al.*, 2010:233). The concept of trustworthiness was developed by Lincoln and Guba (1985) and for this study it was used to enhance the rigour of the study (Creswell, 2009:190; Botma *et al.*, 2010:233; De Vos *et al.*, 2011:419; Polit & Beck, 2012:582; Loh, 2013:2).

This framework is demonstrated through four key constructs, namely credibility, dependability, confirmability and transferability of which De Vos *et al.* (2011:419) and Flick (2009:392) state that credibility is the most important one. The discussion in 2.9.1-2.9.4, will demonstrate how the four constructs of trustworthiness were applied throughout the study to enhance the quality of the study.

2.9.1 Credibility

Credibility seeks to determine the truth value of the research findings and whether the researcher has established confidence in the truth of the findings (Botma *et al.*, 2010:233; Polit & Beck, 2012:585). The goal of this construct is for the researcher to demonstrate that the subject has been identified accurately and that it is well described (Creswell, 2009:191). Polit and Beck (2012:585) suggest that credibility of qualitative studies is enhanced through two main approaches. The first approach relates to the manner in which the study is carried out or the methodology of the study, which should reflect the believability of the study findings. This aspect is enhanced through the adequate description of the research process and by the researcher adhering to all the major steps and principles of the research methodology (Schou, Hostrup, Lyngso, Larsen & Paulsen, 2012:2090). In achieving this step, the researcher clearly outlined the purpose of the study and methods of collecting data. Data analysis and interpretation were explicitly stated, including the rationale and arguments for the utilisation of such methods in this study.

The second approach of enhancing the credibility of the research findings relates to further steps that the researcher took over and above an explicit description of the methodology to demonstrate the credibility of the research findings. The researcher enhanced the credibility of the study through incorporation of three major steps, namely prolonged engagement, peer debriefing and triangulation (Flick, 2009:392; Loh, 2013:5). Prolonged engagement was enhanced through allowing the data collection process enough time to reach saturation. Preliminary data analysis was done as soon as the data had been being collected. The researcher understood the concept of saturation as having a large enough body of data from study participants which captured a range of experiences although not too large to be repetitious (O’Reilly & Parker, 2013:193). On realising that the amount of data being collected was reflecting a series of repetition of the data that had already been collected, the researcher then declared saturation after a total of 34 semi-structured interviews.

The second step used by the researcher to enhance credibility of the study was the utilisation of peer debriefing (Botma *et al.* 2010:230). The concept of peer debriefing is highlighted through the inclusion of a second person to be part of the data analysis process. Flick (2009:392) emphasises that the peer has to be other *"people who are not involved in the research"* to bring about critical reviews of the whole research process. On the other hand, Loh (2013:6) citing the works of Kvale (1980) reflects that the peer validators have to be scholars within one's field or branch of research. These scholars, according to Loh (2013), should have some familiarity with relevant research literature and research methods and would have engaged in similar research work. They would contribute immensely to the quality of the data generated. For the present study, the researcher utilised the supervisor, who was is a nurse researcher with research experience in the field of health communication and qualitative research. The supervisor was utilised throughout the study and specifically in determining consistency in the coding of interview scripts. In enhancing credibility of the findings, the researcher used natural and unstructured debriefing opportunities during data collection.

Space triangulation was also utilised in enhancing the credibility of the study, as data was collected from multiple sites within the Free State. A dichotomous distinction was made between participants from the PHC clinics and those from the CHC centres. The concept of space triangulation (De Vos, 2011:234) was incorporated to enhance the rigour of the study to check for multisite uniformity in perceptions of patients with diabetes in the Free State, South Africa (Polit & Beck, 2012:590).

2.9.2 Dependability

The construct **dependability** is used in qualitative research as a measure of the consistency of the research study (Botma *et al.*, 2010:232). The consistency of the study was generated through stability of data over time and conditions (Polit & Beck, 2012:585). Botma *et al.* (2010:233) suggest that for dependability to be established, the findings of the inquiry will be consistent if the study was replicated with similar participants. Carpenter and Speziale (2007:49) emphasise that dependability of the study is met once the researcher has demonstrated the credibility of the research findings. In this study, the researcher established dependability of the findings through a thorough thick description of the methods used in acquiring data and in data analysis. In the description of the methodology followed in the study, the researcher highlighted a detailed data analysis process, findings were presented with appropriate quotations and consistency was demonstrated between the study findings and the conclusion (Schou *et al.*, 2012:2090).

2.9.3 Confirmability

Confirmability is a process criterion of trustworthiness that entails freedom from bias throughout the research process (Botma *et al.*, 2010:233). This construct expresses that the findings of a study should express the participants' perspectives and not any biases, motives and/or other perspectives. Polit and Hungler (1997:307) express that this criterion does not question the characteristics of the researcher, that is how biased or objective the researcher is, but rather questions the characteristics of the data, mainly how verifiable the data is. The main objective of this construct is to illustrate as clearly as possible the evidence and thought process that have led to the conclusions (Speziale & Carpenter, 2007:49; Botma *et al.,* 2010:233). Confirmability from such a perspective removes some form of inherent characteristics of the researcher (De Vos, 2011:281). This construct enhances some objectivity within qualitative research and places data interpretations squarely on the data itself. However, other literature argues that this construct is a difficult one to express, as independent researchers may not be able to reach the same conclusion as that of the initial researcher and thus a reduction in the confirmability of the study might be found (Speziale & Carpenter, 2007:49). Sandelowski (2005) in Speziale & Carpenter, 2007:49) argues that only a researcher who has collected the data and who has been immersed in the data can confirm the findings.

However, the researcher implemented certain measures to enhance the confirmability of the findings of the study. The researcher explicitly stated the theorists who inspired the data analysis process and there was mention of who conducted the study and an explicit description of the key roles of the facilitator. The professional transcriber and translator dealt with the semi-structured interview transcripts with the highest level of professional conduct to ensure high-quality scripts. The utilisation of the CAQDAS, specifically ATLAS.ti, increased the consistency of interpretation by reducing the researcher’s biases and enhancing confirmability (Schou *et al.*, 2012:2090).

The researcher thoroughly documented the methods used to achieve the results providing an audit trail of how the analysis was done. Through bracketing, the researcher managed to reflect on their own personal involvement with the study and such reflections were documented and checked on frequently to minimise bias (Creswell, 2009:192; Schou *et al.,* 2012:2090).

2.9.4 Transferability

Transferability as a construct in trustworthiness demonstrates the extrapolation of the study findings to separate or different situations (Botma *et al.*, 2010:233; Speziale & Carpenter, 2007:50). Transferability rests on a researcher intending to transfer the findings to a separate context; however, the researcher needs to provide a thick description of the study that will enhance the transferability of the study findings. According to Polit and Beck (2012:585), transferability mainly affects the description of the sampling and design. Schou *et al.* (2012:2090) who, through the criteria they developed, assessed the quality of qualitative research, emphasised that in enhancing the transferability of qualitative data, key criteria on sampling and design should be emphasised in a study.

In enhancing the transferability of this study, the researcher provided a thick description of the participants of the study, by stipulating the sampling process and the key characteristics of the unit of analysis. In addressing the design issues of the study, the researcher described the context from which the study was undertaken. A rich description of the results supported by direct quotation of the particiapnts was provided. The burden of applicability also rests on the researcher who is attempting to apply the findings (Speziale & Carpenter, 2007:49-51). The discussion in 2.10 relates to the ethical issues of the study.

2.10 ETHICAL ISSUES

The nursing profession has direct relationships with human beings. Nursing research largely involves human subjects and it is imperative that these human subjects are protected throughout a study (Polit & Beck, 2012:150; Speziale & Carpenter, 2007:57). It is deemed professional nurses' responsibility to design research that upholds sound ethical principles and protects human rights (Botma *et al.*, 2010:3). The need for the protection of human rights has historical origins, as atrocities were committed to people in the name of research (Botma *et al.,* 2010:2-3; Speziale & Carpenter, 2007:59-60). Such atrocities and abuse of human rights led to the formulation of codes of ethics as a response to harm being committed to humans in the name of research (Botma *et al.*, 2010:4). The main purpose of these ethical codes is to ensure that research is conducted in an ethically sound manner, thus protecting the rights of the participants. The Belmont Report, which was delivered by the National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research in 1978 (United States Department of Health and Human Services [USDHHS], 1978: online), is one such ethical code. This ethical code serves as a model for the protection of human participants during bio-medical and behavioural research (Speziale & Carpenter, 2007:61; Polit & Beck, 2012:148). The researcher adopted concepts inherent to the Belmont Report as the main ethical framework to underpin the study.

The Belmont Report highlighted three broad principles, namely the principle of beneficence, the principle of respect for persons, and the principle of justice (Polit & Beck, 2012:152; Speziale & Carpenter, 2007:61; USDHHS, 1978: online). Section 2.10.1 will discuss how the principles making up the Belmont Report were upheld in the present study.

2.10.1 The principle of beneficence

The principle of beneficence is vested in the premise that a participant has the right to be protected from harm and discomfort, and also in making efforts to secure participants' well-being (Botma *et al.,* 2010:21). The principle of beneficence is manifested in multiple dimensions in research, namely; freedom from harm, freedom from exploitation, and the risk/benefit ratio (Polit & Beck, 2012:152-153). The discussion below will highlight how the researcher adhered to the three dimensions of the principle of beneficence.

Freedom from harm: Freedom from harm as a dimension of the principle of beneficence emphasises that the participants of the study should not be subjected to any unnecessary harm or discomfort (Speziale & Carpenter, 2007:65; Polit & Beck, 2012:153). Research with humans can result in physical or emotional or financial harm, and the researcher has to minimise the effects of such harm on the participant as much as possible. In the present study, all necessary precautions were taken in conducting the interviews in a safe space within the site for data collection so as to avoid physical harm to the participants. The researcher ensured that the participants were comfortable before and during the semi-structured interviews, and necessary actions were taken by the researcher to enhance the comfort of participants. The interviews were conducted on the same day that the participants were attending the CHC centre or PHC clinic for their health care. This strategy eliminated any chance of financial harm to the participants.

However De Vos *et al.* (2011:117) state that emotional harm is always difficult to anticipate accurately and to avoid. Two strategies were adopted by the researcher to minimise the potential of emotional harm. The questions used during the semi-structured interviews underwent expert scrutiny to reduce any potential of unnecessary intrusion into the participants' private experiences that had nothing to do with the research question. The researcher was sensitive towards participants who exhibited the need for debriefing after an interview session, particularly for males who discussed their male sexual problems. Patients who exhibited the need for counselling after the session where then refered to the professional nurse in charge of chronic illness.

Freedom from exploitation: Participants of any study should not be exposed to a situation which they have not been prepared for (De Vos *et al.,* 2011:119; Polit & Beck, 2012). The relationship that is established between the participant and the researcher during interviews is of a contractual nature. The participants were advised of the terms and conditions through a study brochure (Addendum C) and the researcher adhered to the contents of this contractual agreement.

Risk/benefit ratio: The risk/benefit ratio is determined by maximised potential benefits of the study to the participant compared to minimised risk incurred during the study (Botma *et al.,* 2010:24). The benefits of a study should outweigh its risks or else the study should be abandoned or redesigned (Polit & Beck, 2012:98). The researcher strived to minimise risks ensuring that risks were not greater than those that are ordinarily anticipated in everyday life. Minimal risks were ensured as the participants were only approached on their routine chronic care days. With regard to the benefits of the study, the researcher highlighted the significance of the research question and its potential benefits to the improvement of care of patients with diabetes in future. The participants would indirectly benefit from the results of the study since no stipends were provided to participants for taking part in the study. After the semi-structured interviews, no risks for the participants were observed by the facilitator.

2.10.2 The principle of respect for persons

The principle of respect for persons, also known as the principle of respect for human dignity, is the second broad ethical principle articulated in the Belmont Report (USDHHS, 1978). There are two dimensions under this ethical principle: the right to self-determination and the right to full disclosure. These two dimensions culminate in the concept of informed consent (Botma *et al.*, 2010:18; Polit & Beck, 2012:157). The discussion below will consider the two dimensions under the principle of respect of persons and will also indicate how the researcher adhered to this principle during the study.

The right to self-determination: Human beings are treated as autonomous agents who are capable of independently making their own decisions (De Vos *et al.,* 2011:160; Speziale & Carpenter, 2007:63-64). Ultimately, human beings can choose to participate or not to participate in a study without any penalty or prejudicial treatment (Botma *et al.*, 2010:7). For this study, the researcher had a session with the professional nurse in charge of chronic diseases at the site of data collection. The main aim of this session was to brief the professional nurse on how to invite participants into the study, and also to emphasise the right to self-determination of the potential participants. In explaining the right to self-determination, the researcher emphasised the need to exclude any possible penalty or prejudicial treatment to participants that offered a negative or unanticipated response. The study brochure (Addendum C) highlighted to potential participants their right to refuse to be part of the study, to refuse to supply certain information, their right to ask questions for clarification, and chiefly the right to decide to partake in a study or not, without any health care being withheld due to them not willing to participate in the study.

The right to full disclosure: Potential participants to a study require all information pertaining to the study and their role in the study before they can make a decision regarding their participation in the study (Polit & Beck, 2012:154). The potential participants were informed of their right of refusal to participate in the study, the researcher's responsibilities, and the risks and benefits of the study. In the study, information related to the study was provided through the study brochure (Addendum C). Since the study included a variety of participants with a variation in their literacy levels and language ability, the information brochure was translated from English to Sotho, Xhosa and Afrikaans. For the participants who could not or preferred not to read, the researcher read the study brochure and consent form in the participant's preferred language. The researcher provided explanations where the participants highlighted naivety. The participants generally preferred the researcher to read the information brochure.

Addressing the two major dimensions under the principle of respect for persons culminated in the consent form (Addendum D). Informed consent meant that the participants had satisfactory information regarding the study, they understood the information related to the study, and they chose freely and voluntarily, free from coercion, to participate in the study. This was evidenced by signing the consent form.

2.10.3 The principle of justice

The third broad principle endorsed in the Belmont Report is the principle of justice. The principle of justice emphasises that participants should be treated fairly and impartially (USDHHS, 1978: online; Botma *et al.*, 2010:19). This broad principle of justice is further analysed to highlight two major dimensions, namely the right of fair treatment and the right to privacy. The discussion below describes how the researcher adhered to the principle of justice.

The right to fair treatment; every potential participant had to be selected fairly and in a non-discriminatory manner. The participants had to share equally any potential risks and benefits from the study (Botma *et al.*, 2010:19; Polit & Beck, 2012:167). In this study, the researcher made the selection of the participants based on the requirements of the research through the stipulation of the inclusion criteria. The criterion was adhered to by the professional nurse recruiting the potential participants for the study and was confirmed by the researcher prior to each interview. The researcher also enhanced the right to fair treatment through a discursive session with professional nurses in each site regarding potential participants who refused to participate in the study. The researcher distributed his contact details and those of the Faculty of Health Sciences Ethical Committee of the University of the Free State (UFS) to all who participated in the study to ensure that they had access to him at any point of the study. The interviews were done timeously ensuring that the patients managed to return to their position to receive health care.

The right to privacy: Polit and Beck (2012:168) highlight that all research done on human participants is intrusive into the lives of the participants to a certain degree. The data collected from the participants needed to be kept in the strictest of confidence (Speziale & Carpenter, 2007:66). Because of the nature of this research study, the researcher could only establish confidentially and not anonymity with the participants (De Vos *et al.*, 2011:120; Polit & Beck, 2012:168). The researcher made a promise of confidentiality and enhanced it throughout the management, storage and analysis of data. Data was depersonalised through the utilisation of numbers with structural codes to identify semi-structured interviews. The audio recordings were stored in a password-protected folders in a Livescribe desktop application and only the researcher and the supervisor had access to them. After the data had been transcribed, the researcher stored the data in ATLAS.ti, under a specific HU, to which only the researcher and the supervisor had access. Backup was established with only the researcher having access to it.

2.11 SUMMARY

This chapter gave an in-depth overview of the research methodology for the present study. The chapter highlighted the research design used in the study (see 2.3), aspects of the population (see 2.4), sampling (see 2.4) and the unit of analysis (see 2.5). The methodology chapter also highlighted the data-generation process inclusive of the technique utilised by the researcher to generate and analyse research data (see 2.8). The analysis utilising ATLAS.ti was also highlighted. The last sections of the chapter demonstrated how the quality of the research and ethical considerations were enhanced. The next chapter will discuss the research findings.

CHAPTER 3

Discussion of the research findings

3.1 INTRODUCTION

The previous chapter described the methodology and methods that were used to determine perceptions of patients with diabetes in the Free State. The methodology chapter explained that data for this study was generated through semi-structured interviews (see 2.7). The generated data was then analysed through inductive reasoning and the incorporation of the editing style of content analysis (see 2.8). The researcher utilised ATLAS.ti as a platform for data analysis.

This chapter will present a discussion of the research findings by first providing a general overview of the data collection, then the demographics of the participants and a discussion of the development of perceptions, followed by the results of the study. The overall findings of the study will be presented as themes, categories and subcategories. A detailed discussion of each theme, category and subcategories will then follow. These results will be presented interwoven with literature and excerpts from the semi-structured interviews. The excerpts from the semi-structured interviews will be presented in the language of the participant in italics and bolded with translations in English contained within brackets. Statements within the excerpts that are within parenthesis reflect additions by the researcher to enhance understanding.

3.2 GENERAL OVERVIEW OF THE DATA COLLECTION

The arrival of the researcher and colleagues seemed to cause a little stir within the clinic. Patients attending the clinic seemed to be interested in knowing what and why the researcher and colleagues were in the clinic because they looked different from their usual health care workers. The professional nurse in charge of the health facility was able to allay patients' anxiety by explaining to them why the researcher and colleagues were in the clinic.

During the initial contact with the researcher, participants seemed nervous and almost agitated, although some were eager and excited to be part of *“a research”.* In as much as consent was gathered voluntarily, participants seemed ignorant about what really was happening in the interview room. The researcher observed that the majority of participants were used to quantitative data gathering, where they expected options to be offered to them after being asked a question resulting in some at first only generating short answers.

The participants’ initial discomfort soon disappeared. The researcher had foreseen the possibility of participants being ill at ease and had decided to start the semi-structured interviews with ice-breaker questions. The interview questions were spliced with some humour that thawed the relations and made the interactions productive. The participants were comfortable with the researcher so that they wanted to speak more regarding the research and other general health issues. The participants seemed to enjoy the experience of having someone listen to them. After the semi-structured interviews, the participants had general questions regarding their condition, which made the researcher wonder to what extent issues related to diabetes are being discussed in health facilities in the Free State. Section 3.3 provides a summary of the demographic data of the participants of this study.

3.3 DEMOGRAPHIC DATA OF THE PARTICIPANTS

The study involved patients diagnosed with type two diabetes living in the province of Free State in South Africa. The demographics of the participants are presented in Tables 3.1 and 3.2. The demographics of the study participants are depicted per district of the Free State.

Xhariep District, which is part of the Free State, was excluded from the study because data saturation had been reached prior to collecting data from the CHC centre in that district. With regard to PHC clinics, data collection was limited to PHC clinics in Motheo District where the PHC clinics were selected through stratified sampling. Limiting PHC clinics only to one district was related to costs and practicality issues associated with data collection as discussed in the previous chapter. Motheo District was purposively chosen to be part of the study because of its high number and density of PHC clinics compared to the rest of the districts in the Free State.

TABLE 3.1: Demographics of the participants from CHC centres per district

CHARACTERISTIC	***FEZILE DABI (n=12)***	***LEJWELEPUTSWA (n=3)***	***THABO MOFUTSANYANE (n=2)***	***MOTHEO (n=3)***
Age				
• 18–40	1			
• Above 40	11	3	2	3
Gender				
• Male	4		1	1
• Female	8	3	1	2
Race				
• White				2
• Coloured	1			1
• Black	11	3	2	
Language of choice for interviews				
• Afrikaans				3
• English				
• Sotho	9	3	2	
• Xhosa	3			
Highest level of education				
• No/unknown	2	1	2	3
• Primary	3	2		
• Secondary	5			
• Tertiary				
Period diagnosed with diabetes				
• 1 year–5 years	4	1		2
• Above 5 years	8	2	2	1

TABLE 3.2: Demographics of participants from PHC clinics in Motheo District

CHARACTERISTIC	*THABA NCHU (Dinaane and Thaba Nchu clinics) (n=5)*	*BOTSHABELO (Harry Gwala, industrial clinic, Jazzman Mokhothu, TS Motloko clinics) (n=5)*	*BLOEMFONTEIN (Heidedal clinic and Kagisanong clinic) (n=4)*
Age			
• 18–40	2	1	1
• Above 40	3	4	3
Gender			
• Male	0	2	2
• Female	5	3	2
Race			
• White			
• Coloured			
• Black	5	5	4
Language of choice for interview			
• Afrikaans			
• English	2		
• Sotho	3	5	4
• Xhosa			
Highest level of education			
• No/unknown			1
• Primary		2	2
• Secondary	2	3	1
• Tertiary	3		
Period diagnosed with diabetes			
• 1 year–5 years	2	3	1
• Above 5 years	3	2	3

The 34 participants included in this study met the inclusion criteria. The inclusion criteria specified that participants had to be above the age of 18 years with a medical diagnosis of type two diabetes for at least a year. All participants were above the age of 18 years and presented with evidence of medical diagnoses of type two diabetes for at least a year, which was verified by the researcher.

The characteristic of age was classified into two main groups. Participants aged between 18 and 40 years were clustered in the first group, while participants above 40 years old were in the second group. A total of 29 participants from both CHC centres and PHC clinics were above the age of 40. The age distribution of the participants corresponded with the description provided through literature that most of the patients developing type two diabetes are above the age of 40 (Inzucchi *et al.,* 2012:1184). Type two diabetes is the most common type of diabetes and is associated with age, obesity and lack of physical activity, which all correspond with poor lifestyles (Doll, Petersen & Stewart-Brown, 2000:180).The next characteristic of the participants that was explored in this study was gender.

The majority of the participants in this study were female (n=24). The composition of gender among the participants was similar in both the CHC centres and the PHC clinics. The ratio of male to female with type two diabetes in this study was 1 male to about 2 females. This ratio corresponds with the findings of the Household Survey that was conducted in 2010 by Statistics South Africa. According to Statistics SA (2010: online), the ratio of male to female with diabetes in the Free State was approximately 1:2. Although the ratio described by Statistics South Africa is inclusive of other types of diabetes, it can be inferred that there are more females with diabetes in the Free State than males. Gender-related differences in lifestyle – particularly in many countries in sub-Saharan Africa – lead to differences in the risk and development of type two diabetes between women and men. A systematic review of articles comparing the prevalence of diabetes related to gender highlighted that women in Southern Africa are more prone to diabetes than men (Hilawe, Yatsuya, Kawaguchi & Aoyama, 2013:677). Gender differences are usually the result of the fact that black women generally tend to be more obese and sedentary as compared to men, because cultural practices, especially for most black people, encourage weight gain, which is perceived as a sign of wealth and happiness (Mvo, Dick & Steyn, 1999:29; Hilawe *et al.*, 2013:678), and this was also true for the present study. The next section highlights the distribution of the participants based on race.

Race was one of the characteristics reflected in the demographics of the participants. The majority of the participants from both CHC centres and PHC clinics were black (n=30) while only two of the participants were white and two participants were coloured. The race composition of the participants closely reflected the race composition of the population in the Free State where 86.9% are black, 9.9% are white and 3% are coloured (Stats SA, 2010: online). Ataguba *et al.* (2012:167) also highlight that the majority of people accessing and utilising the public health care sector in South Africa are black. The next characteristic for discussion is the language of choice of the participants.

