



**PERCEPTIONS OF EMPLOYEES, ON THE SELF-  
MANAGEMENT OF THEIR DIABETES MELLITUS, WORKING  
IN SELECTED INDUSTRIES IN CAPE TOWN**

by

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## **DECLARATION**

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## **ABSTRACT**

Globally there is an increase of 314 million adults with diabetes in the last 34 years. Diabetes Mellitus (DM) is a serious threat to the health of the population. It is therefore imperative to investigate various methods that could address or improve the outcomes of the disease. Regardless of what led to diabetes, it is important to focus on what is currently possible when addressing the disease or state of health of a patient. Part of the role of the Occupational Health Nurse Practitioner is to advise these patients on self-management of their disease, to effect behaviours that are associated with positive management outcomes. The purpose of this study was to explore and describe the perceptions and practices of clients, working in selected industries in Cape Town, on their self-management of DM.

A qualitative, exploratory, descriptive and contextual design was followed. Semi-structured interviews were conducted with 17 participants. An interview schedule, field notes and digital recorder were used to conduct the interviews in a private room. Interviews lasting no more than 40 minutes. Non-probability sampling by means of purposive sampling was used. Participants were drawn from the client registers in the occupational health clinics in various industries. Participants signed an informed written consent form after the information sheet was discussed with them. They could withdraw at any stage.

Open coding was conducted and four (4) themes, nine (9) categories and two (2) sub-categories emerged from the data collected. Study findings gave insight into the manner in which study participants perceived their behaviour/s and expressed feelings about their self-management practices. Various emotions were experienced by participants relating to the disease and lifestyle adaptations required for self-management thereof. Perceptions of the support provided to the client by their families and the occupational health nurse practitioner were favourable.

Regular meetings with the client and the practitioner should provide individualized health education and chronic disease monitoring. Inclusion of Allied health care workers in the team providing information to the client is recommended. Health education sessions to all employees will aid in de-stigmatising the disease. Including measures to address the specific needs of the employee with diabetes within the workplace to better facilitate effective self-management practices.

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## **DEDICATION**

For my gems, Jade and Amber. You add the sparkle and I dedicate this work to you in the hope that you will touch the stars through the exploration of life.

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## DEFINITION OF TERMS

<b>Term</b>	<b>Definition/Explanation</b>
<b>Adult</b>	A mature, fully developed person who is legally responsible for their actions.
<b>Client</b>	A person who visits an occupational health clinic for management of the disease, diabetes mellitus.
<b>Diabetes Mellitus</b>	A metabolic disorder characterised by hyper-glycaemia resulting from a lack of insulin secretion, insulin action, or both (ADA, 2010:62).
<b>Diet</b>	The type of intake of food and drink for nutritional purposes adopted by the participants of the study.
<b>Employee</b>	An individual who is employed to work for an organisation or employed to do a particular work.
<b>Industries</b>	Occupational-related settings in the northern suburbs of Cape Town.
<b>Perception</b>	A belief or opinion, often held by many people and based on how things appear.
<b>Practice</b>	The way in which an individual responds to information or a situation.
<b>Self-management</b>	Being able to manage the symptoms of disease, either alone or in partnership with healthcare professionals or other people with the same health condition.
<b>Support</b>	To provide approval and encouragement to someone or something.

## LIST OF ABBREVIATIONS

ADA	American Diabetes Association
CPUT	Cape Peninsula University of Technology
DHP	District Health Plan
DM	Diabetes mellitus
DR	Diabetic Retinopathy
DSME	Diabetes Self-Management Education
GDM	Gestational diabetes mellitus
HBM	Health Belief Model
IDF	International Diabetes Federation
NCD	Non-communicable disease
OHNP	Occupational Health Nurse Practitioner
SASOHN	South African Society for Occupational Health Nursing Practitioners
SEMDSA	Society for Endocrinology, Metabolism and Diabetes South Africa
WHO	World Health Organisation

# CHAPTER 1

## ORIENTATION TO THE STUDY

### 1.1 Introduction

The World Health Organisation (WHO) estimates that approximately 422 million adults were living with diabetes mellitus (DM) in 2014 compared to 108 million in 1980 (WHO, 2016:6). This indicates an increase of 314 million adults in 34 years. Yaghoubi (2019:1); Jahangir, Bhisht, Muheem and Imam (2017:54) and the WHO (2016:31) define DM as being a “serious threat to population health”. It is therefore imperative to investigate all methods that could address or improve the outcomes of the disease.

The incidence of DM has risen more in low- to middle-income countries than in high-income countries (WHO, 2018:n.p.). It is necessary that this ever-rising global burden is given due attention at every possible level. The WHO suggests that whilst Type 1 diabetes cannot be prevented at present, both Types 1 and 2 diabetes can be optimally managed through regular physical exercise, following a healthy diet, not smoking, medication (if indicated) and having regular blood pressure and lipid checks (WHO, 2016:6-7).

The ever-increasing prevalence of DM is attributed to an increasing incidence of obesity, the general population growth, ageing populations and urbanisation. A lack of physical activity and a more sedentary lifestyle are cited as causing an increase in the prevalence of Type 2 diabetes (Mohebi, Parham, Sharifirad, Gharlipour, Mohammadbeigi & Rajati, 2018:1).

Lifestyle change may be the most difficult part of a treatment regime to keep DM under control (Pietrangelo, 2019:n.p.). A high percentage of clients with DM may exhibit selective adaptation to medical and dietary lifestyle changes suggested. Clients’ self-management of their diabetes is essential and it is therefore recommended that dietary education includes the promotion of a positive attitude towards the disease (Jaworski, Panczyk, Cedro & Kucharska, 2018:163). Diabetes is defined as a non-communicable disease (NCD), which means that it is usually lengthy and its progression is slow (WHO, 2018). Of the NCDs, DM in particular requires a notable degree of self-

management. The emotive reaction of the client to the initial diagnosis of DM can create psychological barriers to receiving information and result in subsequent adverse effects on self-management of the disease (Powers, Bardsley, Cypress, Duker, Funnell, Fischl, Maryniuk, Siminerio & Vivian, 2015:1375). A lack of self-efficacy was found among patients with DM, when managing their stress and adjusting to taking medications or changing food intake to reach ideal blood glucose levels (Adu, Malabu, Malau-Aduli & Malau-Aduli, 2019:1).

Information is available on the proposed management of the disease and the advocated lifestyle changes, but fewer resources can be found relating to the experiences of the individuals who made the changes and received the social support that clients with DM need (Mohebi, Parham, Sharifirad, Gharlipour, Mohammadbeigi & Rajati, 2018:1; Ahlin & Billhult, 2012:42). Mol (2008:91), a Socrates Professor of Political Philosophy at the University of Twente in the Netherlands and author of *The Logic of Care*, is well-known for her viewpoint regarding the management of DM. She advises that, regardless of what led to an existing condition, it is important to focus on what is currently possible when addressing one's disease or state of health. Furthermore, to realise that maintaining optimal management requires an ability to acknowledge that some days will be better than others and that this requires the development of endurance within the individual with a chronic disease such as diabetes (Martin, 2018:n.p.).

Management principles are defined as the planning, organising, directing and controlling functions (Minnaar & Jooste, 2018:94). These principles may be applied to lifestyle interventions relating to the client's diabetes, with specific regard to nutrition, exercise and stress management. Effective education by a healthcare provider is essential for a client's optimal self-management of diabetes. Individual needs should be considered with the intention of providing information that is then tailored for that specific client. Methods of teaching should be suited to the individual's learning style and technology could be incorporated to enhance learning (Dehkordi & Abdoli, 2017:111).

Small but many changes in varying areas of lifestyle can bring about significant results and have positive outcomes. It is important that the health practitioner should assess

a client's capacity to commit to and effect these changes in the daily self-management of their diabetes (Forouhi, Misra, Mohan, Taylor & Yancy, 2018:1; Golay, Brock, Gabriel, Konrad, Lalic, Laville, Mingrone, Petrie, Phan, Pietilainen & Anderwald, 2013:322). According to the American Diabetes Association (ADA), effective self-management is the ability to adhere to a changed pattern of behaviour that abides by a treatment schedule (ADA, 2018:538; Ardena, Paz-Pacheco, Jimeno, Lantion-Ang, Paterno & Juban, 2010:165). Ardena et al. further extrapolate that this adherence is greatly influenced by the client's "present knowledge, attitudes and practices".

The promotion of client's understanding and acceptance of the disease and the necessity for self-management are imperative in empowering the client. This in turn will allow them to make informed decisions about their self-care health practices (Jaworski et al., 2018:171; Quinn, Royak-Schaler, Lender, Steinle, Gadalla & Zahn, 2011:729). Therefore, it is necessary to provide adequate health education on, for example, a healthy diet, to effect behaviours that are associated with positive DM management outcomes (Barreira, Novo, Vaz & Pereira, 2017:5).

Part of the role of the Occupational Health Nurse Practitioner (OHNP) is to advise DM patients on self-management and diet. Client education is integral to their compliance and sustaining of optimal health (WHO, 2016:51 World Health Organization, OECD, and The World Bank, 2018:12). In the workplace, the OHNP is usually the first person to be contacted when health education or advice regarding a problem is sought (Acutt, 2016a:226). The position of the OHNP is a unique and specific one and should be clearly defined for optimal delivery of service provision. This includes, amongst other duties, the delivery of quality care and standards of practice in caring for the employees; hereafter referred to as clients, within the industry of employment (Acutt, 2016b:188).

## **1.2 Background**

### **1.2.1 Introduction**

The International Diabetes Federation (IDF) considers diabetes to be one of the largest global health challenges of this century. Identified as one of the top ten causes of death across the world, diabetes, together with cardiovascular disease, cancer and



respiratory disease, is responsible for over 80% of mortality within the category of NCDs (IDF, 2017:42). In 2015, an estimated 30.3 million people had diabetes according to statistics gathered in the United States of America (USA) by the Centre for Disease Control (CDC) (CDC, 2017:2). Currently it is estimated that 244 million people has diabetes, mostly in lower and middle class income countries (WHO, 2019:n.p.).

Nationally, Statistics South Africa ranked diabetes as the second most common cause of death in the country in statistics reported on from 2016. DM accounted for 5.5 million deaths in 2016 in South Africa (Umraw, 2018:n.p). The Society for Endocrinology, Metabolism and Diabetes South Africa (SEMDSA) suggests that this is an underestimation of the burden of disease, as South Africa does not currently have a national diabetes registry (SEMDSA, 2017:10). It is believed that around six (6) percent of the South African population (about 3.5 million people) suffer from diabetes, while even more people has pre-diabetes (5 million) that is undiagnosed (Makgabutlane, 2018:n.p.).

Organisations are in agreement that, without a collaborative effort on an international level, these daunting statistics relating to diabetes will only increase. The need to address the challenges arising from this NCD resulted in the generation of reports by the WHO and the IDF that provide up-to-date information on global statistics and current medication regimes and raise awareness about the importance of physical exercise and a healthy diet. It is essential to promote the development of infrastructures that support these principles going forward (IDF, 2017:6,42; WHO, 2016:4,7-9).

### **1.2.2 Legislation**

A study by the ADA on the economic costs of diabetes in the USA in 2017 notes that one in four healthcare dollars was spent on costs relating to this disease (ADA, 2018:917). The global cost of the disease is affecting governments adversely, especially in low- to middle-income countries, and in order to address it, affordable and cost-appropriate interventions as per best practice principles must be adopted (IDF, 2017:7). A study in the USA established that the proposed application of state laws

relating to DM reduced the increase of DM and the complications associated with the disease (Fitzner, Nadal-Fernandez, Heckinger & Morrone, 2016:5).