The language distribution of the participants was based on participants' preferred language on the day of the interview. However, the choice of the preferred language was limited to languages mainly spoken in the Free State. The majority of participants preferred to speak Sotho (n=26), three participants spoke Afrikaans, three spoke Xhosa and only two of the participants spoke English. According to Andrulis and Brach (2007:S129), language spoken by individuals correlates with the individual's culture. Cultural practices and language have a strong influence on health communication techniques and their interpretation. Harvey and O'Brien (2011:186) relate that the language used in conveying health information can be a barrier to accessing health care as most health information is communicated in English. Health information that is communicated embracing the home language of the patient tends to have a stronger influence in behavioural and lifestyle modification strategies of the patient (Jolles, Clark & Braam, 2012:1504). The ability to comprehend health information goes beyond language and culture. Formal education plays a significant role in lifestyle modification for a patient diagnosed with type two diabetes (Ayyagari, Grossman & Sloan, 2011:47). The next section describes the highest level of formal education of the participants in the study.

The highest level of formal education of the participants was classified into four categories. The first category included participants from whom the researcher could not obtain their educational status and those who did not have formal education. In total, six participants were included into the first category. The other three categories included participants who had primary education (n=10), secondary education (n=13) and tertiary education (n=5). There was no observable difference between the participants from CHC centres and PHC clinics regarding their highest level of formal education. Formal education has an influence on health literacy, disease progression and outcome (Gazmararian, Zierne & Barnes, 2009:10).

Health literacy is defined as the degree to which individuals can obtain, process, understand and communicate about health-related information needed to make informed health decisions (Berkman, Davis & Cormack, 2010:17). The making of informed decisions related to one's health is the hallmark of effective health literacy, and this can be measured through disease outcomes. Williams, Baker, Paker and Nurss (1998:168) evaluated the relationship between patients' literacy and the knowledge of their disease conditions, including substantive self-management. Their findings indicated that patients with low literacy or low formal education had lower scores related to knowledge of their disease condition and substantive management, and patients with low literacy also had poor disease outcomes. DeWalt, Berkman, Sheridan, Lohr and Pignone (2004:1238) conducted a systematic review on 44 articles that associated or correlated literacy levels with health outcomes for various conditions, including diabetes. They concluded that low literacy was associated with more adverse disease outcomes. There is however a growing body of knowledge that is aimed at increasing health literacy through the application of technology and interactive health communication applications (Gibbons, Wilson, Samal, Lehmann, Dirkersin, Lehmann, Aboumatar, Finkelstein, Shelton, Ritu,& Bass, 2009: online) . An example of such application of technology is the utilisation of applications on phones and computers. Results of a systematic review reveal that the use of such interactive health communication applications results in increased health literacy, improved social support, better health behaviours and improved clinical outcomes (Murray, Burns, See-Tai, Lai & Nazareth, 2005:16). The utilisation of technology is influenced by the level of formal education of patients. Because the participants in this study were of low formal education, this limited their ability to access technology, which is used to enhance health literacy.

The concept of health literacy has also been viewed as a broader outcome resulting from interventions directed at empowering patients to be able to make health-related decisions and the ability to drive towards healthier outcomes (Nutbeam, 2008:2075). The outcome of such interventions on patients is underpinned by the level of literacy of the patient, in an endeavour to make patient-focused health communications. In a study by Leung and Cheung (2014:170-171), health literacy had no direct effect on diabetes self-care but had an indirect effect to self-care through perceived communication capacity with health care workers. Therefore enhancing diabetes self-care can be done not only through promotion of health literacy but also through enhancing the capacity of the patient in communicating with his/her health care provider. In this study, the majority of participants had primary education as their highest level of formal education therefore an assumption can be made that their health literacy could be compromised. In a study correlating clinical outcomes and formal education status in rheumatoid arthritis, the level of formal education had an influence on the clinical outcomes, with patients with higher formal education levels having better clinical outcomes (Callahan & Pincus, 1988:1351-1356). In as much as the study was not aimed at measuring levels of association related to diabetes, an inference can be made with diabetes as diabetes and rheumatoid arthritis are chronic and require massive changes related to lifestyle of patients. The perceptions of the participants of the present study on health communication strategies related to diabetes in the Free State varied and could have been influenced by their different levels of formal education. The period a patient has been diagnosed with the condition may have an influence on the health literacy of the patient in terms of experience and exposure. The next paragraph highlights the length of time participants in this study had lived with diabetes.

Participants were classified as either having had type two diabetes for a short or a long time. The short-term group of participants had been medically diagnosed with type two diabetes for between one year and five years before the study, while the long-term group of participants had a medical diagnosis of type two diabetes for more than five years. A total of 12 participants had been medically diagnosed with type two diabetes for between one and five years before the study. The number of participants in the short-term group were evenly distributed among the CHC centres and the PHC clinics.

Most of the participants (n=21) reported having been diagnosed as having had diabetes for more than five years. Perceptions are shaped by a variety of factors inclusive of exposure, experience and memory (Bruner, 1957:128), therefore, the longer the experience of the condition the better defined are the perceptions of the patients. Since the majority of participants had long histories of the condition, the researcher could infer that the participants' perceptions regarding health communication strategies were well defined. Section 3.4 reports on the process of the development of perceptions.

3.4 DEVELOPMENT OF PERCEPTIONS

Bunting (1988:170) provides a synthetic definition of perception as the process of neurologically sensing and selecting stimuli from all those available, interpreting the selected stimuli in light of past experiences, and assimilating new experience into internal mental categories. It can be extrapolated from this definition that the individual involved in the development of a perception does so through a cognitive process that divert stimuli into mental categories that are essential in the interpretation of the environment within which a human exists. Perceptions are shaped by memory, learning, expectation and attention (Bunting 1988:171).

Bruner (1957:49) discusses perception through its historical development and its application in science. According to Bruner (1957:52), the process of the development of perceptions can be seen as a linear progression from the exposure or acquisition of a stimulus throughout all senses to a cognitive process until a category has been formed that depicts the individual's interpretation of the phenomenon or of the stimulus. The final category, which is the individual's interpretation of the stimulus or phenomenon can therefore be used in future as a point of reference or association by the individual (Hochberg, 1956:401). Bruner's (1957) linear process of perception development was adapted further through highlighting the major attributes of the process of development of perceptions (Bunting, 1988:170). Gigure 3.1 highlights the critical attributes that are inherent in the development of perceptions by humans.

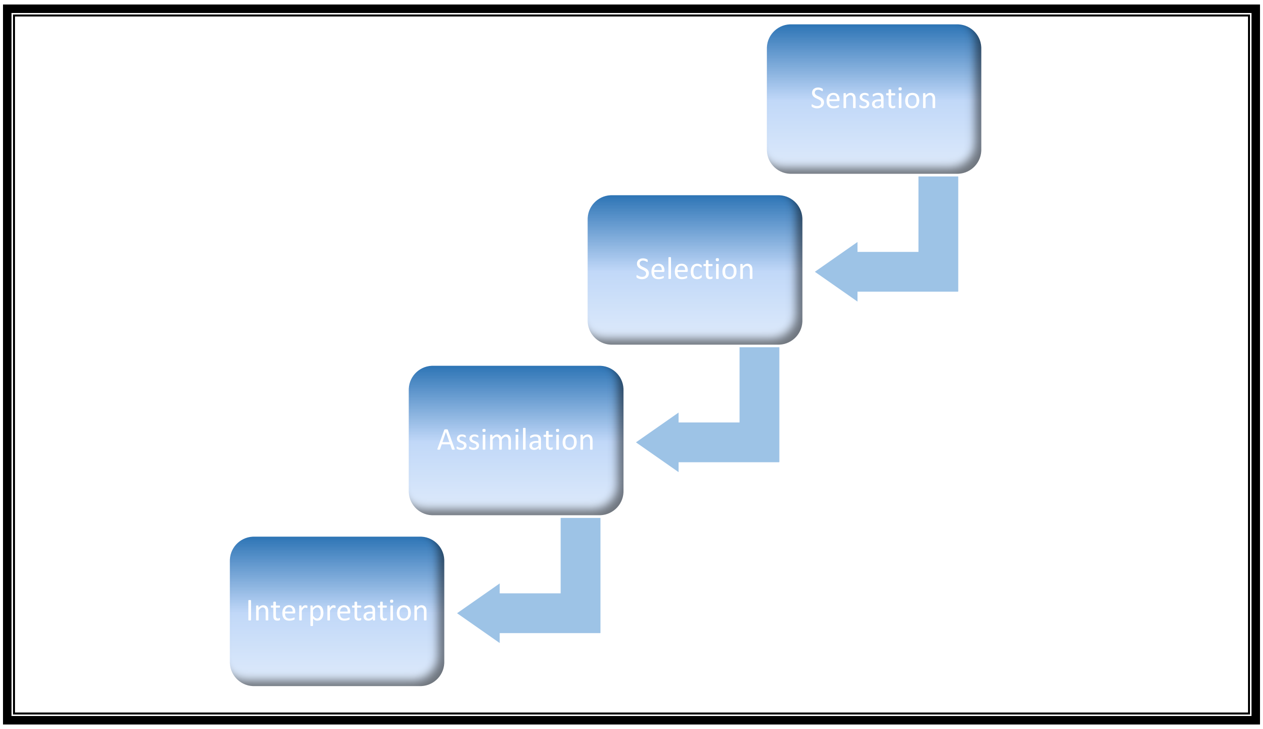


FIGURE 3.1: The development of perceptions (adapted from Bruner, 1957, Bunting, 1988 and Hochberg, 1956)

During sensation, the individual is exposed to stimulus (Bruner, 1957:17). The individual then has to select through the selection phase, the specific stimulus relevant to the particular context. Assimilation is a high cognitive phase, where the individual attempts to understand the stimulus in understanding the stimuli, the individual either incorporates the stimulus into an existing mental category or creates a new mental category for that stimulus. The location of the stimulus in this mental category means that the individual can then interpret the stimulus based on the meaning associated with the category (Bruner, 1957:18).

In the context of this study, patients with type two diabetes were exposed to a variety of stimuli, inclusive of health communication strategies. The cognitive process of selecting relevant stimuli was done within the social context, inclusive of memory, learning, expectation and attention (Hochberg, 1956:402). Assimilation resulted in the categorical classification of the stimuli related to health communication strategies into the existing mental categories or the creation of new mental categories (Bunting, 1988:171). The mental categorical interpretation of health communication strategies related to type two diabetes in the Free State was the crux of the study.

The results section of this study presents a collection of perceptions of health communication strategies held by patients with diabetes in the Free State. These results are an interpretation of the individual participants’ responses to the questions posed during the semi-structured interviews. The interpretation of the responses was influenced by the researcher’s inductive reasoning (Botma *et al.*, 2010:171) and the research paradigm followed. Section 3.5 presents the participants’ perceptions of health communication strategies as the research results.

3.5 RESEARCH RESULTS

After extensive data analysis, the perceptions of patients with diabetes in terms of health communication strategies are presented as the results of this study. The generated results are presented in themes, categories and subcategories. Figure 3.2 displays how the themes, categories and subcategories derived from the data analysis are related in a spatial plane. This graphical representation was developed through the utilisation of the network display function of the ATLAS.ti software package. The arrows in the graphical presentation show the relationship between the categories and subcategories within a theme. The arrows linking the categories are annotated with phrases to expand the nature of their relationships further. Some of the categories and subcategories are reflected as interrelated through arrows that have double leads.

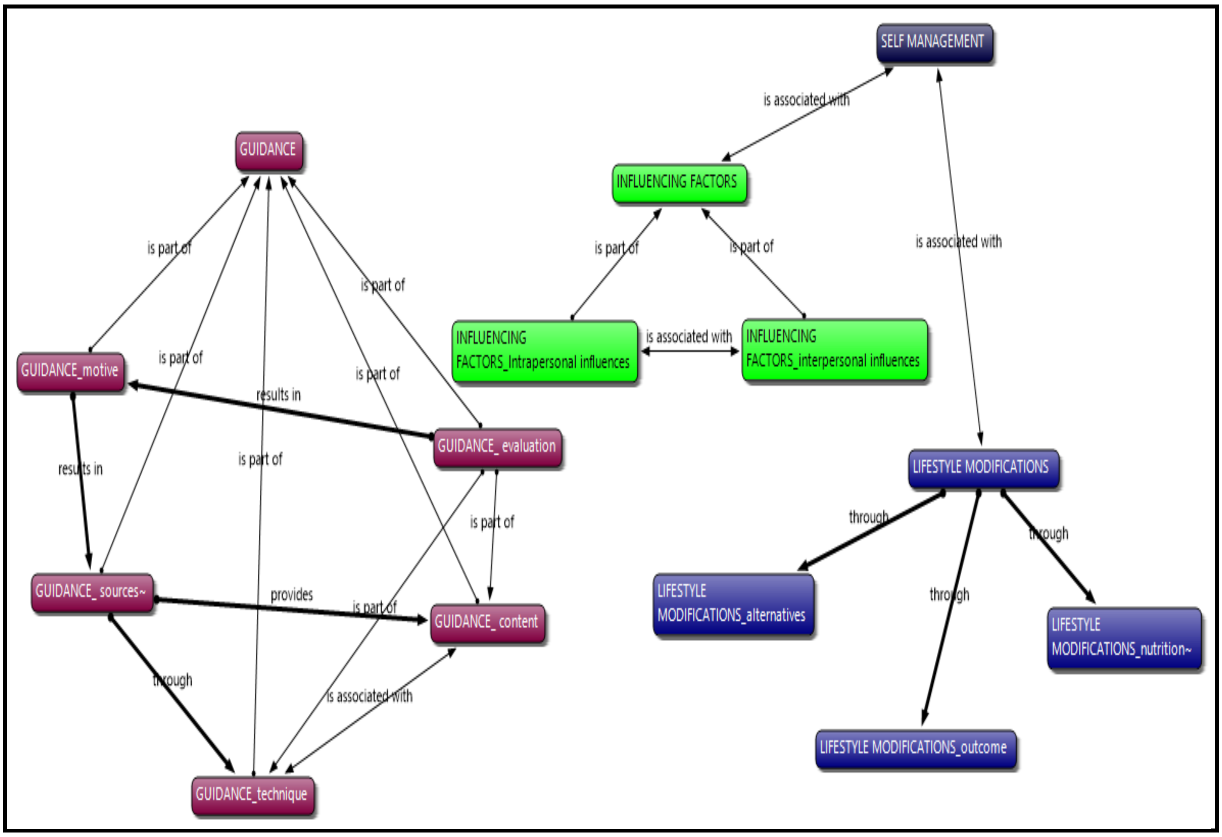


FIGURE 3.2: RELATIONSHIP BETWEEN THEMES, CATEGORIES AND SUB-CATEGORIES

Table 3.3 presents in a tabular form, the themes, categories and subcategories generated from the semi-structured interviews. The results of this study will be discussed in the sequence presented in Table 3.3.

TABLE 3.3: Perceptions of patients regarding health communication strategies in the Free State

THEME	CATEGORY	SUBCATEGORY
Guidance	Motive Content Source Technique Evaluation	
Self-management	Influencing factors	Intrapersonal factors Interpersonal factors
	Lifestyle modifications	Nutrition Outcome

3.5.1 Theme 1: Guidance

Guidance is derived from the verb ‘guide’. In providing guidance, one leads another to achieve a goal (Avis, Drysdale, Gregg, Neufeldt & Scargill, 1983:519). The goal usually has value and significance to the one being led or guided. A variety of strategies and techniques are used in the process of guidance. These strategies and techniques may viewed as a top-down process. At the top is the leader who is aware of mechanisms of achieving the shared goal (Emanuel, Danis, Pearlman & Singer, 1995:443). The person at the bottom presents with the need to be guided. The need for guidance is associated with a restructuring process that may occur in an individual due to changes in his/her life and lifestyle. Lifestyle changes affect the overall existence of such person (Horton, 2009:S43-S45).

Humans exist in the real and assumptive world (Murray-Parkes, 1971:99). Whenever a major change takes place in either the real or the assumptive world, a need arises for the individual to restructure his/her perspectives of the world and his/her plans for living their life (Murray-Parkes, 1971:102). The restructuring process culminates in changes on the individual’s life space. Life space consists of parts of the environment with which the individual interacts and in relation to which behaviour is organised. At diagnosis of a chronic disease, there is a focus on the illness perspective. This focus leaves the patient engrossed on his/her illness as he/she tries to adapt to life space changes associated with the disease (Paterson, 2001:23- 24). The changes to the life space of the individual are dependent on the significance of the initial change of either such person’s real or assumptive world. This process of readjusting to the life space changes can also be known as adaptation, and being diagnosed with a chronic disease incites a change in the life space, hence a requirement for guidance.

Paterson (2001:24) describes adaptation to chronic disease through the Shifting Perspectives Model. The Shifting Perspectives Model highlights a dichotomy between illness and wellness existing as two interrelated perspectives. The presentation of the two perspectives as either illness or wellness is dependent on the stage in which the patient is adapting to his/her condition. The illness perspective is usually dominant around times of initial diagnosis with a chronic disease and also when the patient faces challenges related to the chronic disease (Paterson, 2001:24). During the illness perspective, patients diagnosed with diabetes present with a need for guidance. Once appropriate guidance is provided to the patients, perspectives shift from illness to wellness. The wellness perspective reflects a positive patient who has accepted the diagnosis of a chronic condition and is managing the condition at acceptable levels (Paterson, 2001:22-24). The wellness perspective is a result of effective guidance through a variety of sources and approaches. Several encounters with the effects of the chronic condition may shift the perspectives of the patient to embrace the illness perspective; hence, a new need for guidance might arise (Paterson, 2001:22).

Diabetes, a chronic disorder, causes a variety of changes in the life of any individual diagnosed with the condition (Gregg, Li, Wang, Burrows, Ali, Rolka, Williams & Geiss, 2014:1514-1520). These changes can be described through the bio-psycho-social model (Kalra, Balhara & Das, 2013:54). Biologic changes include changes brought about to the physical being of the patient because of the disease. Changes associated with diabetes include degeneration of physiological and anatomical structures. Such deterioration results in the loss of vision as well as renal and cardiovascular derangements (Stratton, Adler, Neil, Mathews, Manley, Cull, Hadden, Turner, & Holman, 2000:405). To avoid such physical changes will involve changes in the lifestyle of patients diagnosed with diabetes, such as changes in dietary practices, exercise plans and hygiene practices (Inzucchi *et al.*, 2012:1373). Psychologically, patients are expected to adhere and adapt to the new lifestyle imposed as a result of being diagnosed with a chronic disorder. Sociological changes are manifested within the society where the individual lives. Patients diagnosed with diabetes have to adapt in society through adjusting and fitting into the sick role as expected by society. Within society, the patient with diabetes is expected to be an advocate of his/her own health and be able to integrate the requirements of his/her condition within the family and the community where he/she lives (Penn, Dombroski, Sniehotta & White, 2013:8).

The bio-psycho-social changes in the person diagnosed with diabetes are expected to be life-long; however, Inzucchi *et al.* (2012:1579) state that if patients are properly guided they have the potential to adapt to the expected lifestyle changes. Lifestyle changes enhance the quality of life lived with diabetes and improve disease outcomes (Horton, 2009:S45). As noted, the changes are demanding, and the patient with diabetes requires a total overhaul of his/her life. Essentially, change requires patients to be guided into the new lifestyle, hence the need for guidance (Ascot-Evans *et al.*, 2012:33). A goal for survival is developed and guidance will play an intricate role in its attainment. During this process of goal attainment, humans need to transcend from the pre-diabetic state to a new life with a chronic disease.

The adaptation to transition to the attainment of a goal or aim is a phase which is explained through the Model for Analysing Human Adaptation to Transition (Schlossberg, 1981:20). This model states that, after undergoing a change from the original status quo, humans transcend to either the known or unknown. This process of transition is associated with the individual's perception of the transition, characteristics of the pre-transition versus the post-transition environments, and the characteristics of the individual in question. Some of the changes that occur during the transition period could be life-threatening. Humans in transition have to make critical decisions to ascertain their continued existence (Schlossberg, 1981:15-18). In the making of these critical decisions, there is need for guidance. Guidance will enable life-changing decisions to be made and the creation of a platform for adaptation. This guidance can be in many forms, and information is one of the forms.

Patients diagnosed with diabetes require information as a form of guidance (Rumbold & Crowther, 2002:135). Participants from the present study were exposed to health information through various health communication strategies. The participants perceived health communication strategies as guidance. Guidance was entangled with their need for survival with the condition. However, this guidance was conducted within a context.

The context where guidance can be provided varies with individual patients. The significance of the context to which guidance is provided cannot be overemphasised (Nutbeam, 2008:2075). Assumptions could be made that diabetes-related guidance is provided at the clinic where day-to-day chronic care is provided by health care workers. Guidance is enhanced after conducive relationships have been built between patients with diabetes and health care workers (Wiley, Westbrook, Greenfield, Day & Braithwaite, 2014:430). The nature of the relationship between patients and the health care workers affects the guidance afforded to patients and the utilisation of the clinic as a context for guidance. The context can also be external to the health care system, which could then include the home and work place.

At home, guidance may be provided through family members with experience in diabetes (Wen, Shepherd & Parchman, 2004:988; Wen, Parchman & Shepherd, 2004:427). Family members without diabetes also provide guidance within the home and may be inclusive of people with authority in the family, like the parents. In several contexts, guidance for patients with diabetes may be provided by traditional healers and religious leaders who may claim to have the ability to cure the disease or to have remedies that may treat symptoms of the condition or treat the disease eventually (Polzer & Miles, 2007:182). Patients with type two diabetes may also be offered guidance at their place of work. At the place of work, guidance may be provided by health care workers appointed by the company or through colleagues who may have experience related to diabetes (Yamataki, Suwazono, Okubo, Miyamoto, Uetani, Kobayashi & Nogawe, 2006:170).

The appropriateness of the context for guidance is dependent on the stage of the patient on the diabetes illness–wellness continuum. Barry and Edgman-Levitan (2012:89) describe the needs of patients with diabetes to differ at different stages of the disease, and the application of specific contexts is relevant at the various stages of the condition. A patient just diagnosed with diabetes may require knowledge on the lifestyle changes necessary to keep his/her blood glucose within acceptable levels, while more experienced patients with diabetes may require information or guidance on how to survive the long-term effects of diabetes, like neuropathy (Paterson, 2001:18).

Section 3.5.1.1 will highlight the first category identified under guidance, namely motive.

3.5.1.1 Category 1: Motive

Motive is defined as the inducement, reason or wilful desire behind an action (Shye, 1978:328). Literature also defines motive as the impulse, the drive or the intention of a particular action with a reward (Sheldon, 2011:560). In this study, motive refers to the reason why patients with diabetes were exposed to various health communication strategies within the Free State.

The motive or reason behind an action that warranted the exposure to various health communication strategies was associated with changes in the normal day-to-day life of a patient diagnosed with diabetes. Changes in the normal day-to-day life of patients with diabetes result in the need for health information (Longo, Schubert, Wright, LeMaster, Williams & Clore, 2010:338), thus exposing the participants to various health communication strategies used in disseminating health information.

In expanding the reasons supporting motive, the discussion in this category is guided by a variety of models that have been tested and are known to explain the concept motive in the context of health information seeking. These models include the Health Information Acquisition Model (Beltramini, 1989), the Risk Information Seeking and Processing model (Griffin, Dunwoody & Neuwirth, 1999), the Extended Parallel model (White, 1992), the Theory of Motivated Management (Afifi & Weiner, 2004) and the Planned Risk Information Seeking Model (PRISM) model (Kahlor, 2010). These models and theories have been used to strengthen the discussion regarding motive, and place the findings of this study within literature.