In an effort to address diabetes as well as rising levels of obesity in the country, the National Treasury in South Africa has introduced a sugar tax. However, according to an online article by Jeffery (2016:n.p.), the benefits of this measure are questionable. This article alludes to international research where findings reveal that sugar tax is not an effective measure for combatting obesity. Jeffery furthermore expresses his concern that the introduction of sugar tax will detract from other, more effective means available and that the tax will be imposed on sugar-sweetened beverages like soft drinks but not on other sugar-infused drinks and foodstuffs, thereby only addressing a small aspect of a complex problem. In South Africa, there are clinical guidelines on the management of DM (CDE Clinical Guidelines, 2018:2-7), addressing the use of antibody testing, treatment of ketoacidosis, the perioperative management of DM, and various protocols on treatment and management of the disease.

### **1.2.3 Structures**

Persons with DM work in various industries, including those identified as the context for this study, which comprise retail, manufacturing and packaging. The industries visited for data collection included On-The-Dot, Consol, Makro and Cibapac. Studies indicate an increased economic burden in relation to diabetes, not only on the government revenue but also within private industries (Thiyagarajan & John, 2017:45; ADA, 2017:928). Although economic challenges are acknowledged, a study conducted in Finland found that employees diagnosed with DM appeared to generally cope well at the workplace (Hakkarainen, Sund, Arffman, Koski, Hanninen, Moilanen & Rasanen, 2017:9).

### **1.2.4 Forums**

Internationally, the ADA has developed Standards of Medical Care in Diabetes to guide and make recommendations for those caring for patients or clients with diabetes. These standards are updated annually by members of the ADA's professional practice committee and a multidisciplinary expert committee (ADA, 2018:538). The American Heart Association developed seven goals for achieving and maintaining cardiovascular

health in relation to Type 2 diabetes (Fretts, Howard, McKnight, Duncan, Beresford, Mete, Zhang & Siscovick, 2014:2240). The seven goals were provided as an indication of how lifestyle adaptations could lower the risk for developing diabetes. These goals related to “physical activity, healthy diet score, BMI, smoking, total cholesterol, blood pressure and fasting serum glucose” (Fretts et al., 2014:2243).

In South Africa, the National Standards for Diabetes Self-Management Education and Support (2017) identify 10 standards for timeous, quality services that are based on evidence gathered. These standards are intended to provide guidance to those responsible for education in diabetes self-management ( Beck, Greenwood, Blanton, Bollinger, Butcher, Condon, Cypress, Faulkner, Fischl, Francis, & Kolb, 2018:1409). Diabetes Self-Management Education (DSME) needs to move away from the traditional and align with technological advances in order to be effective (Dehkordi & Abdoli, 2017:116).

### **1.3 Literature review**

Schulman-Green, Jaser, Park and Whittemore (2016:1484) identify four common factors that influence the self-management of adults living with a NCD. These factors are defined under the headings of *Support, Knowledge, Beliefs and Relationship with provider*. Insight gained through exploration of these factors allows for recommendations for assistance given to clients to achieve positive health outcomes in the self-management of chronic illnesses (Schulman-Green et al., 2016:1485).

The engagement with the client in the promotion of independent management of their disease is critical to improved clinical outcomes. According to Graffigna, Barello, Bonanomi and Menichetti (2016:6), successful interactions between the practitioner and the client also increases the client’s confidence in his/her ability to manage his/her disease. Furthermore, they claim that the practitioner’s ability to interact effectively with the patient improves the patient’s adherence to diet and exercise practices and general sense of personal fulfilment. In the self-management of DM it is essential that the client’s existing perceptions are determined by the practitioner prior to the delivery of health education in order to adequately address any possible barriers to change (Forouhi et al., 2018:6; Ranjan, Kumari & Chakrawarty, 2015:1; Al-Maskari, El-Sadig,

Al-Kaabi, Afandi, Nagelkerke & Yeatts, 2013:1). The clients' knowledge, attitudes and practices directly influence compliance to the recommended changes and their ability to make these positive adaptations. It is imperative that the client's behaviour and practices are assessed in order to better understand current self-management activities (Burke, 2019:n.p.). This would enable the practitioner to use this knowledge to effectively guide management and intervention strategies with resultant positive lifestyle change/s being incorporated by the client (Rahaman, Majdzadeh, Naieni & Raza, 2017:5; Ardena et al., 2010:165-166).

The underpinning of the diabetic client's path to self-management is one of education as well as initial and continued support. The provision of this support comes from various sectors and would depend on the individual needs of the client (Powers et al., 2015:1380). These building blocks to compliance may be adversely affected by constraints such as financial resources, a lack of dietary knowledge, families who are not supportive of the dietary needs of the diabetic member and the recommended foods not being readily available (Jaworski et al., 2018:167; Muchiri, Gericke & Rheeder, 2012:1).

A healthy diet includes an increased intake of grains, fruit and vegetables. Further recommended for inclusion in the diet are polyunsaturated fatty acids, less saturated fats and carbohydrates (Barreira et al., 2017:5). Some dietary approaches suggest reducing the intake of fruits and grains, for example the low carbohydrate diets. However, the inclusion thereof is generally thought to be the preferred option due to the phytochemical and fibre content of fruit. There is agreement regarding the foods to avoid or reduce in the diet, namely processed red meats and refined grains and sugars (Forouhi et al., 2018:2). The IDF makes the following general recommendations for a healthy diet: daily intake of fresh fruit and vegetables; the inclusion of nuts in the diet; lean white meat, chicken or seafood; wholegrain bread, rice or pasta rather than white bread, rice or pasta; unsaturated rather than saturated fats; and the avoidance of sugary drinks (IDF, 2017:23). The ADA (2018:539) states that there is a need for the development of a tailored dietary plan for the individual diagnosed with diabetes. Consideration should be given to the nutritional value of the food consumed as well as the portion sizes, not only to improve health but also to address body weight goals,

glycaemic, blood pressure and lipid goals and to either delay or prevent possible complications of diabetes (ADA, 2018:540-541). Several studies place emphasis on the need to give due consideration to the individual's personal and cultural preferences as well as economic means (ADA, 2018:541; Forouhi et al., 2018:2 Barreira et al., 2017:18).

The possibility of the existence of symptoms of depression as an associated risk in clients with diabetes is linked to increased mortality. Combinations of interventions not limited to medication are thus recommended in self-management practices to optimally address the needs of clients with DM (Naicker, Johnson, Skogen, Manuel, Overland, Sivertsen & Colman, 2017:1; Gonzalez, Peyrot, McCarl, Collins, Serpa, Mimiaga & Safren, 2008:2402). To address the psychological needs of the client with DM, it must be accepted and therefore anticipated that the diagnosis of DM may exacerbate an existing mental health condition. Clients with DM are at a heightened risk for developing depression, anxiety and eating disorders (Naicker et al., 2017:4; Pearce, Pereira & Davis, 2013:582). Care providers are challenged to provide the appropriate measure of assistance to achieve optimal health in their diabetic clients (Nash, Skoufalous & Harris, 2018:22; Heisler et al., 2002:243).

Chronic disease management is challenging due to varying social circumstances and access to care. Furthermore, it is noted that healthcare providers often have inadequate knowledge and training to address chronic disease management (Nash et al., 2018:22; Maimela, Van Geertruyden, Alberts, Modjadji, Meulemans, Fraeyman & Bastiaens, 2015:1).

Studies show that dynamic and comprehensive education of a client improves the self-management of their DM (Habte, Kebede, Fenta & Boon, 2017:1; Tol, Baghbanian, Mohebbi, Shojaeizadeh, Azam, Shahmirzadi & Asfia, 2013:3). The ever-increasing incidence of Type 2 diabetes provides an ongoing challenge to the optimal management of the NCD; however, it was determined that Nurse Practitioner interventions were found to be effective in the management of DM (Richardson, Derouin, Vorderstrasse, Hipkins & Thompson, 2014:139).

The role of the healthcare professional in assisting clients from different backgrounds and literacy levels to manage his or her DM effectively through following a healthy diet is essential. Health literacy, defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” is a potential barrier to the self-management of DM. Consideration of the existence of the exchange of information in a language that is not the client’s own and the possibility of cultural differences must also be addressed in order to improve the client’s health outcomes (Kim & Lee, 2016:324,331).

Follow-up of clients through face-to-face as well as telephonic and electronic visits have resulted in notable positive changes in Haemoglobin A1c (HbA1c) levels and effective self-care scores (Dobson, Whittaker, Jiang, Maddison, Shepherd, McNamara, Cutfield, Khanolkar & Murphy, 2018:6; Richardson et al., 2014:138). An effective relationship between the client and the practitioner is therefore essential, especially in the coordination of care of NCDs (ADA, 2018:545; Ibrahim, Attia, Sallam, Fetohy & El-Sewi, 2010:122). The habitual focus of healthcare providers on long-term, instructional goals as opposed to lifestyle factors and short-term goals was observed. An approach that incorporates the development of “tailored short-term goals”, involving both the family and the community, is recommended (Oerum, 2018:n.p; Carbone, Rosal, Torres, Goins & Bermudez, 2006:209). Whilst the delivery of care aims to improve overall health, it cannot be guaranteed due to the variable nature of the disease (Mol, 2008:31). Ongoing practitioner and client engagement is therefore essential. Furthermore, the combined commitment of practitioner and client to incorporating small but preferably many “small changes” is necessary (Golay et al., 2013:329).

The client diagnosed with DM can be beset by varying feelings, such as feelings of bereavement, including a loss of self-identity and a loss associated with the need to change their lifestyle (Hairston, 2019:n.p.). DM requires ongoing, consistent interventions and is focused on continued management of the disease, not control of the disease, leading to feelings of frustration and even distress (ADA, 2018:545; Pearce et al., 2013:578-579). These feelings arise because the client essentially has no choice: if they want to survive the disease, they have to make adaptations and

changes to their lives. Furthermore, they may experience the need for changes as a loss of freedom and they may need to first assimilate this proposed changed lifestyle psychologically before finding which practice works optimally for them (Mol, 2008:46-47).

A study indicated that whilst the majority of those with DM have a negative attitude towards having the disease, positivity was expressed towards the management principles and importance of self-care. It was also found that having a family member with a history of DM increased the client's knowledge about the disease and consequent management thereof. However, the accuracy and applicability to the individual of the information obtained remains a concern when personal perceptions and experiences are shared (Reyes, Tripp-Reimer, Parker, Muller & Laroche, 2017:10; Al-Maskari et al., 2013:6-7).

A clear identification of the burden of diabetes, as well as strategies to identify and address the intervention and treatment thereof across sub-Saharan Africa, is needed urgently (Chiwanga, Njelekela, Diamond, Bajunirwe, Guwatudde, Nankya-Mutyoba, Kalyesubula, Adebamowo, Ajayi, Reid, Volmink, Lawrence, Adami, Holmes & Dalal, 2016:1). Previous studies in the Western Cape have identified a poor quality of care and associated outcomes for clients with DM (Masupe, Ndayi, Tsolekile, Delobelle & Puoane, 2018:42; Mash, Levitt, Steyn, Zwarenstein & Rollnick, 2012:1). The healthcare workers have furthermore been identified as failing to fully address the healthcare information needs of these clients (Mash et al., 2012:5). Dekhordi and Abdoli (2017:116) recommend that outdated methods of practitioner and client interactions be replaced by individualised education incorporating the use of technology. The practitioner may not only be lacking in terms of the information provided but also in communication skills. These factors contribute to poorer practice and thus less than optimal management of the NCD, diabetes (Dekhordi & Abdoli, 2017:116; Ibrahim et al., 2010:127).

#### **1.4 Theoretical framework**

The theories underpinning the behaviours of adult clients in relation to their perceptions and practices regarding self-management of diabetes were explored. For the purposes

of this study *an eclectic approach* was followed in departing from assumptions of three theories.

Firstly, the theory of Haber, Krainovich-Miller, McMahon and Price-Hoskins (1997:692-693) assumes:

- The presence of a physical illness in an individual will have a marked effect on that person, their families and friends and even, in the case of DM, on society in general.
- A chronic illness may be described as progressive when the physical condition of the individual affected is not static but changing.
- The coping mechanisms of the individual when facing many changes and losses will be challenged. It is important to bear in mind that the onset of any illness, whether acute or chronic, can end in death.
- The family will need to adapt to the changes in a beloved family member and possibly changes to their own lifestyle.