The Health Information Acquisition model (Beltramini, 1989:36-40) describes a linear but structured decision-making process that lists categorically the stages associated with information seeking. According to Beltramini (1989:36), for one to seek information through any strategy, you have to encounter a stimulus first. The stimulus can either be internal or external. The stimuli generate an evaluation of one's current knowledge and identifies any knowledge gaps. This personal appraisal highlights whether more information is required or not. The realisation of the need for more information generates a motive (Beltramini, 1989:38). The stimuli encountered by participants in this study, were symptoms related to diabetes and the changes that are accompanied by the lifestyle of a patient with diabetes. Initially, the participants experienced a broad range of symptoms, which represented a change in their normal life. Patients experiencing these symptoms required an explanation. Symptoms of diabetes interfered with life and the lifestyle of individuals and informed the motive to seek health information. The following translated excerpt from one of the participants shows the effect of such symptoms, which acted as motive to seek guidance:

- ***Ek moes so baie keer toilet toe gaan, baie gewig verloor, mmm, was baie moeg en het my ma gevra om my dokter toe te vat omdat ek gedink het ek het 'n erienwegonfeksie. En (sug), toe maak hulle 'n afspraak en vat my, toe vertel hy dat dit nie'n urienweginfeksie is nie*** *(I went to the toilet an awful lot, lost a lot of weight, mmm, was very tired and then I told my mom to take me to the doctor because I thought I had a urinary tract infection. And (sigh), then they made an appointment and took me, then he told me no, it's not a urinary tract infection).*

The stimuli encountered by the patient may be interpreted differently. Some of the stimuli may be interpreted as a risk while other stimuli may be ignored and considered safe based on subjective personal experience and internal judgement. This interpretation occurs as an internal process within the patient. Those stimuli interpreted as risks may result in health information seeking. Griffin *et al.,* (1999:S234) support the model by Beltramini (1989) through the description of the Risk Information Seeking and Processing model. This model explains information seeking and processing specifically within the context of a risk. In the case a patient with type 2 diabetes, this risk may be a health risk.

Health risks relate to dread risk which captures an individual's own interpretation of stimuli as controllable, catastrophic, fatal, reducible, increasing, voluntary, equitable or whether it evokes fear and worry (Slovic, 2001:20). After an individual’s interpretation of the stimuli as a health or dread risk, the individual develops a motive to seek health information. In the context of this study, the participants were motivated to seek health information through an encounter with a health or dread risk associated with diabetes, as evidenced by the following statements from the semi-structured interviews;

- ***Ke ne kena le bothata ka lijo tse mafura. Ke bolela hore ha ke jele lijo tse mafura ke ne ke utloa bohloko*** *(I had a problem with fatty foods; I mean if I ate food with fat, I would experience some pain).*

- ***Taba ke hore bothata e ne e le hore je ne ke sa tsebe hore na bothata ke bofe. Ho ne ke ho etsa ke ho ikenta ka tiripi ene ho nka nako etelele, ho nka nako telele*** *(…thing is the challenge was I did not know what the problem was, all I had to do was to inject myself with a drip, and it takes some time to do that, it takes too long).*

In addition to identifying the dread risk, the individual exposed to the dread risk makes a decision based on the gravity of the threat or dread risk. White (1992:230) summarises the process of deciding the gravity of risk through the Extended Parallel Process model. The evaluation of the gravity of a threat is usually associated with the efficacy of the individual in dealing with the threat. The combination of both the threat and the efficacy of the individual leads to the motive behind risk information seeking (White, 1992:330).

One of the notable concepts in the Extended Parallel Process model (White, 1992:333) is information insufficiency. Information insufficiency is the perceived need for additional information. Additional information is the difference between perceived current knowledge and knowledge needed to deal adequately with the risk to health (Griffin *et al.,* 1999:S235-S240). In other words, the patient who encounters a threat or risk related to his/her well-being realises his/her knowledge insufficiencies associated with the risks. One of the participants relayed:

- ***Eaba kea hlokomela hore ha ho sena motho a ntlhalosetsang hore ho etsahalng ka nna,… ke tlo shoa. Ebe ho etsahalang ka bana baka natate? Ke reng ho bona?*** *(I then realised, if someone does not explain what is happening to me… I will really die. What about my kids, sir? What do I say to them?)*

The need for some explanation on the perceived threat is reflected as a motive for health information seeking. The nature of the motive may be explained by the Theory of Motivated Information Management (Afifi & Weiner, 2004:180-185). The Theory of Motivated Information Management rests upon two premises. The first premise is related to the ability to engage at interpersonal level in the conveyance of information. The second premise is seeing information on a continuum from the active pursuit or seeking (also avoidance) of information to passive or accidental meeting of information.

The Theory of Motivated Information Management explains that patients who seek information will do so through deliberate means (Afifi & Weiner, 2004:180-185). Patients actively acquire information through searching for means or sources or strategies that will provide information as required. On the other hand, some of the information is *"thrust up on"* them (Coulter, 1999:719).

Having realised that there is a general lack of information, patients may actively seek out information through deliberate actions while on the other hand information may be presented to them without them being interested in receiving such information (Kahlor, 2010:170). In some instances, participants did not know they had diabetes and did not experience the health-dreading or life-risking stimuli which would enable them to seek health information. The following excerpt highlights elements of encountering information without intention:

- ***mina ngaya khona, ndingazi ukuba ishukela yishukela, kodwa … ndabakwazi sengilalo ishukela, ye*** *(I went there, not knowing that sugar diabetes is sugar diabetes, but … I knew after that I had sugar diabetes, yes).*

The PRISM model study sought to map predictors of health information seeking that transcend a specific health crisis (Kahlor, 2010:353). One of the conclusions from this model was a notable difference between knowledge insufficiency and information seeking. The difference between knowledge insufficiency and information seeking meant that patients prioritised specific health risks over and above general health issues (Kahlor, 2010:353). The following excerpt supports this notion:

- ***I took them for granted; I only took action when I got sick. Those things that I used to do were wrong, but I was not aware that they were wrong.***

Motive of a patient is essential in determining the exposure to health communication strategies on health information related to diabetes. The next section highlights the category **Content**.

3.5.1.1 Category 2: Content

Content can be assumed to be associated with what is enclosed in a message. Content is disseminated through various health communication strategies. In enhancing health literacy, content should be pitched at a level appropriate to the relevant audience (Golden & Earp, 2012:368). All aspects of the chronic condition have to be addressed in the health message to patients with diabetes. The structure of the content provided to patients with diabetes has to be tailored to embrace the targeted audience (Ellis, Connor & Marshall, 2014:1402-1206). This discussion on the category of content will dovetail with the view that the participants in this study presented with low formal literacy or poor education status.

Participants expressed that they were exposed to various diabetes-related content through health communication strategies. An exploration of the data of the semi-structured interviews revealed that diabetes education was split into two major content areas: nutritional education and education on lifestyle modification. These findings reflect the content as described in the SEMDSA (Society for Endocrinology, Metabolism and Diabetes of South Africa) diabetes education and support document (Ascot-Evans *et al.,* 2012), which reflects nutrition and lifestyle education as essential in the educational content for patients with diabetes. However, the content – perceived to be taught to the patients – ignores some other essential elements for self-management as highlighted in the national guidelines. The participants reflected that they were told which foods they should eat and those that they should avoid. The patients interviewed in this study reflected:

- ***Seo ba se buang ka lefu lena ke hore re tlameha ho khetha lijo tseo re lijang mefuta ea li drink e re e noang hape re sebelise lijo tsa low fat*** *(What they say about this disease is that we should choose the type of food we eat, the types of drinks we take and only use low fat)*

In addition to what they have to eat, participants diagnosed with diabetes were informed on foods they were supposed to avoid. The nature of the disease means that some of the food that is eaten on a normal day could predispose an individual to higher incidences of hyperglycaemia (Funnell *et al.,* 2009:S98) and this could lead to dreaded disease outcomes. Some of the participants knew about the type of foods to avoid:

- ***Ndino lwazi oluncinci: bathi singadli okunye ukutya (****Yes, I do have some information; they said that we shouldn't eat certain type of food).*

- ***Dis omdat jy nie insulien het om die suiker na energie toe om te skalel nie. Mmm, so dis uit, vet is uit, brood en sulke goed is uit, jy kan net 'n bietjie daarvan eet. Mmm kos wat suiker bevat word ook nie toegelaat nie, ek week dat diete baie verander het, hulle het my ' n ruk gelede vertel dat 'n diabeet nou suiker mag eet, net nie groot hoeveelhede nie, maar om die waarheid te se weet ek nie veel daarvan (****It's because you don't have insulin, to convert the sugar to energy. Mmm, so that's out, fat is out, bread such things* *are out, can eat it but very little. Mmm, sugary foods, not allowed, I know the diets have changed a lot, they told me a while back that a diabetic may eat sugar now, but not large quantities, but to be quite honest, I don't know a lot about that.)*

- ***Ba itse ke se ke ka ja nama,… nama ea khoho hape ke sa ja litapole… ke se ke ka noa li drink tsa khase… hana bae itseg? Rice hape… ke se ke ka ja papa haholo (**They said I shouldn't eat meat… Chicken and I should not eat potatoes… I should not take drinks with gas (fizzy drinks)…What else did they say? Rice also…I should not eat a lot of papa [maize meal based thick porridge]…)*

Regarding the meals that patients diagnosed with diabetes ate, the specific times of eating and carrying out lifestyle changing behaviours were emphasised (Funnell *et al.,* 2009:S89). Patients with diabetes have to maintain their blood glucose within a specified range (Inzucchi *et al.,* 2012:1178) at all times. Frequent meals predispose the patient with diabetes to hyperglycaemia while meals that are too far apart may lead to hypoglycaemic shock states (Naik, Kallen, Walter & Street, 2008:1362-1367). The splicing of physical activities in the daily regime of the patients with diabetes enhances the body's utilisation of the excess glucose through increased metabolism. The balancing of meal times and activity patterns should be well woven to enhance the metabolism of glucose while maintaining the patient in a 'normal' glycaemic state (Inzucchi *et al.*, 2012:1178-9). The following excerpts from the interviews highlight this notion of awareness of eating at specific times:

- ***Li Doctor li mpolelletse hore ke be hlokolosi ka lijo tseo ke lijanhh, ke se ke ka iphumana ho na le meal oo ke sa o jang, ke se ke ka ja mafura lelijo tse nokuoeng ka letsoai (**Doctors only told me to be particular with what I eat, I shouldn't skip meals, eat fatty and food seasoned with salt).*

- ***Ba itse haeba o tsamaea ka tsela enepahetsing hape o ja lijo tse nepahetseng o ikenta ka nako, o j aka nako… otla phela nako e telele(****They also say that if you walk in a right direction and eat the correct food, injecting on time, eating on time… [then] you will live longer.)*

The timing of the meals is essential in the maintenance of the specified ranges in the blood glucose (Saurabh, Sarkar, Selvaraj, Sekhar, Kumar & Roy, 2014:106). In addition to the timing, the patient with diabetes is expected to eat the right type of food.

- ***they talk about it; you have to eat the right food***

The present study revealed that patients with diabetes had to comply with a specified diet regimen, which was typically a low fat and low glucose diet. Some participants were taught how to prepare the particular diet to meet the requirements of their condition. In enhancing low fat in their diets, patients with diabetes were even taught to cut visible fat from meat and to eat boiled food. With regard to glucose, the diet of patients with diabetes should have more food containing complex carbohydrates (Elleri, Allen, Harris, Kumareswaran, Modale, Leelarathna, Acerini, Wilinska, Jackson, Umpleby, Evans, Dungers & Hovarka, 2013:113-4). Complex carbohydrates affect the absorption of glucose from the gastro-intestinal system. A meal with high complex carbohydrates will result in sustained post-prandial glycaemic loads and thus give rise to sustained glucose levels throughout non-eating times (Elleri *et al.*, 2013:114). This situation results in glucose levels within normal ranges for longer periods of times, hence reducing some of the effects of diabetes. The following excerpts reflect the general understanding of the participants regarding their diet:

- ***Mmm,ke ja lijo tse ka reng tse khorofo lijo tse khorofo tse ngata le nama e se nang mafura, mmm, ke fokotse mafura ka hohle ka moo nka kholang. Hap eke balehe lijo tsenang le limatlafatsi joaloka rice le lijo tse joalo, bo litapole kea lija. Ke se ke ja lichips le tseling tse ngata (****Mmm, I eat like grains, many, many grain seeds and lean meat, mmm, cut out fat as far as I can and then I avoid high carbohydrate stuff, like rice and that type of stuff and potatoes I eat, don’t eat chips, slap chips any more.)*

- ***Kos het hulle gese, ee, soos koeldrank,moet ek Tab drink (****food they told me, êe, like the, I will take the cool drink, they say I must drink the Tab …)*

In addition to the nutritional knowledge, patients with diabetes received knowledge regarding other aspects related to diabetes management, namely lifestyle modifications. Lifestyle modifications for a patient with diabetes are based on the associated physiological effects of diabetes on the human body. Such physiological effects of diabetes include hyperglycaemic attacks and neurovascular complications (Stratton *et al.*, 2000:405). Patients with diabetes were taught basic self-care strategies that reduced the physiological effects of diabetes. The following excerpt reflects the lifestyle modifications taught to reduce the effects of diabetes:

- ***Hape ha ho ka etsahala hore o be le leqeba le ka nna le se ke la fola. E, ba nkelelitse hape ka mofuta ea lieta tse ke tlamehang ho li roala le tseo ke sa tlamehang ho li roala (****And if it happens that you have an injury, it might not be curable. Yes, they've also advised us on the type of shoes to wear and which ones not to wear)*

As part of lifestyle modifications, patients with diabetes are educated to avoid situations that enhance the physiological effects of diabetes. Certain physiological states are known to increase the rate of progression of diabetes (Stratton *et al.*, 2000:405). The following excerpt reflects what patients were taught to avoid or modify in their lifestyle to enhance or achieve normal glycaemic levels:

- ***Just like that, they told me that too much of stress, depression, push it upwards, so make sure that your level is good. Whatever thing a person does to you, pretend as if it is not directed to you and observe what will happen. Just keep your level …***

Strategies have thus been presented to reduce the effect of physiological factors on hyperglycaemia. The next discussion highlights the sources of the content provided to participants.

3.5.1.3 Category 3: Source

A source may refer to the person or thing from which something originates. The participants interviewed during the present study managed to highlight that they were exposed to health communication strategies from different sources. Sources of health information may affect the quality of health information provided to the patients with diabetes.

Longo, Schubert, Wright, LeMaster, Williams and Clore (2010:56) used the Health Information Model to identify how individuals with diabetes seek and use health care information. These authors identified the internet, television and newspapers, friends and family members as important sources of health information. The sources identified by Longo *et al.* (2010:57) are similar to those Free State patients with diabetes identified as sources of health information. The sources of health information as expressed by the participants of the present study were classified as either direct or indirect. The 'directness' of a source of health information was indicated based on the channel of communication used, the nature of interaction and shared objectives between the sources of health information and the patients receiving health information.

Direct sources of health information enhance active learning among patients (Jacobsson, Friedricchsen, Goronsoon & Hallert 2012:205). Indirect sources are passive in nature and are therefore not targeted at a particular individual's health problem. Figure 3.3 illustrates the patterns of the sources of health information according to the participants of this study.

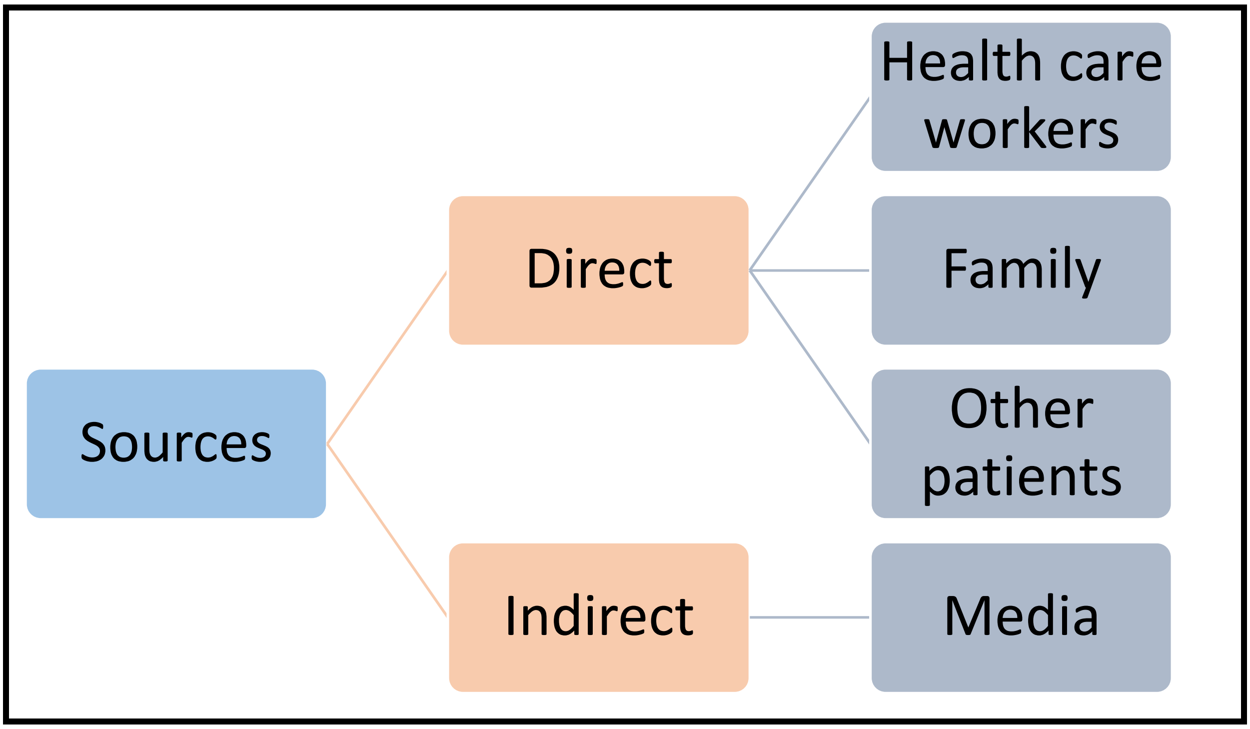


FIGURE 3.3: Sources of health information from patients with diabetes

Related to direct sources, the participants of the present study deemed health care workers to be their source of health information. A broad spectrum of health care workers were involved in providing diabetes-related health information to the participants of this study. These health care workers included professional nurses, dieticians and physicians. The following excerpts from the semi-structured interviews reflect the direct sources of health information available to patients with diabetes in the Free State:

- ***Verpleegsters het my inligting oor suiker diabetes gegee, hulle het gese om nie rooi appels maar wel groen apples te eet (****Nurses gave me information regarding my sugar diabetes, they told me not to eat red apples but [to eat] green apple.)*

- ***Doctor ke eena a mphileng litaba tsena tsa lefu la tsoekere (****The doctor gave me this news [information about diabetes])*

- ***Ngisho ngamanye ama xesha, sithetha lezi dietician*** *(I mean sometimes, we talk to these dieticians)*

Participants from this study highlighted that they relied on health care workers as their direct source of health information. The sentiments of the participants are similar to the findings by Pecchioni and Sparks (2007:147), who investigated the sources of health information of individuals affected by a chronic disease. Their findings reflected that health care workers are a primary source of health information as they are perceived as a reliable source of health (Pecchioni & Sparks, 2007:149).

The acceptability of a source of health information is affected by the perceptions of the target audience (Rains, 2007:667-678). Thus, even though a variety of sources provide health information, the perception that health care workers provide accurate health information is significant in the choice of direct sources of health information. On the other hand, after being perceived as reliable sources of health information, health care workers were disappointing the patients by not being able to provide the much-needed health information. The failure of the health care workers to provide health information resulted in the participants resorting to alternative sources of health information. This need for alternative direct sources, was reflected when the participants were able to identify other options available to provide health information. The following excerpts relays the notion of alternative direct sources when health care workers fail patients:

- ***Ah! Ma nurse afi? Re thusoa ke batho ba tsoang kantle ke moo ke ileng ka utloa hore o batla ho bua ka lefu la tsoekere eaba kea tlola. Oa bona mosali oa le khooa e ne ke u joetsa ka eena o tsoa Parys, o na tlile a tlo bua le rona ka lefu la tsoekere. O re retlameha hore re je hantle hape re je li fruits le liapole… Hana hape o itseng… ke nahana ke le betse tse ling… (****Ah!! What nurses? We survive with people that come from outside that is why when I had (heard) that you wanted to talk about diabetes I jumped here. You see that white woman I was telling you about came from Parys to come and talk to us about diabetes. She says we should eat very well and eat fruits and apples… And what did she say by the way… (silence) I think I have forgot too …)*

- ***Hona le makhooa ba tlang, ba ne bat la mona sepetlele… (****there were white people who used to come; they used to come here at the hospital …)*

- ***E, ho na le makhooa a ne a tla mona; ba ne ba tla mona sepetlele ebe ba re ruta re le group (****Yah, there were white people who used to come; they used to come here at the hospital to train us as a group.)*

When health care workers fail to present the health information to the patients with diabetes, patients choose alternative sources of health information. A study on the preference of sources of health information grade sources of health information based on the quality of the health information provided and the degree of trust (Marrie, Salter, Tyry, Fox & Cutter, 2013: online). However, there are other underpinning factors that may result in the consultation of other, possibly less reliable, sources of health information. These factors may relate to availability and accessibility of the alternative health information source over and above health care workers. Some of the alternative sources of health information include the family and family members who have experience of diabetes (Dutta-Bergman, 2009:285).

Direct sources of health information were other patients with diabetes with more experience, family members and also co-workers, and these findings were consistent with findings by Segal, Gluck, Sternbach, Plakht, Segal and Bachner (2015:777-778). Berkman *et al.* (2010:14) highlight that patients are exposed to various other sources of health information should a need arise. This is exemplified by the following excerpts:

- ***Ons vra mekkar wanneer ons by die kliniel ontmoet (****we also ask from each other when we meet in the clinic)*

- ***at work they speak about it [diabetes]… but I know they have no idea what they are talking [about]***

- ***Rea lula, kaha ho lula ho na le batho ba nang le lefu la tsoekere mona, re lula fats'e le bona. Hee monna, o sebeliseng eng? Ke sebelisa ntho ea mofota ono, ke sebelisa eane. Hobaneng o e sebelisa? Oa bona ntho tse joalo (****We sit, since there are always people with diabetes here, we then sit down with them. Hey man, what do you use? I use this kind of thing, I use that one, why do you have to use it, and you see those kinds of things)*

On the other hand, participants in the present study revealed that they were exposed to sources of information through indirect means. 'Indirect means' implied that there was no physical contact with the source; usually the information sharing was unplanned and spontaneous. Typically, the nature of the relationship between the sources of health information and patients was passive. The sources of health information and the patients did not share specific objectives related to diabetes, and the health information provided typically did not address questions the patient had.

Some of the participants related the utilisation of indirect sources of health information. Indirect sources referred to media, inclusive of social media. Patients reported that accessibility to the internet also played a significant role as a source of health information. Participants directly sought out specific health information related to diabetes through the internet, or at times accidentally were exposed to a health programme on the radio. The following excerpt highlights the concept of indirect sources of information:

- ***Maar ek sal nou nie se ek sal gaan sit en vir myself se vandag gaan ek voluit gaan om meer uit te vind nie, ek sal op Facebook gaan as 'n voorbleeld… (****But, I wouldn't say I'll go sit down and tell myself today, today I'm absolutely going in to find out more or, I'll will go on Facebook, for example …)*

The reliability of health information provided through various sources was not evaluated by patients in this study although it can be assumed that indirect sources of information were less used and less reliable. The educational level of the participants and their unique socio-economic circumstances could have limited the exposure opportunities of indirect sources, such as mobile applications on phones or internet sites. The next subsection highlights the perception of patients with diabetes related to techniques used by the sources of health information to communicate health information.

3.5.1.4 Category 4: Technique

A technique is defined as a method or way of performing the technical details of an art of skill (Avis *et al.,* 1983:1156). Participants from the present study described health information to be conveyed through a variety of techniques. A relationship exists between the retention of a health message, which is the hallmark of providing health information, and the techniques by which the health message are conveyed (Jolles *et al.*, 2012:1507). A variety of techniques are used to convey health information, and some of these techniques were identified by participants in this study. The participants identified personality, language and the media as techniques used in communicating health information. The discussion of this category is guided by the communication techniques perceived by the participants, starting with personality.

Personality refers to inherent enduring personal characteristic traits of any individual that are revealed in a variety of situations (Pickard, 2011:183). Some personal characteristic traits may be perceived as pleasant and likable while other characteristic traits may be perceived as problematic. The origin of such personality traits may be genetic, while some individuals acquire personality traits through life experiences. It is a social expectation that health care workers portray a personality that is engaging and which is perceived as acceptable by the community they serve (Pichard, 2011:184).

The manner one conducts yourself when presenting a health-related message is fundamental to the participants' interpretation of such information (Ferguson, 2013:S50). Participants related that a variety of the personality traits of health care workers influenced health information communication negatively. One of the participants related an experience of a health care worker who seemed annoyed with them:

- ***… they are as brief as possible and at times it’s as if you are bothering them.***

Literature on personality as a technique of conveying a health message exposes that the rapport or the relationship between the participant and the health care workers is significant to the quality of information learnt or understood by the patient with diabetes or any chronic disease (Elder, Ayala, Para Medina & Talavera, 2009:229-234). The role of personality has a direct effect on the retention of the message and subsequent health outcome(s). Some of the participants expressed that the effectiveness of the health communication strategy used was entangled with the personality of the health care worker.

Some personality traits can be classified as ‘blunt’ and helpfully ‘honest’. The nature of such a blunt personality is typically confrontational and expresses issues directly or *“as they are”* (Brice, 2013: online). During the present research, some of the sources of health information were claimed to exhibit such confrontational and frank personality traits. The frankness of the source of health information may be interpreted as threatening by the patients receiving health information (Brice 2013: online). However, this threatening manner in which communication is sometimes conducted may have desired outcome on some participants. One of the participants referred to such an experience where the health care worker said:

- ***Ka nako ea lilemo tse hlano bat lo o boloka, cho joalo a tiisitse sefahleho… ka bona hore o bua nnete (****Within five years, they will bury you, and he said this with a stern face…I knew he meant business.)*

Wermeling, Thiele-Manjali, Koschack, Lucius-Hoene and Himmel (2014: online) relate that there is need for pre-existing conditions to be set for patients to benefit from the frankness in personality. Such pre-existing conditions are a long-standing and trusting relationship between the health care worker and the patients with diabetes. Contrary to being available and frank with patients, some health care workers were perceived by the participants in this study as being emotionally distant from their patients.

The presence of the health care worker needs to extend beyond being physically present. Health care workers are perceived as being part of the patients' journey with the chronic disease. Health care workers struggle to utilise their personality and adjust it for the participants as they convey health information (Wanzer, Booth-Butterfield & Booth- Butterfield, 2005:105-124). Some of the participants felt that some health care workers were irritated by their presence. The conversations reflected that patients with diabetes expected more emotional engagement from the health care workers:

- ***Jy sien die dokter vra my vining hoe dit gaan… skryf my voorskrif en loop (****See the doctor, he asks me how it goes briefly … Prescribes my medication and I leave.)*

- ***Ndifuna ukuva nyani ukuna ugquirha wam' ukhona, uyabona, …njengokuba unokuqonda yonke into enzakala kum… apha ingani uyamdina… bafuna ohambe (****I needed to really feel that my doctor is there for me, you know…like he understands what I am going through,… here it's like you annoy them…, they quickly want you gone.)*

The personality of the individuals providing health information is entwined with the language of communication. The language spoken by the source of health information should resonate with the patient who is receiving the health information for the health message to be effective and understood (Harvey & O'Brien, 2011:182-187). Patients with diabetes in the Free State reflected that the language used in communicating health information had an effect on the communication process and in building rapport. This is evidence by the following excerpt:

- ***ne a thahasellisa hobane o ne a bua Sesotho eaba ke mojoetsa litaba joala kaha ntse ke etsa ho na joale. O ile a ntjoetsa hore ke lefu la tsoekere eaba o 'ngolla litlhare ho fihlela hona jena (****He was very interesting because he spoke Sesotho so I related my story like I am doing right now. He told that it was sugar diabetes; he then wrote me a prescription, up to date.)*

Language cuts across other techniques of communication. The previous excerpt highlighted the appropriateness of language as a communication technique. Verbal communication in the native language of participants has the ability to convey the appropriate message to the participant and thus break the communication bottlenecks, which are inherent if language is different from the expected (Harvey & O'Brien, 2011:184). A mismatch occurs when the health care worker struggles to convey health information through the language of the intended end user. This struggle results in the loss of key information that could have been transmitted to the patients and reduces any chances of comprehension (Ellis *et al.*, 2014:1403). Language also plays an important role within media use.

Media was also perceived as a technique for conveying health information. The concept of media includes people using communicate information, including broadcasts (Brondie, Foehr, Rideout, Baer, Miller,Flourney & Altman, 2001:194). The media is presented through a variety of formats (Brondie *et al.*, 2001:195). Such formats include print media and audio-visual media. Patients with diabetes were exposed to different types of print media. One participant said:

- ***They used books, pictures from the books, and showed us how our feet look like. They gave us some booklets.***

Printed text can be used for multiple purposes. The utilisation of print media is based on the intended purpose of the provider of health information and the context in which the text is being utilised. Wilson, Makoul, Bojarski, Bailey, Waite, Rapp, Baker, and Wolf (2012:13) reflect that print media may be used to illustrate a point and thus be tailor-made to attract even patients of low literacy. In the case of diabetes, the print media could utilise pictures to express elements of the health information that are not easily expressed verbally. This can be essential in aiding the description of internal physiologic mechanisms and changes occurring as a result of diabetes. Print media may therefore be used to supplement the health information provided by health care workers or other sources of health information to patients with diabetes (Kreuter, Strecher & Glassman, 1999:279).

Inherent within the printed text is the technical layout of the document that is used to present health information. The technical layout comprises the language, the font type and size, then the colours used in the document and the graphical display. The nature of supporting pictures and the quality of paper used in the creation of the printed text is also argued as having an effect on the nature of the information communicated. Health materials in printed text often seem to have readability levels that are too high for the patients and which need to be improved (Helitzer, Hollis, Cotner & Oestreicher, 2009:75) in order to assist patients to understand the material. Illustrations are a technique used to enhance comprehension of printed material (Rohret & Ferguson, 1990:74-75). Participants relayed that they had developed to some extent the ability to interpret the health message being highlighted by the print media. One of the participants said:

- ***Ye zona ziyandi nceda,ngoba zitshengisa kak'hle, ndibona ukuthi ndiyelule njani*** *(Yes, they [printed materials] also help me, because they have illustrations on how to exercise)*

Some of the participants perceived that health information passed on to them through the print media was reliable and genuine. Participants added that while using printed text messages, they were able to re-read the message at their own time and this technique therefore had an advantage over verbal discussion.

- ***Ke hobane re ts'epa libuka haholo. Na o hlokometse hore ha re bua ntho engoe tastsing lee, ha re na e hoopla hosane empa ka ntho e ngotsoeng re khona ho e bala hangata feela (****It is because we trust books more, have you realised that if we say something today, we will not recall in the future, but with what is written, you will be able to re-read it.)*

However, some of the participants required support when they arrived home with printed text. Without the necessary support, the print media may be futile, particularly to patients with low literacy levels. The need for support is documented in literature (Author, date) and arises as a result of failure to identify the appropriate type of patients for printed texts (Kreuter *et al.*, 1999:279). Support required by patients with diabetes crosses language barriers and the degree of literacy of the patient. The printed text may be difficult to comprehend and hence it evokes the need for clarification and explanation. One of the participants in the present study said:

- ***Ke rata ka moo lishebehalang ka teng, hape linyane hamonate feel aka nakoe ngoe ho thata ho li utloisisa e be mtho o hloka ho botsa lipotso(****I like how they [pamphlets] look and that they are portable, however at time they are difficult to understand it makes one wants to ask questions.)*

Health care workers who provide printed text assume availability of a support system for patients with diabetes (Bull, Holt, Kreuter, Clark & Scharft, 2001:269). In South Africa, the majority of patients with type two diabetes are old, underprivileged and of poor educational status (Ataguba *et al.,* 2011:638). The nature of guidance provided to patients with diabetes has to be personalised and should be reflective of the fact that patients make decisions based on their context and life (Charles, Gafni & Whelan, 1999:652-655). The patients' context includes their health literacy status. Health literacy of the intended recipient of health information is a critical factor in the communication of the patient's information (Harrison, Hajat, Cooper, Averbuj & Anderson, 2011:163). Trends in patient-centred communication reflect the essentiality of health care workers utilising techniques in delivering health information that are able to convey the intended health message and the health message to be understood by the patient (Schwartzberg, Cowett, VanGeest & Wolf, 2007:S97-S103). The patient and his/her underpinning context are the pinnacle of any intervention, and patients have to understand the message conveyed. In a study conducted in the United States, the authors found that patients with low health literacy will always have poor perceptions towards health communication techniques used (Wynia & Osborn, 2010:112). Thus the patients not only struggled to understand the information provided during a one-on-one discussion but also struggled with comprehending printed text.

The complexities associated with print media as a health communication technique are enhanced by the utilisation of language that is not preferred by the intended recipients of health information. The language of the print media affects the quality of health information transmitted (Bull *et al.*, 2001:275). In the present study, one of the participants highlighted that English was used in the print media conveying health information. An assumption was already made by health care workers that the patients with diabetes were able to comprehend English. English is not commonly spoken in the Free State with the majority of people preferring indigenous languages (see Table 3.1). The following excerpt highlights the assumed preferred language of the participants:

- ***Ka nako e ngoe re fihla mona ba re fa lipampiri joalokaha o re file. Ha ke fihla ha eke li fa bana baka hoba lingotsoe ka sekhooa… kea tseba ba tseba sekhooa joale batla ntlhalosetsa (****Sometimes when we get here, they give us some papers like you did. When I get home, I give my children since it will be written in English … I know that they know English, so they will explain to me.)*

Radio, through public broadcasting services, was also reported as an additional technique within media that was used in communicating health information. In addition to the print media, audio media was a technique used in conveying health information. Some of the participants highlighted that health information was conveyed through the radio:

- ***Radio e bua ka lefo la tsoekere hangata (****And the radio talks about sugar diabetes, regularly.)*

The radio broadcasts a variety of programmes at scheduled times throughout the week or month. The variety of the programmes that are broadcast include some regarding health-related issues and maybe inclusive of diabetes. The radio passively shares information to a broader public who may or may not be diagnosed with diabetes. In as much as the patients with diabetes are at different stages of the illness–wellness continuum, the messages communicated through the radio remain unspecific in this regard. The challenge presented by the radio is the lack of specificity regarding health information provided to their listeners (Brondie *et al.,* 2001). The following excerpts reflect the perspectives of participants regarding radios:

- ***Oa tseba keng? Ha ke motho o ratang radio. Bana ba matsatsing an aba chenha station seo o se mametseng. Hape ha ba bua ka taba tseo o batlang ho liutloa ka lefu lena (****You know what, I am not a biggest fan of radios, you know children of nowadays, they will just change whatever radio station you are listening to and besides they never really say what you want to hear about the condition)*

- ***Ek het dit van die verpleegsters gekry, ons luister [na sulke inlighting]… op die radio (****I got it from the nurses, we also listen to [such information] … from the radios.)*

The lack of specificity inherent in health messages broadcast through the radio presents undesired effects specifically for male patients with diabetes. Some patients' experience stigmatisation as a result of a diabetes-related broadcast. Stigmatisation still exists for patients with diabetes in terms of male sexual health. The very personal nature of some of the consequences that result due to diabetes are put in the public domain through the radio, thus exposing patients with diabetes (Nahon-Serfaty, 2012:511). One participant reflected on how the radio broadcast about impotence had an effect on them:

- ***Ah, ha se ho haha, ke honyelisa. Na oa bona? Ho o tsoheloe, oabona? O kere oa robala le motho oa mosali, oa bona? Joale re tlatla re o thusa ho etsa bana oa bona? Ntho tsa mofuta o joalo.*** *(Ah, it's not to build, it is just to criticise, you see? You cannot erect, you see? You cannot sleep with a woman, you see? So we'll come and help you make babies, you see, those kinds of things).*

- ***… Aa, ba (radio) nts'enya hloho… ntho e ngoe lengoe e ba e buang, e bua ka nna. Ba bolela hore ken a le lona, ke phela tjena… hoe a ka moo ba chong*** *(…no, they [radio] damage me…because whatever they talk about is related to me. They mean that I am like this; I live like this … according to what they say.)*

The effects of diabetes are broadcast over the radio and the general public has access to such information. The public then utilises these signs and symptoms as a stigmatisation tool to abuse patients with diabetes, especially those with erectile dysfunction (ED). The effect of ED has been compounded by the considerable amount of social stigma, with impotence as a source of jokes thus limiting the extent to which men with such dysfunction can confide in others or even approach health care workers for treatment (Tomlinson & Wright, 2004:3-4).

The next discussion highlights the category **Evaluation**.

3.5.1.5 Category 5: Evaluation

Evaluation is the process of estimation of worth or quality (Avis *et al.*, 1893:407) whereby certain aspects of an intervention are assessed as to whether they are meeting an expected standard. The process of evaluation of health communication strategies is based on a combination of approaches and activities. The participants of the present study showed that, after having been exposed to a variety of health communication strategies, they used several approaches in evaluating these strategies. Such approaches included the evaluation of the credibility or sources and questioning of such sources.

Participants in this study evaluated the credibility of health information sources and techniques used in the transmission of health information. From the discussion related to sources and techniques, under the theme ‘guidance’, it was clear that a variety of sources and techniques are involved in the provision of health information. These sources and techniques have the potential of providing diverse health information to patients with diabetes, and participants reflected the need for their evaluation.

Patients with diabetes need to have as much as possible authority over the health information related to their condition that they receive. Trummer, Mueller, Nowak, Stidil and Pelikan (2006:299) state that insight and the ability to evaluate the credibility of sources and strategies of communication of health information empower patients. An empowered patient has better control of his/her life and better control of life is associated with improved disease outcomes (Street, Makoul, Arora & Epstein, 2009:299). In spite of many sources being available for patients with diabetes, the challenge for the patient is to evaluate the credibility of such sources, specifically on how possible it is to implement whatever the sources suggested.

- ***Ntho tse batho ba li buang, e etsa tjena le tjena. Ke bua tjena hona joale. Kea tseba e senya liphieo, hape, stroke, le eng hape, bofofu. Ena ke methati eo o kekeg oa e feta. Ho ho boleloe hore ha o qala o ba le lefu la tsoekere o tla bo o se o na le mafu ana kaofela. Kea hana. Ha ke lumele ho hang. Taba tsena kaofela ha se neete, o tlameha o tsamae methati pele o fihla ho eona kaofela*** *(These things that people [the society] say, it does this and that, I am saying now, to get there. I know that it damages kidneys, what else, stroke, what else, leads to blindness. These are stages, you don’t just get them. It doesn’t mean that the moment that you’re diagnosed with sugar diabetes you will be diagnosed with all those disease, I say no! Totally disagree. That is all wrong information; you have to go through stages before you get there.)*

- ***E, phetoho hoe a ka nna, ho na le phetoho tse ngata hobane ke ne ke sa tsebe feela se ke tseba se nepahetseng*** *(Yes, change is, according to me, there are a lot of changes because I didn't know, but now I know what is right.)*

Evaluation of the credibility of sources of health information by the participants removes the linear relationship between providers of health information and recipients; thus, enhancing shared decision-making (Barry & Edgman-Levitan, 2012:40). Guidelines on self-management reflect that decisions relevant to patient care should be shared between the patient and the health care worker with improved outcomes for the patient (Coulter & Ellins, 2007:25).

An approach of evaluating guidance involves the use of questioning. Questioning is used to seek clarification on set concepts (Beck, Daughtridge & Sloane, 2002:29-31). Questioning is a technique that is used by both the source of health information and also the recipient of the health information. On the one hand, health care workers, who provide most of the health information, ask questions of their patients. These questions are strategically designed to assess retention of the content presented to patients (Beck *et al.*, 2002:30). Another approach related to questioning is health care workers affording their patients the opportunity to ask questions especially where they do not understand. However, in the present study, patients with diabetes did not ask the health care workers questions related to their condition. The participants in the study reflected:

- ***Hayi, andibabuzanga*** *(No, I didn't ask them)*

- ***Ha osa botse ba tla hopola hore o utloisisitse.*** *(If no one asks, they will assume that you understood.)*

- ***Ao ha nke ke botse*** *(Ah, I never ask.)*

There are a variety of reasons why participants were not able to ask questions during their health education sessions. Some of the participants claimed that they understood all health information provided and hence there was no need to ask questions. Literature relates that patients tend to ask questions when they do not understand what has been taught, and should they understand what they have been taught, they may have a reduced need to question the sources of health information (Cornett, 2009: online). Some of the participants reflected:

- ***ke utloisisitse sohle seo ba buileng ka sona*** *(I'd understood everything that they had told me.)*

- ***uyabo bayenza kahle*** *(you see their services are good)*

Over and above health literacy and comprehension of health messages, culture and tradition play a significant role in the concept of asking questions. Certain cultures condemn asking questions, especially when the questions are directed to elders or authorities (Valchev, 2012:17). The majority of the participants preferred to speak in Sotho and Xhosa during the data-generation process. Sotho and Xhosa cultures condemn questioning elders or authorities. Asking questions is seen as insulting or undermining the efforts of the authority or the one providing guidance (Valchev, 2012:25). This cultural practice fosters the tradition of adopting information as it is presented by the authority; thus, enhancing the perception that the authority is always right. Some of the participants had the following sentiments in support of the cultural practices:

- ***ha ke botse lipotso hobane Sesotho ha se tolokoe*** *(I don't ask questions … [because] Sesotho is not interpreted)*

- ***Re bollella mokuli enoa ho noa litlhare tsa hae joale o botsa lipotso.Oa bona****? (We tell this person to take her pills and now she is questioning us? You see?)*

- ***ha nke ke botse lipotso ese re hosane tsa nthusa ka ho hong*** *(I am not used to asking question as tomorrow they will be helping me with something)*

3.5.2 Theme 2: Self-management

Self-management is the ability of patients to care for themselves while having a disease that may relate to the need for care. Orem (1985:10) highlights that self-care is an inherent human capability. This inherent ability to self-manage is dependent on the location of the patient on the illness–wellness continuum. However, due to illness, a patient with diabetes may fail to self-manage or may require support to enhance his/her capability to self-manage. The support needed to enhance self-management may be provided through health communication strategies.

Self-management emphasises that self-care is a structured process (Barlow, Wright, Sheasby, Turner & Hainsworth, 2002:180). Participants in this study reflected that they were engaged in activities which facilitate the process of self-management. The self-management activities are aimed at maintaining blood glucose levels of patients within normal ranges and to improve disease outcomes. Self-management activities alter and change the lifestyle of patients with diabetes and one such activity is dietary modifications (Norris, Engelgau & Narayan, 2001:578).

The change in the dietary practices is aimed at regulating the amount of blood glucose. Regulating blood glucose is related to insulin resistance, which is characteristic of diabetes. Insulin facilitates human cells to absorb glucose, which is utilised in cellular metabolism. For glucose to be absorbed into body cells, insulin is expected to stimulate the insulin receptors of human cells to take up glucose from the extracellular space (Ascot-Evans *et al.*, 2012:S72). In cases of insulin resistance, the pancreas has the ability to produce insulin; however, insulin receptors at cellular level fail to respond to the intended effect associated with insulin stimulation; hence, resulting in poor or no glucose absorption by cells. Poor or no glucose absorption results in increased blood glucose above normal ranges. A number of factors affect the development and progression of the human body to states of insulin resistance. Such factors include a sedentary lifestyle, hepatitis C, other diseases like obesity, protease inhibitors found in HIV medications and diet (Ascot-Evans *et al.*, 2012:S78). The nature and concentration of carbohydrates and other nutrients in one's diet will affect the ability of the body to absorb glucose for metabolism hence the increased glucose levels. Body cells starve because they fail to absorb glucose in cases of insulin resistance (Inzucchi *et al.*, 2012:1580).

Several approaches are incorporated as part of self-management in rectifying and reversing insulin resistance. Such approaches include weight loss programmes, specific diets and exercise as part of lifestyle modifications. Weight loss programmes have been proved to reduce the incidence of diabetes in people who are in pre-diabetic states and those already in the early stages of diabetes (Roberts, Hevener & Barnard, 2013:19). Methods of weight loss include dietary modifications to reduce the content of carbohydrates, increase protein and reduce fat (Akers, Cornett, Savla, Davy & Davy, 2012:16; Munsters & Saris, 2014:99). Such food groups are expected to reduce the amount of weight in the patient. These dietary modifications have been achieved through patients adhering to specified diets for a period of time and measuring their weight.

In enhancing adherence and meeting the outcomes of reversing insulin resistance, patients are also educated to avoid specific types of foods. The avoided specific types of foods are known to reverse the effects of insulin resistance; thus, facilitating the absorption of glucose (Ascot-Evans *et al.*, 2012:S42). However, avoiding food can be done through various methods, which are encouraged by health care workers. Patients are educated on strategies to avoid specific types of food and are supplied a diet they are expected to adhere to. Patients are also encouraged to check their weight regularly and make self-adjustments.

Lifestyle is essentially modified through a process of self-adjustment. The majority of complications leading to diabetes result from poor lifestyle practices. Poor lifestyle practices include a sedentary lifestyle and poor hygiene practices (Hu, Manson, Stampfer, Colditz, Liu, Solomon, & Wilett, 2001:791). Patients with diabetes modify their lifestyle to reduce the progression of the disease (Inzucchi *et al.,* 2012:1587). The development of complications may occur as a result of the immediate environment.

As patients with diabetes modify their lifestyle, they are encouraged to be conscious of their environment. The physical environment within which patients live has the ability to pose a threat to the overall outcome of the disease (Leonard, Liburd, Vinicor, Brody & Murry, 1999:782). Patients are made aware that they are vulnerable and this vulnerability increases their chances of infections. Patients may self-manage through wearing full shoes instead of sandals, checking between their toes and reporting to the clinic with abnormalities. Self-management for patients with diabetes takes place throughout their lives and these self-management strategies are expected to be ingrained in patients with diabetes (Horton, 2009:S45).

Self-management may be tailor-made for the patient with diabetes. Health messages communicated to patients should take into account the context of the patients. Communication strategies and techniques have to be based on the average baseline knowledge of self-management and the context of which self-management will take place (Wilkinson, Whitehead & Ritchie, 2014:56) for a newly diagnosed patient.

The concept of self-management is applied in negotiated environments and contexts. Self-management takes place in various environments, including clinics, at home and at the place of occupation. The strategy used to communicate health information for patients diagnosed with diabetes should consider the context and environment where the self-management will take place. Self-management at home will mean an adaptation of the home environment to reduce the possibility of injury and enhance adjustment to the chronic disease. Such changes include careful placement of sharp objects, the diet that the family may be using or introduction of a special cooking technique to encompass a special diet. The nature of work a patient is involved in also has an effect on self-management. Patients should not be faced with a mismatch where the requirements of their medical condition do not match their environment, otherwise their life space or environment has to be adjusted (Cooper, Booth & Gill, 2003:200).

Self-management should empower the patient. The patient should present with the capacity of making personal decisions with an effect on his/her disease outcomes (Charles, Gafni & Whelan, 1999:657). The conduction of self-management is influenced by several factors. The data analysis from the present study resulted in two categories of factors that influence self-management, namely influencing factors and lifestyle modifications. The discussion below will highlight the influencing factors to self-management.

3.5.2.1 Category 1: Influencing factors

Strategies related to self-management in patients that are diagnosed with diabetes are influenced by a variety of factors. Influencing factors represent a cluster of conditions that largely determine the success or failure of any strategy that is focused on self-management. Some of the influencing factors have the ability to enhance the potential of the patient in achieving his/her outcomes while other factors contribute to the failure of the participant in achieving the full potential of his/her outcomes (Clark & Utz, 2014:288).