Secondly, the Health Belief Model (HBM) was developed in the early 50s as an attempt to define the reasons for an individual's incorporation of preventative lifestyle changes or lack to do so (Becker & Janz, 1985:42). It also applied to whether or not an individual would be compliant to treatment and management regimes. The HBM assumes that:

- Considering the complexity of lifestyle adaptations, which require enforcement for the duration of the individual's life, it is very challenging for clients with DM to be compliant.
- It is important to pay attention to building a positive self-esteem when lifestyle changes are promoted (Ewles & Simmet, 1995:183).
- The exploration of the individual's perceptions and practices of self-management of diabetes will allow for critical self-evaluation, enabling them to challenge and gain insight into these practices (Ewles & Simmet, 1995:183).



Lastly, the Social Learning Theory of Bandura and Walters (1963) alludes to:

- The development of “acquired behaviour”, that is achieved through a process based on the principles of learning.
- Learning that occurs through observational, direct, indirect and imitation learning.

In reviewing the above theories, the complexity of the management of this chronic disease, DM, became evident. To equip the client with the necessary information and coping skills required to, firstly, reach a plateau of relatively good health, and secondly, sustain this state, ongoing management, intervention and support is needed.

### **1.5 Statement of the problem**

The response or action taken by the client in reaction to information provided on the treatment and management of their disease, DM, is influenced by the experiences, perceptions and practices of the individual (Jarab, Mukkatash, Al-Azayzih & Khmour, 2018:304; Ardena, Paz-Pacheco, Jimeno, Lantion-Ang, Paterno & Juban, 2010:161).

It is important to explore the experiences and perceptions of the clients in order to address any negative impressions or experiences of each individual prior to planning and facilitating the delivery of any health education. In many cases, clients with DM are not aware of the implications of DM and the importance of compliance with the meal and dietary plan. Practice and literature have indicated that the negative perceptions of clients with DM can influence compliance or lack of adherence to lifestyle changes relating to diet, self-care and/or medication. The relevance of assessing the effects of DM on the individual’s overall quality of life is increasingly being acknowledged, and these impacts should be addressed as part of a primary outcome of disease management (Eren, Erdi & Sahin, 2008:102).

Occupational health nurses as members of the South African Society of Occupational Health Nursing Practitioners (SASOHN) established in 1980 meet regularly, and during one such meeting, the discussion focused on the need to pay attention to healthcare delivery within industries, specifically regarding the management of diabetes. Mention was made of clients' claims of not receiving support from their families and the community to manage their DM. Future research should focus on identifying the types of support needed as well as the support available to promote positive self-management practices most relevant to the individual (Miller & DiMatteo, 2013:425). The perceptions and practices of employees with DM working in industries should be explored in order to assist occupational health nurses to support them in the effective management of their disease.

Clear guidance for healthcare providers should be developed to assist them in delivering more effective and all-encompassing guidelines regarding self-management of DM. This also includes the involvement of the community and society as a whole in supporting individuals with DM. In order to increasingly involve the DM client in the self-care and overall disease management, the psychological and social impacts of DM should be addressed in addition to medication management (Graffigna et al., 2016:5).

## **1.6 Purpose of the study**

The purpose of this study was to explore and describe the perceptions and practices of clients, working in selected industries in Cape Town, on their self-management of DM.

## **1.7 Research objectives**

The research objectives related to this study were to:

- Explore and describe perceptions of adult diabetic clients on their self-management practices.
- Describe the support systems needed by adult diabetic clients within the family, the occupational health clinic and the community.

## 1.8 Design

A qualitative, exploratory, descriptive and contextual design was followed to explore the perceptions and practices of clients with DM.

A paradigm is a worldview, a general perspective on the complexities of the real world” (Polit & Beck, 2017:9). The authors purport that the majority of nursing research falls within two paradigms: the positivist paradigm or the naturalistic paradigm. The positivist paradigm adopts a structured and orderly approach characterised by objectivity and the inherent belief that “the world is assumed not to be merely a creation of the human mind”. The researcher decided to conduct her research within the naturalistic paradigm to identify the “reality” as perceived through the interaction between the researcher and the study participants.

There can be many variants of the reality or truth as it has been related between the researcher and the study participant. The paradigms have influence on the application of the evidence collected. The gathering of information in an analytical manner is most often aligned with the positivist paradigm and the quantitative research method. The naturalistic paradigm is mostly linked to qualitative research methods, although this is not always the case (Polit & Beck, 2017:10-11).

Research broadly defines two areas of thinking, specifically the deductive and inductive approaches. Deductive reasoning works in the direction of testing a specific hypothesis, whereas inductive reasoning, such as in qualitative research, commences from the point of specific opinions to wider generalisations (Nieuwenhuis, 2016:55).

Exploratory studies are defined as not being appropriate for generalisation to larger populations but rather add to the knowledge within the specific study (Gray, 2017:278). The exploratory study should also allow for the identification of key issues and should enhance insight into the group of people and/or phenomenon under discussion (Nieuwenhuis, 2016:55).

A descriptive study focuses on the gathering of information that describes an event or events and seeks to organise, tabulate and describe the data collected. The interpretation of the data focuses less on analysing the information collected than on

providing a description of the actual experience as provided by the participant (Nieuwenhuis, 2016:54).

A contextual study is adopted and described when the research takes place within a specific organisation or setting (Holloway & Galvin, 2017:4; Plowright, 2012:10). In this study, the organisational context relates to the occupational health clinics at private businesses. Plowright (2012:10) states that this contextual approach may, however, prohibit the researcher's ability to pose their research question/s.