Influencing factors may be internal or external to the patient with diabetes. Internal factors can also be relayed as intrapersonal factors. These intrapersonal factors are of an endogenous origin, and may include the internal will to survive with the disease. Such internal factors are well within the control of the patient especially if they are properly guided. External factors or interpersonal factors include the influences that are determined by society. External influences may come through the ability of the family and society in supporting the patient with diabetes, while in some cases external influences may hinder the achievement of health outcomes (Clark & Utz, 2014:300).

The influence of either the internal or external factors may be contextual. In various contexts, the two main factors influencing self-management interplay in the determination of the achievement of the health outcome (Samuel-Hodge, Headen, Skelly, Ingram, Keyserling, Jackson, Ammerman & Elasy, 2000:928-933; Nelson, McFarland & Reiber, 2007:444). Figure 3.4 depicts the interrelationship between influencing factors within a context. The internal and external factors intersect within the context of the patient to exert their influence. The intersection between the internal and external factors within a patient is dependent on the context or specific situation in which this interrelationship plays out. It could therefore be possible that the context could dictate whether the internal or external factors would influence self-management most. Therefore, certain contexts will enhance certain types of influence to be portrayed while other contexts do not.

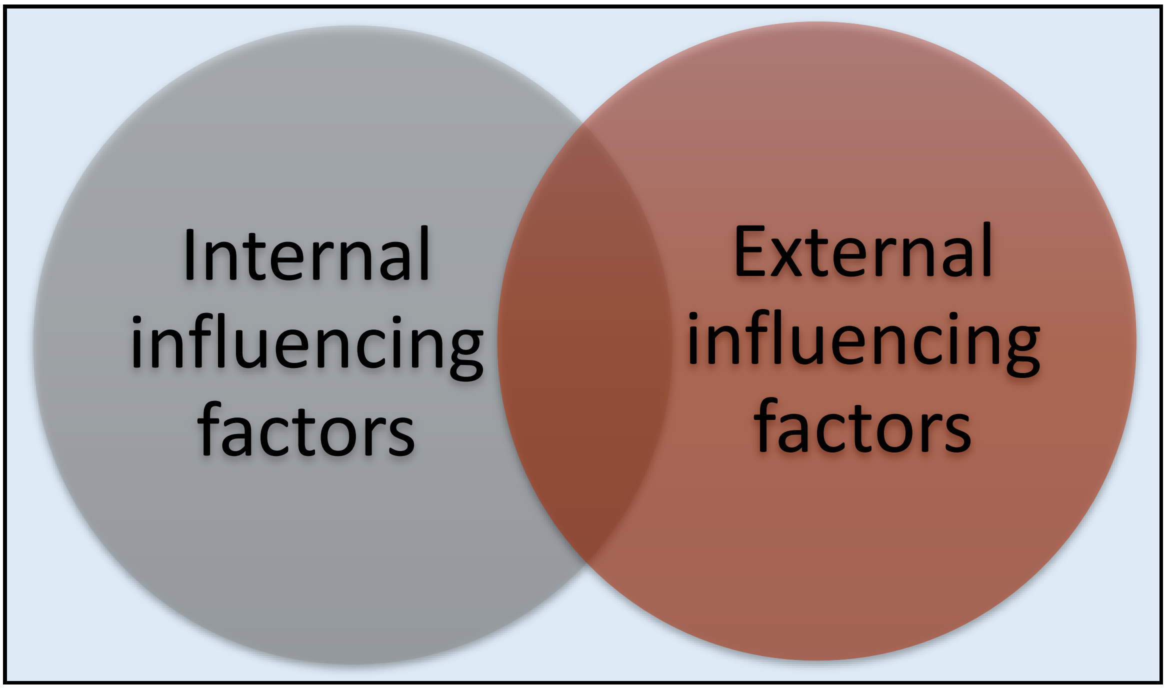


FIGURE 3.4: Interrelationship between influencing factors in a context

Participants in the present study reflected on the two types of factors that influence the performance of self-management, namely intrapersonal and interpersonal factors. The factors which displayed an interrelationship are discussed separately below. The first discussion will highlight intrapersonal factors.

- ## Sub-category 1: Intrapersonal factors

Intrapersonal factors affect self-management. The concept of intrapersonal factors influencing self-management is described through internal driving forces that affect the conduction and performance of a particular behaviour. Intrapersonal factors are related to the drive and motive guiding the performance of a specific event or activity that originates from within the patient (Cooper *et al*., 2003:200).

The participants of this study clustered intrapersonal factors into two main factors. The first factor was internal thought processes associated with positive health outcomes. These positive health outcomes were inclusive of glycaemic control and delayed advent of complications associated with diabetes. The second factor was internal thought processes associated with negative health outcomes. The negative health outcomes included the early appearance of complications related to diabetes. The discussion of this subcategory will highlight the two main factors as perceived by participants of this study.

The internal though processes associated with positive health outcomes were connected to patients who had acknowledged having diabetes. Acceptance of being diagnosed with a chronic condition influences adaptation of living with the chronic disorder. Better adaptation ultimately improves disease outcomes (Paterson, 2001:22). The improved disease outcomes include controlled glycaemic levels, delayed onset of diabetic complications and ultimately prolonged life. The participants in the present study reflected on the influence of internal thought process associated with positive health outcomes:

- ***Tsoekere ena e aka e qetella ele karolo ea ka*** *(my sugar diabetes, it will end up being part of you)*

- ***Ek het nie die eerste keer erken wat hulle my vertel het nie wat net tot 'n geveg aanleiding gegee het (****I didn't admit the first time they told me which led into a fight)*

- ***Jy kan baie amputasies kry. Al wat ons moet doen is om na onsself te kyk… Ek het toe beloof date k goed na myself sal kyk om nie seer te kry nie (****You will experience a lot of amputations. All we need to do is to take care of ourselves…I then promised him that I will take good care of myself so that I don't get injured.)*

The positivity associated with acceptance of the disease reflects enhanced self-management (Nagelkerk, Reick & Meengs, 2006:155). The participants reflected the influence of positive intrapersonal factors associated with acceptance of being diagnosed with diabetes. Literature, however, acknowledges that positive intrapersonal factors are usually related to a specific moment in the disease continuum. When patients have attained a specific level of disease progression, they present with adaptation and the ability to survive with that stage of the chronic disorder (Paterson, 2001:23). The positive internal influences enabled the patients to take the necessary steps to enhance life and to adhere to the treatment schedule expressed by their source of health information. The following excerpts support this view:

- ***Ke latetse litaelo tsa hae ntle le tika-tiko hobane ke batla ho e loants'a*** *(I followed her orders without hesitation because I wanted to treat it.)*

- ***Ndifuna ukuphola qha!****(all I want is to be healed!)*

Positive mental influences are associated with possibility of better and improved patient outcomes (Nagelkerk, Reick & Meengs, 2006:155-157). Internal thought processes were also associated with negative health outcomes. These negative health outcomes were reflected as poor adherence to treatment regimen, poor disease outcomes and difficulty in adjusting to the chronic condition. Some of the internal processes associated with negative health outcomes were reflected as poor adaptation to diabetes. Some of the participants reflected that they struggled to accept that they had diabetes. This is exemplified by the following excerpts:

- ***Ho ntso le boima ho nna ho amohela hore kena le tsoekere*** *(still today I can't accept that I'm diabetic. So it's very hard for me.)*

- ***Ek sou eerder VIGS he as suiker diabetes (****I would rather have AIDS than sugar diabetes)*

The internal thought processes that led to negative health outcomes were mirrored by the patients with diabetes through poor adaptation. Adaptation of the patient to a chronic disorder related largely to the identity of a patient as having diabetes. Their identity with the disease influences the nature of self-management (Nagelkerk *et al.*, 2006:154). Among the participants, the failure of the patient to identify with the condition was associated with negative intrapersonal factors. The negative intrapersonal factors manifested differently and in some cases resulted in detrimental activities. This is an example of what happened to one of the participants:

- ***Ek het al 'n vier keer prober om selfmoord te pleeg… omdat ek met diabetes gediagnoseer is (****I've tried to commit suicide about it four times…because of being diagnosed with diabetes)*

The failure of the patient to identify with the chronic condition increased the possibility of the participant to resort to drastic measures. Drastic measures associated with diabetes are linked to the perceived knowledge of the complications associated with the chronic condition and its effect (Nahon-Serfaty, 2012:512). These complications are varied and affect different parts of the life of the patient. A negative perception of the effect of the complications related to diabetes complicates self-management. This excerpt reflects a perceived effect of diabetes:

- ***Batho ba namg le tsoekere ha ba arolelane likobo hape e ka isa bofofung*** *(People with sugar diabetes are not active in the bedroom, it leads to blindness.)*

In addition to the internal thought process associated with negative health outcomes was memory. Memory relates to the ability of an individual to recall events, processes or statements that have been relayed to them at a particular occasion (Avis *et al.,* 1983:715). Memory may be affected by several health conditions, including diabetes, some medication a patient may be taking and also age (Halkala, Niskanen, Viinamaki, Partanen & Uusitupa, 1995:683). The memory of a patient with diabetes is crucial in determining the extent of application and utilisation of a health message, and literature highlights memory as one of the barriers to self-efficacy (Aljasem, Peyrot, Wissow & Rubin, 2001:400). Participants reflected that at times they forgot health messages that had been provided to them by their sources. Forgetfulness affects how the lifestyle of the patient will be adjusted to meet the requirements of the condition. Some of the participants in this study reflected:

- ***E e aka nako e ‘ngoe ho buuoa ka eona empa e etsa batho ba lahleheloe ke kelello ebe ha ba utloisisise se oho buang ka sona.E lahlisa batho likelello*** *(Yes, they sometimes talk about it. Problem is, when you have that illness, you at times lose your mind and may not get what is being said. At that time, one has lost their minds.)*

- *I forget too much, it’s a matter of forgetfulness, that’s why I didn’t tell them*

Intrapersonal factors related to diabetes affect disease progression and the overall process of self-management. The next discussion highlights the effect of interpersonal factors as contributing factors regarding self-management.

• Subcategory 2: Interpersonal factors

The subcategory **Interpersonal factors** relate to the influence of extra-personal factors on self-management as perceived by the participants of this study. Data analysis from the present study revealed four areas that underpinned interpersonal factors influencing self-management. Participants related family support, the influence generated from other patients with diabetes, the influences of religion and access to the clinic as interpersonal factors affecting self-management. The discussion starts with the influence of the family.

Family is defined as a basic social unit of people, consisting of parents and their children. Family may share biological, social and cultural values. Being part of a family unit predisposes members to familial diseases through genetics (Inzucchi *et al.*, 2012:1579-83). The transmission of familial diseases means that people may be born to a family experiencing a disease; therefore, this experience allows family to influence approaches of self-management. The influence on patients by family includes financial and social support extending to reading health information on their behalf and providing counselling. Such influences affect the way in which members conduct and carry themselves relative to the chronic condition. Sociological influences mean that members of the family affect and influence each other's behaviour (Haralambos & Holborn, 2008:67). The following excerpts show how families influenced the self-management of participants:

- ***Ha se le nna ea ratang empa baa mpalla hobane nna ha ke bone le ha ke roetse mahlo*** *(I don't pull it myself; they are the ones who read for me because my vision is not that good even when I have my glasses on.)*

- ***Kena le bana ba tsebang ho bala 'me baa mpalla*** *(I have children there, they are able to read so they read for me.)*

- ***No, one ever touches that topic; I only talk with my family members.***

The influence of family members with a similar condition is critical in the modelling of appropriate behaviour and appropriate self-adjustment. These influences are not only limited to the family only; they are also found in the general population or the society where they live (Haralambos & Holborn, 2008:131). Participants in the present study were also influenced by the society within which they lived in. Society includes part of their neighbourhood, other patients with diabetes and work colleagues. In this study, participants described their society as other patients who had been diagnosed with diabetes. The 'other patients with diabetes' were able to create a platform for the discussion of sensitive matters that the patient would not have done with his/her family or the health workers (Hwee, Cauch-Dudek, Victor, Ng & Shah, 2014:e192). One participant related:

- ***Ke sitoa ho etsa lintho hobane e jele mapheeo, leha o bua le banna ba bang ba batla o joetsa hore e ba qetile mapheeo le bona. Ke sitoa ho etsa letho. Ha se nna ke mong, ne ke nahana hore ke mong*** *(I can't perform anything because it has eaten my wings, but as we chat with other men, they will tell you that it has also eaten my wings, I can't do anything. I am not the only one though I thought I was.)*

Religion is part of the society. Religion refers to the ability of a society to believe in the existence of a super being that controls their existence. Terms and conditions define religion and subtle differences in such regulations result in various religions and beliefs (Haralambos & Holborn, 2008:98). Members of a religion are expected to follow a particular structure or regulations – with consequences if not adhered to (Beit-Hallahmi & Argyle, 2004:98). The participants in this study revealed that their religion influenced their self-management. The nature of the influence was based on the role of God in their treatment options and their will to conduct self-management. Some of the participants reflected as if their self-managements were purely dependent on their religion with little influence by their own efforts:

- ***Ke Molimo feela e aka e folisang eseng motho emong! Molimo o folesa ha Molimo abatla*** *(God can heal, not a certain man. God can heal according to his will.)*

Access to clinics by participants was reflected as an interpersonal factor influencing self-management. Clinics differed in approaches to provision of care related to patients with diabetes or any other chronic diseases. Some of the clinics provided a 'supermarket' approach to the provision of diabetes care while others preferred having specific days of the week to offer diabetes care. The 'supermarket' approach implies that patients could come at any day of the week for their diabetic care (Sibiya, 2009:132). Some of the clinics had specified days within a week designated for treatment and care of patients with diabetes. The set days were interpreted as non-negotiable and missing these days had consequences on the patients. The rigidity of the clinic schedules influenced self-management, especially in terms of patients who were employed or had other priority issues on the days specified for diabetic care. Some of the participants remarked:

- ***Ka nako e nngoe ke hloloheloa matsatsi a itse joloka Labone ha ke ne ke le lefung joale ke ts'oanetse hoe ma ho fihlela kajeno*** *(but sometimes I miss Thursday, like last week, I had to attend to a friend of mine's funeral and then wait till today.)*

- ***Haba tsotelle hora na o hloka ho ea tliliniking hoo bah o batlang ke hore o be teng mosebetsing*** *(They don't care if you have to go the clinic on a certain day, all they want is to see you at work on that day.)*

Therefore some of the patients failed to balance the requirements of the clinic regarding its accessibility and the requirements of their employers. The fact that public health services were being offered during working hours meant that some of the strategies related to health communication were not effective and reaching out to the intended participants (Harris *et al.,* 2012:S117). The next discussion will highlight lifestyle modifications.

3.5.2.2 Category 2: Lifestyle modifications

Lifestyle can be described as the way of living life or a particular way of life, and it can also be described as a collective of how each component of an individual is carried out as such person lives his/her everyday life. Lifestyle is influenced by a set of factors including personal attitudes, attributes, values and habits (Manschot, Van Oostrom, Smit, Verschuren & Picavet, 2014:44). Several factors, including some of the influencing factors may result in lifestyle being modified. One of these factors is being diagnosed with a chronic disease.

The nature of chronic diseases is that patients live with the diagnosed disease for the rest of their lives. Most chronic diseases have no outright or definite cure. In prolonging their lives, patients resort to modifying their lifestyle to meet health needs imposed by being diagnosed with a chronic disease; thus, a diagnosis of a chronic disease usually results in lifestyle modification. Lifestyle modifications are essential for survival and positive health outcomes (Roberts & Barnard, 2005:6-9).

Lifestyle modifications result in modified ways of living life that meets the health demands enacted by the chronic disease. One such chronic disease with a demanding list or need for lifestyle change is diabetes. In the 2012 SEMDSA Guidelines for the management of type two diabetes, Mash (S68) states that *“diabetes is a chronic, manageable condition which requires major changes in lifestyle to optimise its management”.* After the diagnosis of diabetes, the lifestyle of patients is expected to be modified to cater for dietary changes, changes in exercise patterns and changes in medication (Inzucchi *et al.*, 2012:99). These changes may also include increased basic knowledge about diabetes, self-monitoring of blood glucose, recognition and management of acute and chronic complications, foot care, smoking cessation and responsible alcohol use, pre-conception care and diabetes during pregnancy and managing diabetes emergencies, including wearing an identification disc or bracelet (Ascot-Evans *et al.*, 2012:S46).

Related to dietary changes in patients with diabetes, specified food types are included in the diet while other food types are avoided or completely excluded. Some of the food types would augment the progression of diabetes; hence, they are avoided, while others improve health outcomes and are included in the diet. Individuals with type two diabetes are encouraged to implement healthier dietary lifestyle changes inclusive of reducing kilojoule intake, consuming less saturated fats, cholesterol and sodium. Consistent carbohydrate intake and an even and regular distribution of meals may help control blood glucose levels and weight (Ascot-Evans *et al.*, 2012:S56). The nature of nutrition outcomes and expected modifications are crafted through negotiating with patients consequently embracing a patient-centred approach. The outcome of such negotiations is a diet tailor-made to the needs of the individual. However, weight loss is an important therapeutic intervention in obese or overweight individuals with type two diabetes (Inzucchi *et al.*, 2012:38). In enhancing weight loss, dietary modifications are integrated with increased physical activities.

Patients may have some drugs prescribed as a result of being diagnosed with diabetes, and these drugs present with their own specific requirements, which require lifestyle modifications. Some of the drug requirements include being taken at special times and others through specific routes. These requirements result in further lifestyle modifications, which arise as a result of being diagnosed with diabetes. Patients also have to adjust their lifestyle as they work also with the side-effects associated with the prescribed medicine. For example, Metformin, a biguanide oral hypoglycaemic drug, used as first-line treatment in the management of type two diabetes, may result in gastrointestinal side-effects, inclusive of diarrhoea, nausea and vomiting (Hertog *et al.*, 2015:107). To modify lifestyle effectively, a patient with diabetes should have a supportive environment.

Lifestyle modifications occur within a circumscribed context. The context in which lifestyle modification occurs affects the degree to which individuals can adjust their lifestyle. Certain contexts enhance lifestyle modifications through supporting the patient's decisions for change while other contexts are a hindrance to change. Lack of family and social support (Wu, Tung, Liang, Lee & Yu, 2014:190-1) are associated with contextual hindrances to change. In addition, patients with diabetes may not be able to afford the dietary requirements associated with being diagnosed with diabetes. Changes related to a chronic disease occur throughout the lifespan, and the environment where the patient lives also needs to adapt with the modifications of the patient (Horton, 2009:S47).

Lifestyle changes may seem overwhelming and unachievable immediately after diagnosis. Literature supports that the modifications of lifestyle needs to be specific about certain aspects of the disease and the illness–wellness continuum (Paterson, 2001:24). At pre-diagnosis, aspects of lifestyle modifications include approaches that encourage healthy living and avoiding the progression to diabetes. Healthy living includes alterations to the diet, exercise and avoiding smoking (Ascot-Evans et al., 2012:S46). Patients who are at risk of developing diabetes benefit from lifestyle modifications. At diagnosis of diabetes, patients are expected to adapt their healthy living strategy to enhance prolonging life and avoiding complications related to diabetes (Horton, 2009:S44). Participants in the present study perceived health communication strategies as enhancing lifestyle modification regarding issues pertaining to nutrition related to diabetes. In the same strand, the participants reflected some of the outcomes related to their efforts of modifying lifestyle. The following discussion will highlight two sub-categories under the category ‘lifestyle modification’.

- ### Sub-category 1: Nutrition

Participants in the present study relayed that health communication strategies enhanced their ability to modify their nutrition. Diabetes is a nutritionally demanding chronic disease (Inzucchii et al, 2012: 1580) and the modification of the patient’s diet is essential to meet the health outcomes of this disease. Patients with diabetes reported being provided with a diet specific to diabetes, and they were expected to modify their diets to meet the new one. Such dietary changes were made to improve the function of insulin and to improve the patient disease outcomes generally (Ley, Hamdy, Mohan & Hu, 2014:2003-2006).

Participants in the present study reflected that they complied with nutritional modifications related to diabetes to a large extent although they were affected by a variety of factors, inclusive of context. On the other hand, the participants expressed out of free will their disengagement with any modifications related to their diet. The discussion under this theme will be presented related to compliance to the nutritional requirements and non-compliance to nutritional requirements.

Compliance is known as the ability of a patient to adhere to a treatment plan and, in this case, the ability to adjust to nutritional self-management. Diabetes is a nutritionally demanding chronic disease, and for patients to be able to survive or have improved disease outcomes, they are expected to follow a specified nutritional regimen (Ascot-Evans *et al.*, 2012:S63). The participants in the present study highlighted that they complied with some of the nutritional requirements of the disease as expressed by their sources of health information, evidenced by the following excerpts:

- ***Aa monna, ha ke fihla hae, nku ela eo ke e jang le khoho hape le eona ke ea e ja feela ke tlameha ho tlosa matlao… le lispice ke joetsitsoe hore ke se ke ka lija*** *(No man, when I got home you see, that mutton I eat it and even the chicken as well I do eat it although I have to remove the skin… and also those spices I was told not to eat them.)*

- ***Because I am able to find, I mean I eat the kind of food that they said I should eat.***

Compliance to nutritional modifications related to diabetes is influenced by several factors. The nutritional requirements of diabetes have to be weaved into the lifestyle of these patients. Lifestyle modifications of the participants in the present study, considerations had to be made to include the context of the patients and their economic situation. The context of the patients affected their ability to comply with the nutritional modifications thus presenting as a dilemma to some of the participants between complying with the nutritional requirements and their ability to meet such requirements. The dilemma related to the majority of families failing to support nutritional modifications economically. Such dilemma may compromise health and health outcomes. The participants related the dilemma they faced in the following excerpt:

- ***tla fuman hore kaha re lula mmoho, ke tla be ke iphehela le oena o etsa ntho e ts'oanang, oa nthola?... Hobane ka nako e ngoe kea ba joetsa hore ha ke battle ho ja nama ke batla meroho oa nthola? Ha ke battle neroho enang le oil,Ke batla e belisitsoeng… e be joale ke tla khona hob a le eona eroho eo, oa bona? Ha ke battle borotho bo boesoeu, ke battle curry bread, oa nkutloisisa?... ke batla bohobe feela, bo sa toastuang oa bona?****(You will find that, since we are living together, I'll be cooking my own dish and you doing the same, you get me? … Because at times I tell them that I don't want to eat meat, but vegetables, you see? I don't want oily vegetable, but boiled ones … So then I will be able to have those vegetables, you see? …*

> *I don’t want white bread today, I want curry bread, do you understand? … So I just want curry bread, untoasted one, you see?)*

Depending on the context, or cause of the dilemma for the patient with diabetes, the result could be **non-compliance** with the treatment regimen thus jeopardising the treatment outcomes. In as much as confounding factors made the patients struggle to adhere to the nutritional requirements, other patients simply decided not to adhere to their expected nutritional adjustments. Their decision not to adhere to the nutritional requirements gave rise to non-compliance. Participants supported their decision not to comply by saying;

- ***They are not delicious, they are tasteless***

- ***Yah, ke etsa joalo. Ha ke e pate, ba a tseba hore ke noa whisky, a, a, a, ema hanyane, o lebeletse ke tlohele ho noa biri, ha ke holetse sebakeng seo batho ba neng ba noa joala haholo*** *(Yah, I do. I don’t even hide it, they all know that I drink whiskey, no, no, no, wait a minute, you expect me to stop drinking beer while I grew up in the environment of people who took a lot of alcohol?)*

Nutritional modifications are essential to the patients with diabetes although these are not explicitly expressed in terms of importance to the patients. Some of the patients complied with their nutritional modification while some other patients with diabetes struggled with compliance thus putting their lives at risk. The following discussion reflects on the subcategory ‘outcomes’.

- **Subcategory 2: Outcomes**

Strategies of health communication had various perceived outcomes among patients in the Free State diagnosed with diabetes. The perceived outcomes were clustered into three areas, namely physical health, improved health literacy and mental adjustments. These outcomes underpinned improved self-management among the participants of this study.

Regarding **physical health**, it was assumed that the majority of patients being diagnosed with type two diabetes are usual overweight and have poor lifestyle practices. According to Doll, Petersen and Stewart-Brown (2000:166), poor lifestyle practices are associated with poor physical health, which transcends to mental deterioration. Health information that was provided to the participants through a variety of approaches resulted in outcomes associated with improved physical health. Such improvements related to physical health included weight reduction, improved vision and regulated blood pressure. Participants in this study relayed:

- ***Mm, I would call someone to help me stand, but now, I am able to stand, walk and do whatever I want do … Because the moment it started, I became critical, I couldn't even stand.***

The purpose of intervention and lifestyle modification related to diabetes is to prevent complications and patients dying. Health education results in improved physical health. However, some of the participants in the present study relayed that they were failing to detect any improved physical health which they could associate with health communication strategies. These participants reflected that their efforts of self-management seemed futile as there were no changes observed by the patients. Bodenheimer, Lorig, Holman and Grumbach (2002:2470) claim that patients with chronic diseases make day-to-day decisions including evaluating the outcomes of self-management. Patients tend to focus their evaluation of self-management based on changes that are exterior or visible to their eye, while health care workers are concerned with internal processes within the patient (Gregg *et al.,* 2014:1517). Therefore, in evaluating the effects of self-management, it can be assumed that patients may have focused on observable changes; hence, a failure to identify internal improvements associated with self-management. Patients with diabetes reflected that:

- ***They didn't help me because I see my sugar diabetes still shooting. I don't eat meat, what else, it still shoots***.

- ***Ah, andi boni mahluko ngoba iyanyusela ndilandela umyalelo wokutya*** *(Ah, I don't see any difference because it still shoots up while I don't eat what they told me not to).*

In addition to physical health as an outcome of self-management, participants in the present study reflected that improved health literacy related to diabetes. Health literacy is associated with improved knowledge regarding a particular condition and associations have been made with the ability to advocate for self and thus improved self-efficacy (Cornett, 2009: online). Health literacy implies that patients have the ability to discern on health-related information therefore having the potential to self-manage. Participants from this study relayed improved articulation with their health concerns. Some participants reflected that they had better understanding of their condition:

- ***I know what to use, to what extent, this I don't use …***

- ***Ndi bona ngungcono, ngoba ndinetshukela… nditya iqanda kumbe izambane eliphekiweyo. Nditya ukutya okungela tyiwa. Ndiyazimangaza ngoba andazi kwenzeka ntoni kum kumbe rhoxisa leyi rash*** *(I have seen it to be simple, as I do not only have sugar … I also have to eat an egg or cooked potato. I'll eat it without seasoning it with anything. I sometimes amaze myself because I really don't know what is happening to me or it to avoid that rash …)*

- ***Ke ne kenahana hore ke lule lejong tseo ke ntse ke lija, lia sebetsa hoe a ka nna (****I just assumed I'll stay on the diet that I'm on. It works, it seems to me.)*

An additional outcome reflected assisted psychological adjustments. Patients with diabetes had their mental statuses adjusted as an outcome related to health communication strategies. The patients reflected that they were at the point of acceptance of having the condition.

- ***Rea natefeloa ntate hobane re e ntse khotso le hore ha se lefu la nang le pheko*** *(we do enjoy sir because we have made peace with the fact that it's incurable.)*

3.6 SUMMARY

This chapter presented the results of a study whose purpose was to investigate the perceptions regarding health communication strategies of patients with diabetes within the Free State.

The discussion in the chapter highlighted the general overview of the data collection process, the description of the development of perceptions and then the graphical display of the interactions of the themes, categories and subcategories. The discussion on the themes, categories and subcategories was presented interspersed with excerpts from the interviews. These excerpts were presented verbatim and in the language of the participants, namely Sotho, Xhosa, English and Afrikaans. The discussion also included literature of relevant studies in relation to health globally. These were used to assist in the interpretation of the results from data.

The next chapter will highlight the conclusions and recommendations from this study.

CHAPTER 4

Summary of research findings, recommendations, limitations and conclusion

4.1 INTRODUCTION

The previous chapter presented a discussion of the research findings. The themes, categories and subcategories were presented supported by literature and excerpts from the semi-structured interviews.

This chapter will describe the summary of the findings of the study and recommendations from the study. The discussion will also include limitations related to the study and the value of the study, followed by personal reflections of the researcher, and lastly, the conclusion.

4.2 SUMMARY OF STUDY FINDINGS

In an attempt to clarify the recommendations from the study, a summary of the research findings are graphically displayed followed by a brief discussion. Figure 4.1 presents a summary of the research findings of the theme **Guidance**.

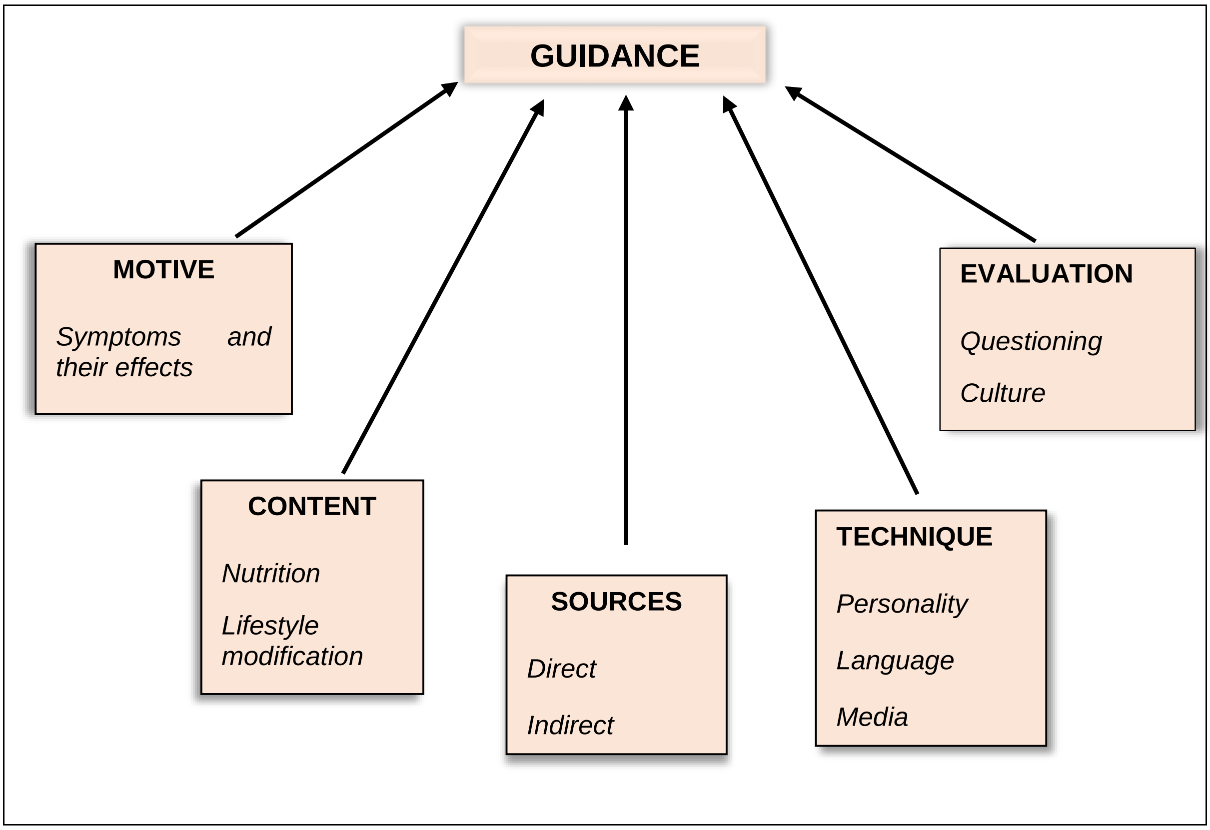


FIGURE 4.1: Summary of the theme Guidance

Within the category motive, it was specifically diabetes-related symptoms and their perceived effects that motivated patients with diabetes to seek guidance. The content of the guidance provided to the patients with diabetes was streamlined to issues related to nutrition and lifestyle modification. The content of health information focused on nutrition. This information restricted the amount of fats in the patient's diet, reduction of simple carbohydrates while increasing the content of complex carbohydrates. Regarding lifestyle modifications, patients reflected being taught to modify the immediate environment to reflect personal adaptation after being diagnosed with diabetes. Some of the lifestyle modifications included changing the type of shoes and creating time for medication administration.

Guidance was conveyed through a variety of sources. These sources were classified as either direct sources or indirect sources, based on the nature of the relationship between the sources and patients with diabetes. Direct sources were physically present with the patients, shared common objectives related to health information and were able to convey health information directly to the patients. Direct sources included health care workers and family members who had experience of diabetes. Indirect sources, on the other hand, followed a more passive engagement with patients. The example from this study was the use of electronic media (see 3.5.1.3).

Three main techniques were engaged in providing guidance to patients with diabetes in the Free State. The patients participating in the present research perceived that the personality of their sources of health information influenced the manner in which they acquired health information. Some of the health care workers were upfront and relatively blunt, and the serious way in which health information was relayed made patients with diabetes comply or listen carefully to what was communicated, thus enhancing compliance. The language of communication of health information was also perceived as a technique used by a variety of sources of information in providing guidance to patients with diabetes. The patients reflected that information should be communicated in their home language, which would enable a clear understanding of the content of the health information. Patients with diabetes in the Free State relayed that some of the sources of information was in English, which made it difficult to comprehend. The media was reflected as a communication technique that was also used to communicate health information. The media included print media in the form of pamphlets with illustrative pictures and various font styles although mostly written in English. Patients with diabetes reflected that print media offered to them was given in the context of assumed support at home. The radio was a typical example of electronic media that was used to convey health information to patients. Patients, however, reflected on some annoyance with this approach with health information due to the personal nature of some of the symptoms associated with diabetes.

Guidance was evaluated through two main approaches. Patients with diabetes failed to question their sources of guidance. The failure to ask questions was assumed to be related to the culture associated with the majority of the participants in the study, which made them fail to question authority.

The next discussion will highlight the theme **Self-management**. Figure 4.2 reflects the graphical interrelationship between the categories and subcategories under the theme **Self-management**.

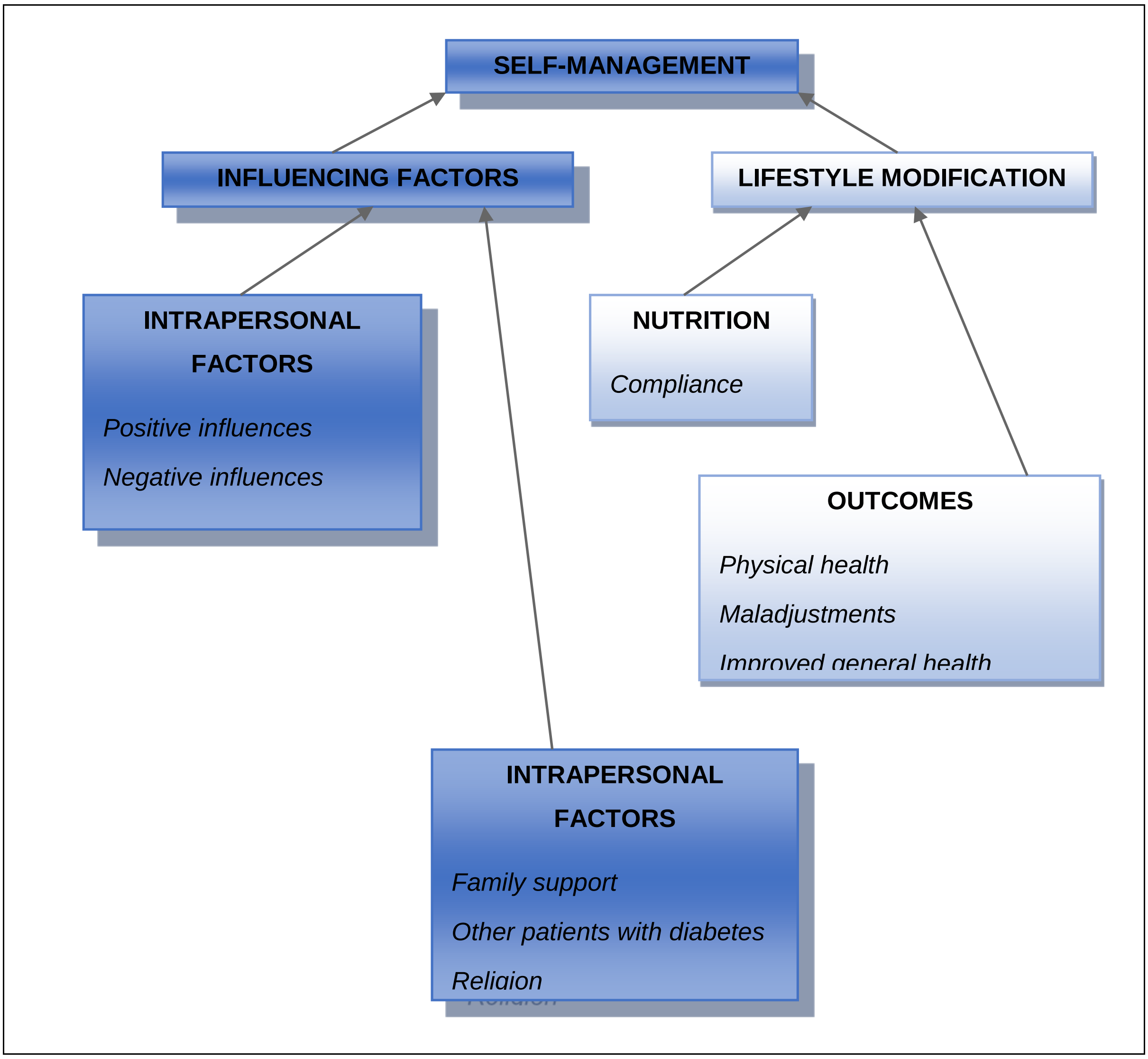


FIGURE 4.2: **Summary of the theme Self-management**

The theme **self-management** was voiced in two categories, namely influencing factors and lifestyle modifications*.* Influencing factors were further subdivided into two subcategories: intrapersonal and interpersonal factors. Within the subcategory intrapersonal factors, positive internal influences and negative internal influences were reflected as influencing self-management. Positive internal influences were manifested with improved disease outcomes and better compliance. Patients with positive internal thought process reported to be coping well with self-management and the diagnosis of a chronic disease. On the other hand, negative internal influences were reflected as poor adaptation to the disease, and some of the patients reflected poor coping as evidenced by the desire to commit suicide because of diabetes.

In the subcategory interpersonal factors, family support, other patients with diabetes, religion and accessibility to health facilities were reflected as external influences to self-management. Support from family members themselves diagnosed with diabetes influenced patients' approach to self-management positively. Other patients also diagnosed with diabetes assisted by suggesting coping strategies and so strengthened self-management. Religion was reflected as having the ultimate influence regarding the outcome of a chronic condition. Self-management was negatively influenced by inaccessibility to health facilities by the patients. Some health facilities had specific days for offering diabetes care and this was perceived as a challenge to some of the patients who were in full-time employment or those who would miss the specific days because of other commitments.

The category lifestyle modification was classified further into two main sub-categories, namely nutrition and outcomes. The participants reported that they complied to a certain extent with the nutritional requirements of diabetes although struggled to comply fully with some of the nutritional requirements. Related to outcomes, patients reported improved physical health as a result of health communication strategies, and said that their blood glucose was within the normal ranges.

4.3 RECOMMENDATIONS

The recommendations from the study are presented in Table 4.1, according to the identified themes and subcategories.

4.4 LIMITATIONS OF THE STUDY

The determination of the unit of analysis for the PHC clinics was only limited to clinics in one district of the Free State. The district was engaged in the data collection because it had more PHC clinics than the other districts and was logistically practical for the researcher since the study formed part of a larger study and data was collected as part of the larger study. However, when analysing the data, there was no difference in the demographic profile of these two types of clinics. Although only 12 participants of the total number of 34 participants were from the PHC clinics. The limited representation however did not influence the study negatively. The main focus of the study was data saturation and not representativeness (see 2.7). The same argument applies as to why no participants from Xhariep District took part in this study. Since data saturation was reached prior to interviewing participants from Xhariep, no participants from that district was included in the study. Inherent within qualitative research, the findings of such a study are only applicable to the population from which data was collected; therefore, the results of such a study cannot be generalised to the whole population of patients diagnosed with diabetes.

TABLE 4.1: Recommendations of the study (to be continued)

THEME	*SUB-CATEGORY*	*RECOMMENDATION*
Guidance	Motive	• The Free State Department of Health's (FSDoH) directorate responsible for chronic diseases should institute health information dissemination campaigns targeting the general public and patients in the pre-diabetes stages throughout the province. Such campaigns should provide the public with health information that will link health symptoms that are specific to diabetes. These campaigns could utilise various forms or a combination of media for communication. • The FSDoH should craft a health screening tool that should consist of questions posed to high-risk individuals attending public health facilities. The nature of the questions in the health screening tool should help patients and health care workers in linking symptoms of diabetes with diabetes. • Sources of health information – specifically health care workers in all health facilities – should provide personalised and specific health information. That health care workers should be sensitive towards how and what health information they give to patients with diabetes. The 'how' should be conducted in a patient-centred manner, during each routine follow-up visit to the health facility. Concerning what needs to be addressed, the health care worker needs to assist in the interpretation of diabetes-related symptoms and provide or refer the patient for the necessary support.
	Content	• Patients with diabetes perceived content related to diabetes as only limited to nutrition and lifestyle modifications. The FSDoH should craft specific health cards for patients with diabetes. The health cards should reflect a checklist with all essential content that patients with diabetes should know. The content in the checklist should be checked at every clinic visit to reflect that the relative part of the content has been taught to the patient. This content should be signed by health care workers when discussed with the patient as evidence of engagement. • The level of health literacy should be evaluated in the Free State to facilitate patient-specific tailored health messages. This needs to be followed up by researchers who would have to develop a health literacy test to be crafted in the indigenous languages of the Free State, and the health literacy tests should enable the identification of health literacy levels of population groups.

TABLE 4.1: Recommendations of the study (to be continued)

THEME	*SUB-CATEGORY*	*RECOMMENDATION*
	Sources	• Research should be conducted to determine the ability of health care workers in delivering adequate and appropriate health information to patients with diabetes. • The FSDoH, should strengthen the capacity of health care workers in the provision of diabetes-related health information and services. This can be done through several training workshops in a year. Such a top-down initiative could strengthen diabetes care in general as well as diabetes-related health information services. • End user surveys involving patients with diabetes should be conducted regularly to ascertain the effectiveness of health care workers as sources of health information. The end user survey could provide a platform to improve health communication strategies used by health care workers who have been identified as an important source by patients. • The FSDoH should form part of a multi-professional steering group aiming to develop and implement an application to be used on mobile phones and computers assisting in strengthening diabetes-related health information. This application could link patients with diabetes to reliable information. This platform should preferably link with the current data capturing program coordinated by the FSDoH. Such an application should be accessible to health care workers, patients with diabetes and their family members.
	Technique	• The University of the Free State, Faculty of Health Sciences should consider crafting an inter-professional curriculum that should be aimed at all disciplines in the faculty and should address health communication techniques in various contexts. Outcomes of such a curriculum could include the use of personality, language and media in communicating health information. • Health care workers in the Free State should consider patient clustering techniques to enhance message retention and tailor-making the health message for the patient with diabetes. This clustering should be done at clinics where patients receive their chronic care. The patients should be clustered according to their level of formal education and linguistic abilities, for example patients with primary school as the highest formal education and speaking Sotho being in their own cluster. The purpose of clustering at the clinic will assist the health care workers in tailoring health messages to be appropriate for a particular group.

TABLE 4.1: Recommendations of the study (to be continued)

THEME	***SUB-CATEGORY***	***RECOMMENDATION***
		• The print media, which is widely used as a passive health information strategy in South Africa, should be evaluated for its effectiveness and the level of comprehension of the targeted audience. • The nurse in-charge of chronic disease in the health facility should develop practical plans on how to address language issues within the clinic. Stakeholders meetings within a district, including language specialists, should disseminate and share such plans to create practice-based development of language-appropriate communication techniques. • Health care workers and the DoH that create health education material for patients with diabetes should capitalise on the utilisation of print media. However, the following features should be integrated into the print media; i) Language of the targeted end user patient. ii) A larger font should be used in the print media for patients to make it easier to read. iii) The nature of the patient should be considered in crafting the printed text, including the patients' ability to read and understand, availability of family support and the tone of the language of the text. • Illustrations should be vivid and should apply in the settings of the patients.
	Evaluation	• Health care workers should be sensitised about some patients' hesitancy to ask questions regarding diabetes-related practices. To ease the anxiety related to asking questions, health care workers need to learn to utilise culture-specific ice breaker questions and possibly even humour when dealing with patients who cannot ask questions. These ice-breaker questions could encourage patients in clarifying issues through questioning. • Researchers should be encouraged to explore the effect culture has on aspects such as the evaluation of health care. Recommendations from such studies could prove to be of great value in practice, benefitting all role players concerned.

TABLE 4.1: Recommendations of the study (to be continued)

THEME	*SUB-CATEGORY*	*RECOMMENDATION*
Self-management Influencing factors	Intrapersonal factors	• The capacity of health care workers to diagnose patients who are failing to cope or who are presenting with negative outcomes should be strengthened. The strengthening should involve training of health care workers on making clinical diagnoses of such psychological maladjustments. Such training should be done on site with real patients and be repeated on a regular basis. The health care workers should be evaluated on attaining competency on diagnosing patients with negative thoughts so that remedial actions could be put into place to rectify such actions. • Research should be conducted to explore techniques that would enhance coping with being diagnosed with diabetes. The nature of the research has to embrace local culturally sensitive approaches. • Patients with positive thoughts leading to positive outcomes should be identified during diabetic care. Their behaviours should be reinforced within the local clinic and some of the reinforcement could include such patients being used to lead group discussions with patients with diabetes.
	Interpersonal factors	• Since the family of a patient with diabetes play an important role in the patient's life, the study recommends that family members be supported with appropriate information related to diabetes. The efforts of the family need to be augmented within the health facilities and a platform for dialogue between the health care workers or the public health system and the families of patients with diabetes within the local health facility should be initiated and be continued during every clinic visit. • Patients reflected to be benefitting from other patients in their groups, especially men affected by and afflicted with diabetes. The study recommends that male support groups be formulated within the public health system of the Free State. The male support group should have a syllabus to discuss all issues related to diabetes that concern males inclusive of male sexual health issues. Co-ordination of these support groups should be made possible between the professional nurses in charge of chronic diseases and possible a male patient with extensive experience in diabetes.

TABLE 4.1: Recommendations of the study (to be continued)

THEME	*SUB-CATEGORY*	*RECOMMENDATION*
		• Faith leaders should form part of the matrix of diabetic health information provision. This can be done through creation of a platform for communication between the public health system and such community leaders. Such a platform can be within a clinic committee. The faith leaders should then be taught about diabetes, its clinical manifestations, treatment strategies and the psychosocial aspects related to the disease. Teaching of faith leaders should include referral strategies for patients struggling with diabetes to their faith leader and also from the faith leader to the clinic. This would enhance dialogue between the patient's religion and the health delivery system. • The PDoH should improve the accessibility of clinics by patients with diabetes. Times of service should be extended for patients in full-time employment and the supermarket approach should be applied throughout all clinics. The FSDoH should specifically cater for patients with chronic diseases, such as diabetes, over weekends to enable them to receive follow-up care. Such follow-up care should definitely include receiving chronic medication as well.
Self-management lifestyle modifications	Nutrition	• Health care workers in the Free State should involve treatment partners for patients with diabetes at initiation of treatment and throughout the patient's life with the disease. These treatment partners may be designated family members who are able to provide support with the required nutritional adjustments. The treatment partners should be part of the health education sessions of patients with diabetes to enhance their buy-in and increase the amount of support. These partners should be present at some of the monthly visits, especially during initiation of therapy. • Patients with diabetes struggle to acquire the foods that are specific and relevant to their condition and at times these foods may be expensive. However, this study recommends the introduction of community support groups that should include the local vendor or a representative of the vendor. This vendor may be assisted in stocking the appropriate foods that are cost-effective for the patients with diabetes.