## **1.9 Population and sample**

### **1.9.1 Population**

The Northern, Tygerberg and Western sub-districts were identified by the researcher for recruitment of participants. The population group was comprised of clients who were identified as diabetic (male and female) on the patient registers in the occupational health clinics in the northern suburbs of Cape Town. The OHNPs monitor these employees, referred to as clients, through regular appointments during which time discussion and blood glucose monitoring may take place. The research sites chosen were occupational health clinics operating in the Northern suburbs of Cape Town. Permission to use the locations for the study was sought (see Appendix A).

### **1.9.2 Sampling and sample**

Non-probability sampling by means of purposive sampling was used to draw participants from all the identified clients that met the inclusion criteria.

Of the non-probability sampling methods used in qualitative research, a purposive sampling strategy was used to draw respondents from amongst all diabetic clients identified as the population. Although purposive sampling may be regarded as limiting when conducting research "because it is difficult to evaluate the precision of the researcher's judgement" (Grove, 2017:345), it was deemed to be appropriate for this study. The motivations for the selection of the sampling method were specific in that the study participants had to be adults with DM currently employed at the sites chosen and registered on the clinic databases. These potential study participants would have been recorded for regular follow up by the OHNP at the clinic/site on diagnosis of their

DM and should have been receiving support in some manner from the OHNP. All the registered professional nurses in practice at the occupational health clinics visited were in possession of an additional qualification in occupational health nursing.

The sampling type deemed to be the most appropriate was heterogeneous sampling due to the potentially diverse criteria of the participants in terms of sex, age, economic status and occupation. The criteria assigned to determine participant inclusion is structured in an effort to gather data that produces “rich information” (Downing, 2018:338).

Saturation of data guided the number of participants to be included in the study and was determined once no new information was produced, despite new study participants being included. Saturation of the data must be considered with regards to the scope of the study, the nature of the topic, the quality of the data and the study design. With consideration of the information available regarding the determinants of saturation, it was anticipated that the participant number for the diabetic clients to be interviewed would be between 10 (ten) and 20. The total number of participants were therefore finally determined once saturation was reached, as it had been described in the literature (Grove, 2017:352).

## **1.10 Data collection**

### **1.10.1 Preparation of the field**

An e-mail was sent to the OHNP at each site to request a visit to the clinic to interview clients as per the selection criteria. A private room for interviewing these clients was requested.

The OHNP was asked to contact eligible employees, as per the selection criteria, and to request their participation in the study.

### **1.10.2 Pilot of the interview schedule**

A pilot interview was conducted at the initial site. The semi-structured questionnaire appeared to be appropriate for obtaining the participant’s perceptions of their self-management practices.

The researcher realised that a question had been included in the demographic section relating to whether or not the participant was currently employed. As the interviews were being conducted in a workplace setting, this was removed as it was deemed that employment was a foregone conclusion.

Upon replaying the recording, the researcher became aware of the potential to “lead” the participant in their responses and made every effort in the subsequent individual interviews to avoid doing so.

### **1.10.3 Data gathering**

Individual interviews were conducted with the clients to gather data. Prior to commencing the individual interviews, the researcher ensured that the equipment to be used (a digital recorder) was in working order and that she had a spare set of batteries for use should the need arise. The researcher also made use of her personal cellular telephone to record the interviews to ensure that a back-up recording was available.

The researcher attempted to familiarise herself with the proposed semi-structured interview questions in order to ensure a conversational interview. It is recommended that the researcher familiarise him/herself as much as possible with the study participants, also referred to as the clients, and the interview material to allow for appropriate interaction between the researcher and the participant. This includes the use of good listening skills, eye contact, verbal or physical acknowledgements of the participants’ input and showing interest in what is said (Holloway & Galvin, 2017:104; Northcutt & McCoy, 2004:204). The clients were informed of the process of the data collection (see Appendix B).

In an effort to maintain consistency in the information provided, a guide was developed which was followed in briefing the clients before beginning the interviews (see Appendix B). The document or guideline followed also served to advise the clients that confidentiality would be maintained with regards to their identity and the contents of the interviews.

Prior to commencing the interviews, the researcher obtained written consent from the occupational health clinic's clients to conduct the interviews and to record the content thereof (see Appendix C). The researcher then facilitated the interviews with the clients.

In this manner of data collection, the researcher was required to interpret the data as it was presented verbally by the participant in order to appropriately direct the interview (Sutherland, 2017:54). When interviewing individual participants, the researcher is afforded some control over the way in which the questions are posed and the flow of the questions. In addition to this, individual interviewing sessions also allows for both open and closed questions to be asked and gives the researcher the opportunity to elaborate on questions that are not understood (Holloway & Galvin, 2017:104; Plowright, 2012:83-84).

The purpose of an interview is to gather as much information as necessary to better understand the way in which the participant/s make sense of their reality relating to the subject matter. Since this study is concerned with exploring clients' perceptions on and practices in the self-management of DM, and since diabetes is a multi-dimensional disease, it was decided to make use of a semi-structured format of questions to conduct the interviews (Nieuwenhuis, 2016:93).

The questions for the interviews were developed by the researcher after reviewing literature regarding questionnaires (Nordisk, 2006; The Australian diabetes, obesity and lifestyle study, 2016). During the development of the interview questions, it was important to bear in mind that the focus of the interview should not be on the setting but on the participants. Furthermore, a design should be selected to encompass both the researcher or interviewer and the participants so as to facilitate a mutually beneficial interaction. According to the flow of the interview, it may be necessary to insert additional prompts or probing questions in order to elicit the desired outcome (Bertram & Christiansen, 2017:80). Semi-structured open-ended questions were posed in-line with the objectives of the study. The headings of the sections were: demographics, health beliefs/attitudes, practice (relating to self-management) and support systems within the clinic, family and community (see Appendix D).

Written consent (see Appendix C) to record the interviews was sought from the clients (Gray et al., 2017:179). A digital recording of the interview allowed for a more detailed account of the discussion (Isaac, 2017:n.p.; Smith, Harre & Van Langenhoven, 1995:17). Should the client have been opposed to the digital recording or if, for some reason, it was not possible, detailed process notes would have been taken during the interview (Holstein & Gubrium, 1995:78). This was not necessary as all clients agreed to the recording of the interviews. It is further suggested by Holstein and Gubrium (1995:78) that the details of the field notes taken should be reviewed and additions made if necessary at the earliest opportunity following the interview. The average duration of the interviews was approximately 30 minutes in length. A total of 17 interviews were conducted with clients with DM during visits to four different sites.

### **1.11 Data analysis**

Open-coding was followed. The verbatim transcriptions of the semi-structured interviews were analysed by the researcher with the assistance of her supervisor. The questions formed a framework of themes, and the data around the questions were systematically work through, after which categories emerged.

### **1.12 Trustworthiness**

Validity may be broadly defined as criteria that ensure that the data obtained is consistent, credible and trustworthy (Brink, Van der Walt & Van Rensburg, 2018:151). Reliability relates to the consistency, stability and ability of the data to be replicated successfully after a period of time. Reliability further refers to the ability of the researcher to collect and record information accurately (Brink et al., 2018:155-157). According to Brink et al. (2018:157), the terms reliability and validity are more commonly referred to as “trustworthiness” in qualitative research. Trustworthiness is further described in the following four terms: credibility, dependability, confirmability and transferability (Lincoln & Guba, 1985, in Polit & Beck, 2016:492). A fifth criterion was developed by Lincoln and Guba (1985), in Polit and Beck (2016:492) in response to ongoing criticism and their own “evolving conceptualisations”, namely authenticity.

The consideration of trustworthiness is necessary from the collection of the data to the compilation of the results (Elo, Kariainen, Kanste, Polkki, Utriainen & Kyngas, 2014:1).



### **1.13 Ethical considerations**

This research protocol was approved by the Health and Wellness Sciences Research Ethics Committee of Cape Peninsula University of Technology (Appendix E). The protection of information must be ensured (Brink et al., 2018:37; Fairchild, Gable, Gostin, Bayer, Sweeney & Janssen, 2007:7).

The ethical guidelines as stipulated in the Helsinki declaration and adopted in 1964 and most recently amended in October 2013, were adhered to throughout the course of this study (Gray et al., 2017:159; WMA, n.d.). To ensure successful interaction between the researcher and the client, a relationship of trust must be established (Hattingh, Dreyer & Roos, 2006:177). The signing of the consent form is a declaration by the researcher that confidentiality will be maintained and may contribute positively towards establishing trust. The following ethical principles were considered when interacting with the client: autonomy, beneficence, non-maleficence, fairness and justice and confidentiality (Hattingh et al., 2006:177).

### **1.14 Summary**

In this chapter an introduction on the importance of the study was outlined, with a background on the occurrences of DM globally and in South Africa. A specific problem in the context of occupational healthcare settings was described, followed by the research questions. These questions linked closely to the research objectives that addressed the purpose of the study. A short literature review was provided to highlight previous research conducted on the subject matter. It was evident from the literature review that although much research had been conducted on exploring the perceptions and practices of clients with DM, not many of these studies have been conducted in an occupational health clinic setting. A theoretical departure followed with underlying assumptions made during the study. The design, method, data gathering and analysis were briefly addressed. This was followed with highlighting the key aspects in trustworthiness and describing the ethical principles followed in the study.

Chapter 2 will provide a more in-depth and comprehensive literature review of all aspects related to diabetes and the self-management thereof.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter will present the literature reviewed on the perceptions and practices of self-management of the chronic disease, DM, as experienced by adult clients working in industries in Cape Town. The review of the literature aims to provide the reader with background on the study.

Prior to commencing the study and during the course of the study, the researcher conducted several online searches on the Cape Peninsula University of Technology's (CPUT) library databases as well as other data sources to determine how the proposed study could align with the obtainable and current literature. The literature review allows for the comparison of previous literature with the study undertaken (Bui, 2014:120). The literature sourced sought to augment or dispute the findings of the current study.

#### **2.2 Diabetes mellitus**

According to the definition by the American Diabetes Association (ADA) (ADA, 2010:62), DM is characterised by hyperglycaemia, resulting from a lack of insulin secretion, insulin action, or both. It is a group of metabolic diseases, the long-term effects of which may include damage to and/or dysfunction or failure of one or several organs. The specific organs affected are the eyes, kidneys, nerves, heart and blood vessels.

The pathogenic processes involved in the development of this disease include autoimmune destruction of the beta cells of the pancreas, resulting in insulin deficiency, and resistance to or deficiency of insulin action. Symptoms may include polyuria (frequent urination), polydipsia (increased thirst), weight loss and blurred vision. The majority of clients with DM fall into two broad categories, Type 1 DM and Type 2 DM. The treatment includes changes in diet, oral medications, and in some cases, daily injections of insulin (ADA, 2010:62).

Type 1 is a form of DM that results from autoimmune destruction of insulin-producing beta cells of the pancreas. The subsequent lack of insulin leads to increased blood and urine glucose. The classical symptoms are polyuria, polydipsia, polyphagia (increased hunger) and eventually, with prolonged untreated advancement of the disease, possible weight loss (Cooke & Plotnick, 2008:374-375).

Type 2 DM may be attributed to those clients with insulin resistance and relative insulin deficiency. It may be considered a milder form of diabetes because of its gradual development and because it can usually be controlled with diet and oral medication. Age, obesity and a lack of exercise or physical activity are factors which increase the risk of developing Type 2 DM (ADA, 2010:64). The sometimes-slow development of Type 2 DM and the absence of the acute metabolic disturbance evident in Type 1 DM can make the true time of onset difficult to establish (Forouhia & Wareham, 2006:57).

In addition to the more commonly encountered Types 1 and 2 DM, is Type 3, found in the tropics (Bell & Hockaday, 1996:1448). Bell and Hockaday also list diabetes as occurring secondarily to other diseases; specifically, pancreatitis, haemochromatosis, Cushing's syndrome, acromegaly, glucagonoma and pheochromocytoma.