TABLE 4.1: Recommendations of the study

THEME	*SUB-CATEGORY*	*RECOMMENDATION*
	Outcome	• Although current communication strategies may have pitfalls and their own inherent errors, there is a need for the strengthening of the current communication strategies. Health care workers and family members as well as successful media sources should be acknowledged for their input in the lives of patients diagnosed with diabetes.

4.5 VALUE OF THE STUDY

Benefits of descriptive research designs include an intensive examination of phenomena and a thorough exploration of their deeper meaning, thus reflecting what is really happening in a particular circumstance (Polit & Beck, 2012:229). Descriptive research designs also afford the researcher the opportunity to document and describe phenomena that have not yet been explored. In the present case, the study provided an in-depth exploration of the phenomena behind health communication strategies in the Free State. Such in-depth phenomena have significance to a variety of stakeholders in the Free State and beyond. These stakeholders include –

- the FSDoH;
- professional nurses within the public health system; and
- patients with diabetes.

This study formed part of a larger study aiming to develop a health dialogue model for patients diagnosed with type two diabetes in the Free State public health sector. The FSDoH was provided within an in-depth description of the perceptions of patients related to communication strategies used in public health settings in the Free State. These perceptions form a cornerstone for the development of the health dialogue model, which will be used within the Free State. Professional nurses were provided with practical guidance related to improvement of communication strategies based on patients' perceptions. Patients with diabetes will therefore be able to have their voices heard regarding improving communication strategies.

The study reflected strong methodological rigour and audit trial (see 2.9). This methodological rigour could be of value to future qualitative researchers and be used as an example to build on for future qualitative studies.

4.6 RESEARCHER'S REFLECTIONS ABOUT THE STUDY

Reflections create an opportunity to look back and re-live an event and, in this case, the reflection related to this study. The study empowered the researcher with rigorous skills needed for qualitative research. The qualitative methodology of this study interested the researcher as the approaches inherent in qualitative research resonated with the personality of the researcher, who is an in-depth listener and enjoys following stories. The data collection process engaged the researcher emotionally. He resonated with the plight of patients diagnosed with diabetes in public health settings because of his previous experience in treating patients with diabetes in public health settings. However, he managed to sensitise himself in terms of the possible biases, prejudices and emotions during the data analysis process. At times, when the emotional engagement threatened to be overwhelming, co-researchers naturally created debriefing opportunities. Data analysis, using an electronic platform, made the process of coding easier and kept the researcher engrossed in the data. The electronic process made the data easily accessible and the researcher swiftly moved through excerpts; hence, maintaining a high level of personal engagement with patterns and trends. The findings of the study resulted in the researcher understanding what an exploratory descriptive design means as the findings reflected the situation in the Free State. Personally, the journey through the master's programme resulted in growth for the researcher through enhancing co-ordination skills. The researcher who was a full-time employee, needed to balance between the requirements of the employer and those of the degree. Being part of a study group also improved the researcher's interpersonal and communication skills in dealing with different people within the academic realm.

4.7 CONCLUSION

This chapter expressed the summary of findings of the study, the recommendations, the limitations related to the study including the value of the study, and personal reflections. Health communication strategies are essential in the transmission of health information related to diabetes. Health communication strategies should address the essence of self-care and life-long lifestyle modification approaches related to diabetes and enable the patient to incorporate strategies that promote acceptance of diabetes by patients or communities or both. Health care workers need to be sensitive towards factors that could influence patients with chronic diseases such as diabetes when using health communication strategies. Good communication results in positive outcomes for patients diagnosed with diabetes. The words of Anne Morrow Lindbergh come to mind:

> *Good communication is as stimulating as black coffee, and just as hard to sleep after.*

REFERENCE LISTS

ABDULHADI, N., SHAFEE, M.A., FREUNDENTHAL, S., OSTENSON, C.G. & WAHLSTROM, R. 2007. Patient provider interaction from the perspective of the type 2 diabetes mellitus patient in Muscat Oman: A qualitative study. *Bio-Med Central Health Service Research*, 7(162):1-11.

AFIFI, W.A. & WEINER, J.L. 2004. Toward a theory of motivated information management. *Communication Theory*, 14(2):167-190.

AKERS, J., CORNETT, R., SAVLA, J., DAVY, K. & DAVY, B. 2012. Daily self-monitoring of body weight, step count, fruit/vegetable intake and water consumption: A feasible and effective long-term weight loss maintenance approach. *Journal for the Academy of Nutrition and Dietetics*, 112(5):685-692.

ALJASEM, L.I., PEYROT, M., WISSOW, L. & RUBIN, R.R. 2001. The impact of barriers and self-efficacy on self-care behaviors in type 2 diabetes. *The Diabetes Educator*, 27(3):393-404.

ANDRULIS, D. & BRACH, C. 2007. Integrating literacy, culture and language to improve health care quality for diverse population. *American Journal of Health Behaviour*, 31(S1):S122-S133.

ASCOT-EVANS, B., BERG, G., BLOM, D., BROWN, S., CARRIHILL, M., DAVE, J., DISTILLER, L., GANIE, Y., GROBLER, N., HEIBRUNN, A., HUDDLE, K., VAN RENSBURG, G.J., JIVAN, D., JOSHI, P., KHUTSOANE, D., LEVITT, N., MAY, W., MOLLENTSE, W., MOTALA, A., PARUK, I.M., PIRIE, F.J., RAAL, F. J., RAUFF, S., RAUBENHEIMER, P.J., RANDEREE, H.A.R, RHEEDER, P., TUDHOPE, L., VAN ZYL, D. J., & YANG, M. 2012. The 2012 SEMDSA guidelines for the management of type 2 diabetes. *Journal of Endocrinology, Metabolism and Diabetes of South Africa*, 17(2), Suppl.:S1-S95.

ATAGUBA, J., BENATAR, S.R., HEUNIS, J.D.M.E., VAN RENSBURG, A.J., KIGOZI, N., MCINTYRE, D., PRETORIUS, E., REDELINGHUYS, N., STEYN, F., VAN RENSBURG, H. & WOUTERS, E. 2012. *Health and health care in South Africa*. Pretoria: Van Schaik.

AYYAGARI, P., GROSSMAN, D. & SLOAN, F. 2011. Education and health: Evidence on adults and diabetes. *International Journal of Health Care Finance and Economics*, 11(1):35-54.

BALAMURUGAN, A., RIVERA, M., SUTPHIN, K. & CAMPBELL, D. 2007. Health communication in rural America: Lessons learnt from an arthritic campaign in rural Arkansas. *Journal of Rural Health*, 23(3):270-275.

BARLOW, J., WRIGHT, C., SHEASBY, J., TURNER, A. & HAINSWORTH, J. 2002. Self-management approaches for people with chronic conditions: A review. *Patient Education and Counselling*, 48(2):177-187.

BARRY, M. & EDGMAN-LEVITAN, S. 2012. Shared decision making: The pinnacle for patient-centred care. *The New England Journal of Medicine*, 316, March: 780-781.

BELTRAMINI, R.F. 1989. Professional services referrals: A model of information acquisition. *Journal of Service Marketing*, 3(1):35-43.

BERKMAN, N.D., DAVIS, T.C. & CORMACK, L.M. 2010. Health literacy: What is it? *Journal of Health Communication: International Perspectives*, 15, Suppl. 2:9-19.

BERT-HALLAHMI, B. & ARGYLE, M. 2004. *The psychology of religious behaviour, belief and experiences.* New York: Routledge.

BERTRAM, M.Y., JASWAL, A.V.S., VAN WYK, V.P., LEVITT, N.S. & HOFMAN, K.J. 2013. The non-fatal disease burden caused by type 2 diabetes in South Africa. *Global Health Activation*, 6(10). Retrieved from www.dx.doi.org/ 10.3402/gha.v610.19244 (accessed on 26 May 2013).

BODENHEIMER, T., LORIG, K., HOLMAN, H. & GRUMBACH, K. 2002. Patient self-management of chronic disease in primary care. *Journal of the American Medical Association*, 288(19):2469-2475.

BOTMA, Y., GREEFF, M., MULAUDZI, F. & WRIGHT, S. 2010. *Research in health sciences*. Cape Town: Pearson Education.

BRONDIE, M., FOEHR, U., RIDEOUT, V., BAER, N., MILLER, C., FLOURNOY, R. & ALTMAN, D. 2001. Communicating health information through entertainment media. *Health Affairs*, 20(1):192-199.

BRUNER, J.S. 1957. On perceptual readiness. *Psychological Review*, 64(2):123-152.

BULL, F.C., HOLT, C.L., KREUTER, M.W., CLARK, E.M. & SCHARFT, D. 2001. Understanding the effects of printed health education materials: Which feature lead to which outcomes. *Journal of Health Communication*, 6:265-279.

BUNTING, S.M. 1988. The concept of perception in selected nursing theories. *Nursing Science Quarterly*, 1(168):168-174.

BURNS, N. & GROVE, S. 2009. *The practice of nursing research: Appraisal, synthesis, and generation of evidence.* 6th ed. St Louis, MO: Elsevier Saunders.

CALLAHAN, L.F. & PINCUS, T. 1988. Formal education level as a significant marker of clinical status in rheumatoid arthritis. *Arthritis & Rheumatism*, 31(11):1346-1357.

CHARLES, C., GAFNI, A. & WHELAN, T. 1999. Decision making in the physician-patient encounter: Revisiting the shared treatment decision-making model. *Social Science and Medicine*, 49(5):651-661.

CLARK, M.L. & UTZ, S.W. 2014. Social determinants of type 2 diabetes and health in the United States. *World Journal of Diabetes*, 5(3):296-304.

COOPER, H.C., BOOTH, K. & GILL, G. 2003. Patients' perspectives on diabetes health care education. *Health Education Research Theory and Practice*, 18(2):191-206.

COOVODIA, H., JEWKES, R., BARRON, P., SANDERS, D. & McINTYER, D. 2009. The health and health system of South Africa: Historical roots of the current public health challenges. *The Lancet*, 374(9692):831-834.

CORNETT, S. 2009. Assessing and addressing health literacy. *The Online Journal of Issues in Nursing*, 14(3): Manuscript 2. Retrieved from http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol142009/No3Sept09/Assessing-Health-Literacy-.html(accessed on 22 May 2014).

COULTER, A. & ELLINS, J. 2007. Effectiveness of strategies for informing, educating and involving patients. *British Medical Journal*, 335(7609):24-27.

COULTER, A. 1999. Paternalism or partnership? Patients have grown up – and there is now way back. *British Medical Journal*, 319:719-720.

CRESWELL, J. 2009. *Research design: Qualitative, quantitative and mixed methods approaches.* 3th ed. Los Angeles, CA: Sage.

DAL POZ, M.R, KINFU, Y., DRAGER, S. & KUNJUMEN T. 2007. Counting health care workers: Definition, data, methods and global trends. Retrieved from www.who.int/hrh/documents/counting_health_workers.pdf (Accessed 10 March 2014)

DAMASCENO, M.M.C., ZANETTI, M.L., CARVALHO, E.M.D., ARAUJO, C.R.D.D. & ALENCAR, A.M.P.G. 2012. Therapeutic communication between health workers and patients concerning diabetes mellitus care. *Revista Latino-Americana Enfermagem*, 20(4):685-692.

DE VOS, A.S., STRYDOM, H., FOUCHE, C.B. & DELPORT, C.S.L. 2011. *Research at grass roots: For the social sciences and human services professions*. 4th ed. Pretoria: Van Schaik.

DEAKIN, T.A., MCSHANE, C.E., CADE, J.E. & WILLIAMS, R. 2005. Group-based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database Systematic Review*, 18(2):1-93.

DEWALT, D.A., BERKMAN, N.D., SHERIDAN, S., LOHR, K. & PIGNONE, M. 2004. Literacy and health outcomes: A systematic review. *Journal of General Internal Medicine*, 19:1228-1239.

DOLL, H.A., PETERSEN, S.E.K. & STEWART-BROWN, S.L. 2000. Obesity and physical and emotional well-being: Associations between body mass index, chronic illness and the physical and mental components of the SF-36 Questionnaire. *Obesity Research*, 8(2):160-170.

DUTTA-BERGMAN, M.J. 2009. Primary sources of health information: Comparisons in the domains of health attitudes, health cognitions and health behaviours. *Health Communication*, 16(3):273-288.

ELDER, J., AYALA, G., MEDINA, D.P. & TALAVERA, G. 2009. Health communication in the Latino community: Issues and approaches. *Annual Review of Public Health*, 30:227-251.

ELLERI, D., ALLEN, J.M., HARRIS, J., KUMARESWARAN, K., MODALE, M., LEELARATHNA, L., ACERINI, C.L., WILINSKA, A.H.M.E., JACKSON, N., UMPLEBY, A.M., EVANS, M.L., DUNGERS, D.B. & HOVARKA, R. 2013. Absorption patterns of meals containing complex carbohydrates in Type 1 diabetes. *Diabetologia*, 56(5):1108-1117.

ELLIS, R.J.B., CONNOR, U. & MARSHALL, J. 2014. Development of patient-centric linguistically tailored psychoeducational messages to support nutrition and medication self-management in type 2 diabetes: A feasibility study. *Patient Preference & Adherence*, 8:1399-1408.

EMANUEL, L., DANIS, M., PEARLMAN, R. & SINGER, P. 1995. Advanced care planning as a process: Structuring the discussion in practice. *Journal of the American Geriatrics Society*, 43(4):440-446.

FERGUSON, E. 2013. Personality is of central concern to understanding health: Towards a theoretical model for health psychology. *Health Psychology Review*, 7, Suppl.:S32-S70.

FLICK, U. 2009. *An introduction to qualitative research*. London: Sage.

FLOOD, A. 2010. Understanding phenomenology. *Nurse Researcher*, 17(2):7-15.

FREIMUTH, V.S. & QUINN, S.C. 2004. The contributions of health communication to eliminating health disparities. *American Journal of Public Health*, 94(12):2053-2055.

FRIESE, S. 2014. *Qualitative data analysis with Atlas.ti*. 2nd ed. Gottingen: Sage.

FUNNELL, M.M., BROWN, T.L., CHILDS, B.P., HAAS, L.B., HOSEY, G.M., JENSEN, B., MARYNUIK, M., PEYROT, M., PIETTE, J.D., READER, D., SIMININO, L., WENGER, K. & WEISS, M. 2009. National standards for diabetes self-management education. *Diabetes Care*, 32(1):587-594.

GASKIN, D., THORPE, R., MCGINTY, E., BOWER, K., ROHDE, C., YOUNG, J., LAVEIST, T. & DUBAY, L. 2014. Disparities in diabetes: The nexus of race, poverty and place. *American Journal of Public Health*, 104(1):2147-2155.

GAZMARARIAN, J.A., ZIERNE, D.C. & BARNES, C. 2009. Perception of barriers to self-care management among diabetic patients. *The Diabetic Educator*, 35(5):778-788.

GIBBONS, M., WILSON, R., SAMAL, L., LEHMANN, C., DICKERSIN, K., LEHMANN, H., ABOUMATAR, H., FINKELSTEIN, J.E., SHELTON, S.R. & BASS, E. 2009. Impact of consumer health informatics applications: Evidence report/technology assessment no. 188. *Agency for Healthcare Research & Quality*, 9(10). Retrieved from www.ncbi.nlm.nih.gov/books/NBK32638/ (accessed on 27 January 2015).

GIORGI, A. 1997. The theory, practice and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology*, 28(2):235-260.

GOLDEN, S.D. & EARP, J.L. 2012. Social ecological approaches to individuals and their contexts: Twenty years of health education and behaviour health promotion interventions. *Health Education & Behaviour*, 39(2):364-372.

GREGG, E., LI, Y., WANG, J., BURROWS, N., ALI, M., ROLKA, D., WILLIAMS, D. & GEISS, L. 2014. Changes in diabetes-related complications in the United States, 1990-2010. *The New England Journal of Medicine*, 370:1514-1523.

GRIFFIN, R.J., DUNWOODY, S. & NEUWIRTH, K. 1999. Proposed model of the relationship of risk information seeking and processing to the development of preventive behaviors. *Environmental Research*, 80(2):S230-S245.

GROENEWALD, A.J., VAN WYK, H.J., WALSH, C.M., VAN ZYL, S. & VAN DER MERWE, L.J. 2009. Prevalence of diabetes mellitus in rural southern Free State. *South Africa Family Practitioner*, 51(6):502-505.

GROENEWALD, T. 2004. A phenomenological research design illustrated. *International Journal of Qualitative Methods*, 3(1):1-26.

GUBA, E.G. 1981. Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, 29(2):75-91.

HAAS, L., MARYNIUK, M., BECK, J., FOX, C.E., DUKER, P., EDWARDS, L., KOLB, E.B., MCLAUGHLIN, S., ORZECK, E., PIETTE, J.D., RHINEHART, A.S., ROTHMAN, R., SKLAROFF, S., TOMKY, D. & YOUSSEF, G. 2013. National standards for diabetes self-management education and support. *Diabetes Care*, 36, Suppl. 1:S100-S108.

HALKALA, E., NISKANEN, L., VIINAMAKI, H., PARTANEN, J. & UUSITUPA, M. 1995. Short-term and long-term memory in elderly patients with NIDDM. *Diabetes Care*, 18(5):618-685.

HAMIL, C. & SINCLAIR, H. 2010. Bracketing practical considerations in Husserlian phenomenological research. *Nurse Researcher*, 17(2):16-24.

HARALAMBOS, M. & HOLBORN, M. 2008. *Sociology: Themes and perspectives*. 7th ed. London: Collins.

HARRIS, B., GOUDGE, J., ATAGUBA, J.E., McINTYRE, D., NXUMALO, N., JIKWANA, S. & CHERSICH, M. 2012. Inequities in access to health care in South Africa. *Journal of Public Health Policy*, 32: Suppl. 1:S102-S123.

HARVEY, I. & O'BRIEN, M. 2011. Addressing health disparities through patient education: The development of culturally tailored health education materials at Puentes de Salud. *Journal of Community Nursing*, 28:181-189.

HELITZER, D., HOLLIS, C., COTNER, J. & OESTREICHER, N. 2009. Health literacy demands of written health information materials: An assessment of cervical cancer prevention materials. *Cancer Control*, 16(1):70-78.

HELITZER, D., HOLLIS, C., SANDERS, M. & RAYBAL, S. 2012. Addressing the 'other' health competencies – knowledge, dispositions and oral/aural communication: Development of TALKDOC, an intervention assessment tool. *Journal of Health Communication*, 17:160-175.

HERTOG, H.M.D., VERMEER, S.E., ZANDBERGEN, A.A.M., ACHTERBERG, S., DIPPEL, D.W.J., ALGRA, A., KAPPELLE, L.J. & KOUDSTAAL, P.J. 2015. Safety and feasibility of Metformin in patients with impaired glucose tolerance and a recent TIA or minor ischaemic stroke (LIMIT) trial: A multicentre, randomised, open-label phase II trial. *International Journal of Stroke*, 10(1):105-109.

HILAWE, E.H., YATSUYA, H., KAWAGUCHI, L. & AOYAMA, A. 2013. Differences by sex in the prevalence of diabetes mellitus, impaired fasting glycaemia and impaired glucose tolerance in sub-Saharan Africa: A systematic review and meta-analysis. *Bulletin of the World Health Organization*, 91(9):671-682. Retrieved from www.who.int/bulletin/volumes/91/9/12-113415/en/ (accessed 15 January 2015).

HOCHBERG, J. 1956. Perception: Towards the recovery of a definition. *Psychological Review*, 63(6):400-405.

HORTON, E. 2009. Effects of lifestyle changes to reduce risks of diabetes and associated cardiovascular risks: Results from a large scale efficacy trials. *Obesity*, 17(S3):S43-S48.

HU, F.B., MANSON, J.E., STAMPFER, M.J., COLDITZ, G., LIU, S., SOLOMON, C.G. & WILETT, W.C. 2001. Diet, lifestyle and the risk of type 2 diabetes mellitus in women. *The New England Journal of Medicine*, 345:790-797.

HWEE, J., CAUCH-DUDEK, K., VICTOR, J.C., NG, R. & SHAH, B.R. 2014. Diabetes education through group classes leads to better care and outcomes that individual counselling in adults: A population-based cohort study. *Canadian Journal of Public Health*, 105(3):e192-e197.

INTERNATIONAL DIABETES FEDERATION (IDF). 2012. *Global disease out of control*. Retrieved from www.idf.org (accessed 17 August 2013).

INZUCCHI, S., BERGENSTAL, R., BUSE, J., DIAMANT, M., FERRANNINI, E., NAUCK, M., PETERS, A., TSAPAS, A., WENDER, R. & MATTHEWS, D. 2012. Management of hyperglycaemia in type 2 diabetes: A patient-centred approach. Position statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). *Diabetologia*, 55:1577-1596.

JACOBSSON, L.R., FRIEDRICCHSEN, M., GORONSOON, A. & HALLERT, C. 2012. Impact of an active patient education program on gastrointestinal symptoms in women with celiac disease following a gluten-free diet: A randomised controlled trial. *Gastroenterology Nursing*, 35(3):200-206.

JOLLES, E.P., CLARK, A.M. & BRAAM, B. 2012. Getting the message across: Opportunities and obstacles in effective communication in hypertension care. *Journal of Hypertension*, 30:1500-1510.

KAHLOR, L. 2010. PRISM: A Planned Risk Information Seeking Model. *Health Communication*, 25(4):345-356.

KALRA, S., BALHARA, Y.S. & DAS, A. 2013. The bio-psycho-social model and the American Diabetes Association European Association for the Study of Diabetes position statement on management of hyperglycemia. *Journal of Social Health Diabetes*, 1(2):53-55.

KNECK, A., KLANG, B. & FAGERBERG, I. 2012. Learn to live with diabetes mellitus: Integrating and illness or objectifying a disease. *Journal of Advanced Nursing*, 68(11):2486-2495.

KREUTER, M., STRECHER, V. & GLASSMAN, B. 1999. One size does not fit all: The case of tailoring print materials. *Annals of Behavioural Medicine*, 21(4):276-283.

LEONARD, J., LIBURD, L., VINICOR, F., BRODY, G. & MURRY, V. 1999. Influence of the environmental context on diabetes self-management: A rationale for developing a new research paradigm in diabetes education. *The Diabetes Educator*, 25(5):775-790.

LEUNG, A.Y.M. & CHEUNG, M.K.T. 2014. Relationship among patients' perceived capacity for communication, health literacy and diabetes self-care. *Journal of Health Communication*, 19:161-172.

LEY, S.H., HAMDY, O., MOHAN, V. & HU, F.B. 2014. Prevention and management of type 2 diabetes: Dietary components and nutritional strategies. *The Lancet*, 383(9933):1999-2007.

LINSELY, P., KANE, R. & OWEN, S. 2011. *Nursing for public health: Promotion, principles and practices.* London: Oxford University Press.

LOH, J. 2013. Inquiry into issues of trustworthiness and quality in narrative studies: A perspective. *The Qualitative Report*, 18(65):1-15.

LONGO, D.R., SCHUBERT, S.L., WRIGHT, B.A., LeMASTER, J., WILLIAMS, C.D. & CLORE, J.N. 2010. Health information seeking, receipt and use in diabetes self-management. *Annals of Family Medicine*, 8(4):334-340.

MANSCHOT, A., VAN OOSTROM, S.H., SMIT, H.A., VERSCHUREN, W.M.M. & PICAVET, H.S.J. 2014. Diagnosis of diabetes mellitus or cardiovascular disease and lifestyle changes – the Doetinchem Cohort Study. *Preventive Medicine*, 59:42-46.

MARRIE, R.A., SALTER, A.R., TYRY, T., FOX, R.J. & CUTTER, G.R. 2013. Preferred sources of health information in persons with multiple sclerosis: Degree of trust and information sought. *Journal of Medical Internet Research*, 15(4): e67.

MASH, B., LEVITT, N., STEYN, K., ZWARENSTEIN, M. & ROLLNOICK, S. 2012. Effectiveness of a group diabetes education programme in underserved communities in South Africa: Pragmatic cluster randomised control trail. *BioMed Central Family Practice*, 13(16):1-7.

MASH, B., LEVITT, N., VAN VUUREN, U. & MARTELL, R. 2008. Improving the diabetic annual review in primary care: An appreciative inquiry in the Cape Town district health service. *South Africa Family Practitioner*, 50(5):50-50d.

MAYRING, P. 2000. Qualitative content analysis. *Forum: Qualitative Social Research*, 1(2). Retrieved from www.nbn-resolving.de/urn:nbn:de 0114-fqs0002204(accessed 22 March 2014).

MOJAKI, M., BASU, D., LETSKOKGOHKA, M. & GOVENDER, M. 2011. Referral steps in the district health system are side-stepped. *South African Medical Journal*, 101(2):109.

MUNSTERS, M. & SARIS, W. 2014. Body weight regulation and obesity: Dietary strategies to improve the metabolic profile. *Annual Review of Food Science and Technology*, 5:39-51.

MURPHY, K., CASEY, D., DINNEN, S., LAWTON, J. & BROWN, F. 2012. Participants' perceptions of the factors that influence diabetes self-management following a structure education (DAFNE) programme. *Journal of Clinical Nursing*, 20(9):1282-1292.

MURRAY, E., BURNS, J., SEE-TAI, S., LAI, R. & NAZARETH, I. 2005. Interactive health communication applications for people with chronic disease (review). *Cochrane Database of Systematic Reviews*, 4:1-82.

MVO, Z., DICK, J. & STEYN, K. 1999. Perceptions of overweight African women about acceptable body size of women and children. *Curationis*, 22(2):27-31.

NAGELKERK, J., REICK, K. & MEENGS, L. 2006. Perceived barriers and effective strategies to diabetes self-management. *Journal of Advanced Nursing*, 54(2):151-158.

NAHON-SERFATY, I. 2012. The disruptive consequences of discourse fragmentation in the organisation and delivery of health care: A look into diabetes. *Health Communication*, 27(5):506-516.

NAIK, A., KALLEN, N., WALDER, A. & STREET, R. 2008. Improving hypertension control in diabetes mellitus: The effects of collaborative and proactive health communication. *Circulation*, 117(11):1361-1368.

NELSON, K., McFARLAND, L. & REIBER, G. 2007. Factors influencing disease self-management among veterans with diabetes and poor glycemic controls. *Journal of General Internal Medicine*, 22(4):442-447.

NEUMAN, W. 2009. *Social research methods: Qualitative and quantitative approaches.* Cape Town: Pearson

NORRIS, S.L., ENGELGAU, M.M. & NARAYAN, V. 2001. Effectiveness of self-management training in type 2 diabetes: A systematic review of randomised controlled trials. *Diabetic Care*, 24(3):561-587.

NUTBEAM, D. 2008. The evolving concept of health literacy. *Social Science and Medicine*, 67(12):2072-2078.

O'CONNOR, A., BENNET, C., STACEY, D., BARRY, M., COL, N., EDEN, K., ENTWISTLE, V., FISET, V., HOLMER-ROVNER, M., KHANGURA, S., LIENELLY-THOMAS, H. & ROVNER, D. 2009. Decision making aids for people facing health treatment or screening decisions. *Cochrane Database of Systematic Reviews*, 3 Retrieved from www.onlinelibrary.wiley.com/doi/10.1002/14651858.CD001431.pub4/epdf (accessed on 26 July 2014)

O'REILLY, M. & PARKER, N. 2013. Unsatisfactory saturation: A critical exploration of the notion of saturated sample size in qualitative research. *Qualitative Research*, 13(2):190-197.

ONWUEGBUZIE, A.J. & LEECH, N.L. 2007. Validity and qualitative research: An oxymoron? *Quality and Quantity*, 41:233-249.

OREM, D. 1985. *Nursing: Concepts of practice*. 3rd ed. New York: McGraw-Hill.

PATERSON, B.L. 2001. The shifting perspectives model of chronic illness. *Journal of Nursing Scholarship*, 33(1):21-26.

PECCHIONI, L.L. & SPARKS, L. 2007. Health information sources of individuals with cancers and the family members. *Health Communication*, 12(2):143-151.

PENN, L., DOMBROSKI, S.U., SNIEHOTTA, F. & WHITE, M. 2013. Participants' perspectives on making and maintaining behavioural changes in a lifestyle intervention for type 2 diabetes prevention: A qualitative study using the theory of domain framework. *British Medical Journal*, 3:1-10.

PICKARD, H. 2011. What is personality disorder? *Philosophy, Psychiatry and Psychology*, 18(3):181-184.

PITTLER, M. & ERNST, E. 2004. Dietary supplements for body-weight reduction: A systematic review. *The American Journal of Clinical Nutrition*, 79(4):529-536.

POLIT, D. & BECK, C. 2012. *Nursing research: Generating and assessing evidence for nursing practice*. 9th ed. Philadelphia, PA: Lippincott Williams & Wilkins.

POLIT, D. & HUNGLER, B. 1997. *Essentials of nursing research: Methods, appraisals and utilisation*. 4th ed. Philadelphia, PA: Lippincott.

POLZER, R.L. & MILES, M. 2007. Spirituality in African Americans with diabetes: Self-management through a relationship with God. *Qualitative Health Research*, 17(2):176-188.

POPE, C. & MAYS, N. 2006. *Qualitative research in health care*. London: Blackwell.

PULIA, M. 2011. Simple tips to improve patient satisfaction. Retrived from http://www.emed.wisc.edu/sites/default/files/Pulia_Patient_Satisfaction.pdf. (Accessed 8 August 2014)

RAINS, S. 2007. Perceptions of traditional information sources and use of the World Wide Web to seek health information: Findings from the Health Information National Trends Survey. *Journal of Health Communication: International Perspectives*, 12(7):667-680.

RENSBURG, R & KRIGE, D. 2011. Aspects of health communication. In: K Tomaselli & Chasi, eds. *Development and public health communication.* Cape Town: Pearson Education: 77-100

ROBERTS, C., HEVENER, A. & BARNARD, R. 2013. Metabolic syndrome and insulin resistance: Underlying causes and modification by exercise training. *Comprehensive Physiology*, 3(1):1-58.

ROBERTS, C.K. & BARNARD, R.J. 2005. Effects of exercise and diet on chronic disease. *Journal of Applied Psychology*, 98(1):3-30.

ROHRET, L. & FERGUSON, K. 1990. Effective use of patient education illustrations. *Patient Education and Counselling*, 15(1):73-75.

RUMBOLD, A. & CROWTHER, C. 2002. Women’s experiences of being screened for gestational diabetes mellitus. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 42(2):131-137.

SALDÃNA, J. 2009. *The coding manual for qualitative researchers*. London: Sage.

SAMUEL-HODGE, C., HEADEN, S., SKELLY, A., INGRAM, A., KEYSERLING, T., JACKSON, E., AMMERMAN, A. & ELASY, T. 2000. Influences on day to day self-management of type 2 diabetes among African-American women: Spirituality, the multi-caregiver role and other social context factors. *Diabetes Care*, 23(7):928-933.

SATI (South African Translators' Institute). 2012*. Sworn translation*. www.translators.org.za/sati_cms/index.php?front end_action=display_text_content&content_id=1550 (accessed 12 June 2014).

SAURABH, S., SARKAR, S., SELVARAJ, K., KAR, S., KUMAR, S. & ROY, G. 2014. Effectiveness of foot care education among people with type 2 diabetes in rural Puducherry, India. *Indian Journal of Endocrinology Metabolism*, 18(1):106-110.

SCHLOSSBERG, N.K. 1981. A model for analyzing human adaptation to transition. *The Counselling Psychologist*, 9(2):1-19.

SCHOU, L., HOSTRUP, H., LYNGSO, E., LARSEN, S. & PAULSEN, I. 2012. Validation of a new assessment tool for qualitative research articles. *Journal of Advanced Nursing*, 68(9):2086-2094.

SCHWARTZBERG, J., COVETT, A., VAN GEEST, J. & WOLF, M. 2007. Communication techniques for patients with low health literacy: A survey of physicians, nurses and pharmacists. *American Journal of Health Behaviour*, 31(S1):S96-S104.

SCOTLAND, J. 2012. Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive and critical research paradigms. *English Language Teaching*, 5(9):9-16.

SEGAL, N., GLUCK, O., STERNBACH, D., PLAKHT, Y., SEGAL, A. & BACHNER, Y. 2015. What are the sources of health information among patients attending otolaryngology outpatient clinics in Israel? A questionnaire survey. *British Journal of Medicine and Medical Research*, 5(6):775-779.

SHELDON, K.M. 2011. Integrating behavioral-motive and experiential-requirement perspectives on psychological needs: A two process model. *Psychological Review*, 118(4):552-569.

SHYE, S. 1978. Achievement motive: A faceted definition and structural analysis. *Multivariate Behavioural Research*, 13(3):327-346.

SIBIYA, M.N. 2009. A model for the integration of primary health care services in KwaZulu-Natal, South Africa. Unpublished doctoral thesis. University of KwaZulu-Natal, Durban.

SLOVIC, P. 2001. The risk game. *Journal of Hazardous Materials*, 68(1-3):17-24.

SPEZIALE, H. & CARPENTER, D. 2007. *Qualitative research in nursing*. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins.

STATS SA (Statistics South Africa). 2012. *Census 2011*.www.statssa.gov.za/?page_id=595 (accessed on 7 October 2014)

STRATTON, I., ADLER, A., NEIL, H., MATHEWS, D., MANLEY, S., CULL, C., HADDEN, D., TURNER, R. & HOLMAN, R. 2000. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): Prospective observational study. *The British Medical Journal*, 321:405.

STREET, R.L., MAKOUL, G., ARORA, N.J. & EPSTEIN, R.M. 2009. How does communication heal? Pathways linking clinical-patient communication to health outcomes. *Patient Education and Counselling*, 74(3):295-301.

TESCH, R. 1990. *Qualitative research: Analysis types and software tools*. Bristol, PA: Falmer.

TOMLINSON, J. & WRIGHT, D. 2004. Impact of erectile dysfunctions and its subsequent treatment with sildenafil: Qualitative study. *British Medical Journal*, 328:1-4.

TRUMMER, U., MUELLER, U., NOWAK, P., STIDL, T. & PELIKAN, J. 2006. Does physician-patient communication that aims at empowering patients improve clinical outcome? *Patient Education & Counseling*, 61(2):299-306.

USDHHS (United States Department of Health and Human Services). 1978. *US Department of Health and Human Services*. Retrieved from http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html (accessed 15 June 2015).

VALCHEV, V. 2012. *Personality and culture in South Africa*. Ridderkerk: Ridderprint.

WABE, N.T., ANGAMO, M.T. & HUSSEIN, S. 2011. Medication adherence in diabetes mellitus and self-management practices among type-2 diabetics in Ethiopia. *American Journal of Medical Sciences*, 3(9):418-423.

WAKEFIELD, M.A., LOKEN, B. & HORNICK, R.C. 2010. Use of mass media campaigns to change health behaviours. *The Lancet*, 376(9748):1261-1271.

WANZER, M., BOOTH-BUTTERFIELD, M. & BOOTH-BUTTERFIELD, S. 2005. "If we didn't use humour, we'd cry": Humorous coping communication in health care settings. *Journal of Health Communication: International Perspectives*, 10(2):105-125.

WEN, L., PARCHMAN, M. & SHEPHERD, M. 2004. Family support and diet barriers among older Hispanic adults with adults with type two diabetes. *Family Medicine*, 36(6):423-430.

WEN, L., SHEPHERD, M. & PARCHMAN, M. 2004. Family support, diet and exercise among older Mexican-Americans with type two diabetes. *The Diabetes Educator*, 30(6):980-993.

WERMELING, M., THIELE-MANJALI, U., KOSCHACK, J., LUCIUS-HOENE, G. & HIMMEL, W. 2014. Type 2 diabetes patients' perspectives on lifestyle counselling and weight management in general practice: A qualitative study. *BMC Family Practice*, 15(97): 1-7.

WHITE, K. 1992. Putting the fear back into fear appeals: The Extended Parallel Process Model. *Communication Monographs*, 59(4):329-349.

WILEY, J., WESTBROOK, M., GREENFIELD, J., DAY, R. & BRAITHWAITE, J. 2014. Shared decision-making: The perspectives of young adults with type diabetes mellitus. *Patient Preference and Adherence*, 8, April: 423-435.

WILKINSON, A., WHITEHEAD, L. & RITCHIE, L. 2014. Factors influencing the ability to self-manage diabetes for adults living with type 1 or 2 diabetes. *International Journal of Nursing Studies*, 51:111-122.

WILLIAMS, M.V., BAKER, D.W., PARKER, R.M. & NURSS, J.R. 1998. Relationship of functional health literacy to patients' knowledge of their disease: A study of patients with hypertension and diabetes. *Archives of Internal Medicine*, 158(2):166-172.

WILSON, E.A.H., MAKOUL, G., BOJARSKI, E.A., BAILEY, S.C., WAITE, K.R., RAPP, D.N., BAKER, D.W. & WOLF, M.S. 2012. Comparative analysis of print and multimedia health materials: A review of literature. *Patient Education and Counselling*, 89(1):7-14.

WRIGHT, K.B., SPARK, L. & O'HAIR, H.D. 2013. *Health communication in the 21st century*. 2nd ed. West Sussex: Wiley.

WU, S.V., TUNG, H., LIANG, S., LEE, M. & YU, N. 2014. Difference in perceptions of self-care, health education barriers and educational needs between diabetes patients and nurse. *Contemporary Nurse*, 46(2):187-196.

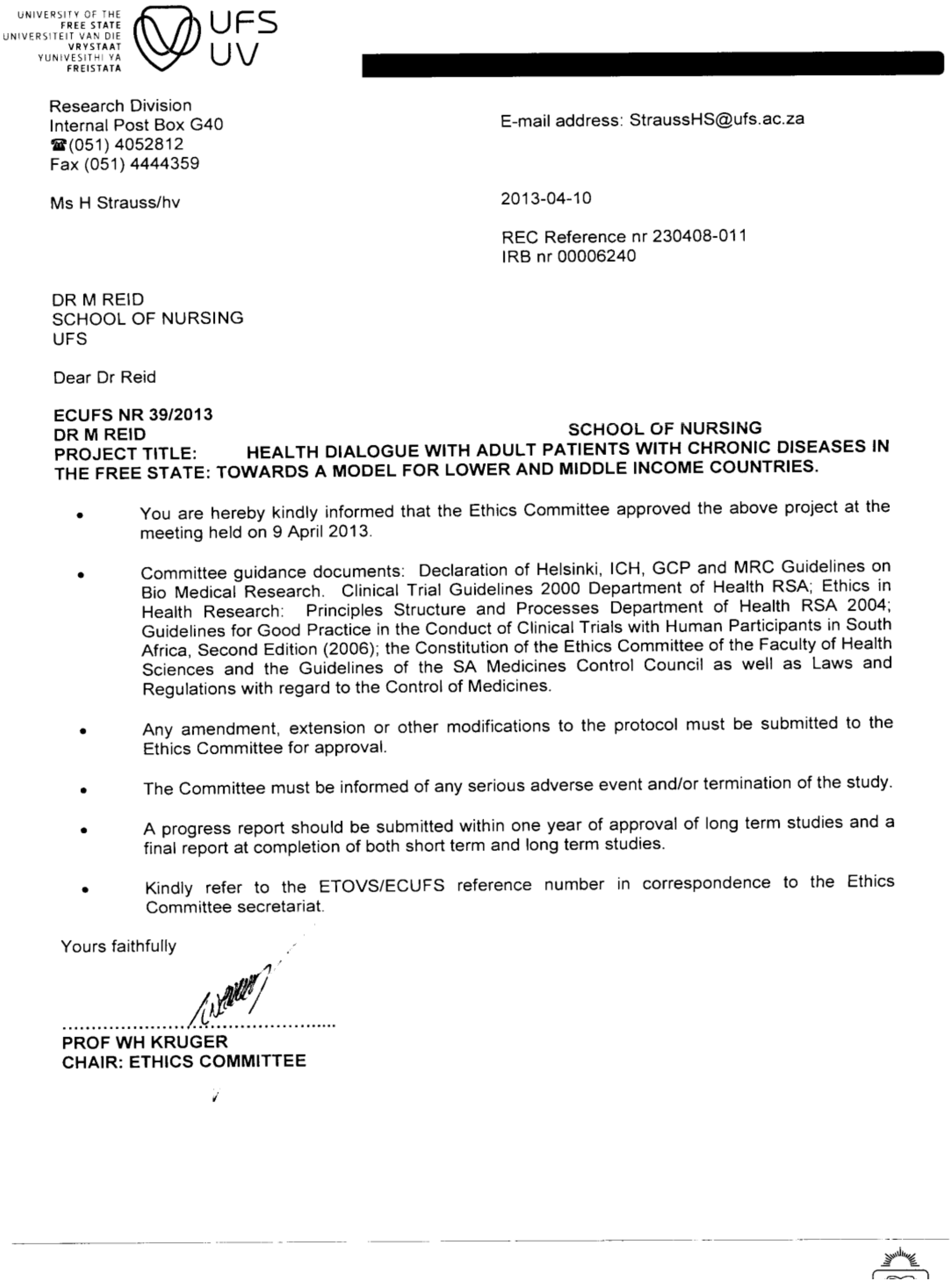
WYNIA, M.K. & OSBORN, C.Y. 2010. Health literacy and communication quality in health care organisations. *Journal of Health Communication*, 15:102-115.

YAMATAKI, H., SUWAZONO, Y., OKUBO, Y., MIYAMOTO, T., DETANI, M., KOROBAYASHI, E. & NOGAWA, K. 2006. Health status of workers in small and medium sized companies as compared to large companies in Japan. *Journal of Occupational Health*, 48(3):166-174.

ZOLNERIK, K.B.H. & DiMATTEO, M.R. 2009. Physician communication and patient adherence to treatment: A meta-analysis. *Medical Care*, 47(8):826-834.

ADDENDUM A

Permission to conduct study from Ethics Committee of the Faculty of Health Sciences -UFS (This study is part of the overarching study whose permission was granted)



UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA
UFS
UV

Research Division
Internal Post Box G40
☎(051) 4052812
Fax (051) 4444359

E-mail address: StraussHS@ufs.ac.za

Ms H Strauss/hv

2013-04-10

REC Reference nr 230408-011
IRB nr 00006240

DR M REID
SCHOOL OF NURSING
UFS

Dear Dr Reid

ECUFS NR 39/2013
DR M REID **SCHOOL OF NURSING**
PROJECT TITLE: HEALTH DIALOGUE WITH ADULT PATIENTS WITH CHRONIC DISEASES IN THE FREE STATE: TOWARDS A MODEL FOR LOWER AND MIDDLE INCOME COUNTRIES.

- You are hereby kindly informed that the Ethics Committee approved the above project at the meeting held on 9 April 2013.
- Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.
- Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.
- The Committee must be informed of any serious adverse event and/or termination of the study.
- A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.
- Kindly refer to the ETOVS/ECUFS reference number in correspondence to the Ethics Committee secretariat.

Yours faithfully

....
PROF WH KRUGER
CHAIR: ETHICS COMMITTEE

ADDENDUM B

Permission to Conduct Study from Free State Provincial Department of Health (this study is part of an overarching study whose permission was granted)

health
Department of
Health
FREE STATE PROVINCE

25 April 2013

Doctor M Reid
Principal Investigator
University of Free State
BLOEMFONTEIN
9300

Dear Dr Reid

SUBJECT: APPROVAL TO CONDUCT RESEARCH ON HEALTH DIALOGUE WITH ADULT PATIENTS WITH CHRONIC DISEASES IN THE FRE STATE TOWARDS A MODEL FOR LOWER AND MIDDLE INCOME COUNTRIES

The above mentioned correspondence bears reference.

Permission is hereby granted for the above – mentioned research on the following conditions:

- Participation should be by informed consent.
- Ascertain that your data collection exercise neither interferes with the day to day running of the health facilities nor the performance of duties by the respondents.
- Confidentiality of information will be ensured and no names will be used.
- The results of the study should be communicated to Head: Health in writing.

Trust you find the above in order.

Kind Regards,

Dr TD MOJI
ACTING HEAD: HEALTH
Date: 21/4/2013

ADDENDUM C

Information brochure

TITLE OF RESEARCH: Perceptions of patients regarding diabetes related health communication strategies in the Free State, South Africa

Good day

I, Champion Nyoni, am doing research on the diabetes related health communications.

Research is just the process to learn the answer to a question. In this study we want to learn about the views of adults with type 2 diabetes on how diabetes related health information is conveyed to them.

Invitation to participate: We are asking/inviting you to participate in a research study

What is involved in the study – You will be asked questions by the researcher regarding yourself, what you know, how you feel about how diabetes related health information is conveyed to you. The interview may be audiotaped. The interview will last about 30 minutes. This study will be done at clinics in the Free State.

Risks of being involved in the study: Some of the questions might be upsetting to you, but it should last for only a short time. You will not be punished if you cannot answer a question.

Benefits of being in the study are that your voice will be heard. Your opinions will be put together with others and this information will lead to better future care for patients with diabetes.

The subject will be given pertinent information on the study while involved in the project and after the results are available.

Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled; the subject may discontinue participation at any time without penalty or loss of benefits to which the subject is otherwise entitled. No costs will be payable by you as participant and you will also not be paid for your participation in the research.

Confidentiality: Efforts will be made to keep personal information confidential. Results will only be presented in collective format. Even audiotaped conversations will not be linked to a specific person.

Absolute confidentiality cannot be guaranteed. Personal information may be disclosed if required by law.

Contact details of researcher – for further information

Champion Nyoni (0026657446814)

Contact details of REC Secretariat and Chair – for reporting of complaints/problems.

(051) 4052812

P.O. Box/Posbus 339
Bloemfontein 9300
South Africa/Suid-Afrika
T: +27(0)51 401 9111

ADDENDUM D

Consent form

You have been asked to participate in a research study titled: **Perceptions of patients regarding diabetes related health communication strategies in the Free State, South Africa**

You have been informed about the study by ……………………………….

You may contact Champion at 0026657446814 any time if you have questions about the research or if you are injured as a result of the research. You may contact the Secretariat of the Ethics Committee of the Faculty of Health Sciences, UFS at telephone number (051) 4052812 if you have questions about your rights as a research subject.

Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to terminate participation. If you agree to participate, you will be given a signed copy of this document as well as the participant information sheet, which is a written summary of the research.

The research study, including the above information has been verbally described to me. I understand what my involvement in the study means and I voluntarily agree to participate.

Signature of Participant Date

Signature of Translator/ Witness Date

(Where applicable)

ADDENDUM E

Interview questions

- Tell me what you know about diabetes mellitus
- How was this knowledge conveyed to you? And by whom?

- Which of this information that you have received on diabetes was helpful, and why

- Do you think you received information that was not helpful? Which one and why

- Tell me why you think the information you received motivated you to change/ did not motivate you to change

ADDENDUM F

Livescribe pen used in data collection


pause
stop
jump
bookmark
0%
jump to position
100%
playback speed