The development of gestational diabetes mellitus (GDM) is relatively common during pregnancy and is characterised by glucose intolerance of any degree. This may occur with the onset of pregnancy or with first recognition thereof during the pregnancy (International Association of Diabetes and Pregnancy Study Groups, 2010:676). Adverse outcomes may place the mother and child at risk, thus a follow-up of mother and child after birth is recommended by the International Association of Diabetes and Pregnancy Study Groups (2010:680). A recent study focusing on GDM in Africa notes that the diagnosis, complexity and management thereof require additional research (Macaulay, Dunger & Norris, 2014:9). The need for additional studies is further emphasised in light of the growing burden placed on the health sector/s by the increasing incidence of obesity and type 2 DM (Macaulay et al., 2014:10).

### **2.3 Complications of diabetes mellitus**

According to Lagani, Koumakis, Chiarugi, Lakasing and Tsamardinos (2007:412), the most common complications of DM in the short term are hyperglycaemia and

hypoglycaemia. Long-term complications most commonly developed are cardiovascular disease, coronary heart disease and diabetic retinopathy (Lagani et al., 2007:412). Complications in many parts of the body can occur with all types of DM. These impediments can lead or contribute to increased early mortality. An additional implication is the financial loss or losses (as a result of management of the disease) to the client and their immediate families and to the broader health services. The economic impact may also extend to the workplace in terms of absences of affected workers and subsequent loss of production (WHO, 2016:6).

Complications of DM are multiple and occur on both microvascular and macrovascular levels (Beers, Porter, Jones, Kaplan & Berkwits, 2006:1277-1279). Microvascular disease may present as retinopathy, nephropathy and neuropathy. Skin healing may be impaired and minor skin wounds may develop into deep ulcers. Macrovascular presentations include angina pectoris, myocardial infarction, transient ischaemic attacks, cerebral vascular accident and peripheral arterial disease. Other complications include complications of the foot or feet. Furthermore, clients with DM also have an increased risk of developing rheumatologic as well as ophthalmologic diseases unrelated to retinopathy.

The association between diabetes and depression and dementia is an additional concern (Beers et al., 2006:1279), since depression might lead to decreased self-care and the application of the management principles of diabetes (Adu, Malabu, Malau-Aduli & Malau-Aduli, 2019:1; Gonzalez et al., 2008:2398). Should depression coexist with DM, heightened awareness of the possibility of co-morbidity as well as treating the depression, could improve the overall quality of life of the client (Trikkalinou, Papazafiropoulou & Melidonis, 2017:121; Eren et al., 2008:102).

A reduction in complications relating to diabetes in a study by Gregg, Li, Wang, Burrow, Ali, Rolka, Williams and Geiss (2014:1514) is promising. Possible developments in the provision of clinical care, enhanced health services and heightened awareness and promotion of health were all reasons provided for these findings. However, constraints related to definitive data for review were identified and these constraints, coupled with the increasing global incidence of DM, indicate that resolution of the complications of the disease remains distant (Gregg et al., 2014:1521-1522).

## 2.4 Global presentation of diabetes mellitus

DM has become one of the largest health challenges that the world is faced with and, according to Meeto, McGovern and Safadi (2007:1002), is no longer simply problematic for individual countries but of great concern globally. Forouhi and Wareham (2006:59) ranked the highest estimated cases of DM per top ten countries in the year 2000 in the following order: India, China, USA, Indonesia, Japan, Pakistan, Russian Federation, Brazil, Italy and Bangladesh. The need for an international collaboration to address this NCD and the associated complications cannot be over-emphasised (Birkinshaw, Nel & Walsh, 2018:40; Meeto et al., 2007:1002). The role of the nurse in equipping clients with DM with the appropriate knowledge to expertly manage their condition is highlighted as an important aspect of this process (Hailu, Hjortdahl & Moen, 2018:7; Meeto et al., 2007:1002).

A focus is placed on the rise in Type 2 DM in sub-Saharan Africa (Masupe, Ndayi, Tsolekile, Delobelle & Puoane, 2018:40; Mbanya, Motala, Sobngwi, Assah & Enoru, 2010:2254). It is suggested that socioeconomic factors, urbanisation and lifestyle changes could be reasons for this rapid escalation in the prevalence of the disease (Hailu et al., 2018:2; Mbanya et al., 2010:2254). Of concern though, is that epidemiological data for Type 1 DM in sub-Saharan Africa are scarce (Mbanya et al., 2010:2254-2255).

Due to the increasing prevalence of individuals diagnosed with DM, it is imperative that global research on this topic includes statistical analysis and recording of the number of people living with diabetes (IDF, 2017:13; Wild, Roglic, Green, Sicree & King, 2004:1047). This will allow for planning of ways in which to adequately address the challenges and reduce the incidence of DM. It will also allow for a reasonable allocation of resources in order to achieve this. This ever-increasing prevalence of DM are attributed to the following factors: a lack of physical activity and an increasing incidence of obesity, the general population growth, ageing populations and urbanisation (Masupe et al., 2018:41; Wild et al. 2004:1047).

## **2.5 Demographics of the northern suburbs of Cape Town**

The District Health Plan of 2007 – 2008 (DHP) identifies eight sub-districts in the Cape Town Metro district (DHP, n.d.:9). The DHP aims to integrate goals and allow for greater cohesion between the region and district's goals and quality of care. The population of the districts is growing, largely due to urbanisation. Socioeconomic conditions across the districts are decidedly uneven and differences are ever-increasing (DHP, n.d.:11). NCDs, also known as Chronic Diseases of Lifestyle, of which DM is one are listed as one of the top five causes of a rising burden of disease in the districts. Once again it is noted that this burden of disease is not evenly distributed, resulting in greater pressure on the existing services in the identified areas. The complexity of patient or client management is an additional challenge (DHP, n.d.:11).

The sub-districts identified as the Northern, Tygerberg and Western sub-district areas were identified by the researcher for recruitment of participants.

## **2.6 Perceptions on diabetes mellitus**

DM is a dangerous disease affecting both the body and the mind. The causative factors include traditional and cultural factors associated with food and beliefs (Masupe et al., 2018:49). To improve understanding of the perceived origins of the disease – in an effort to address the perceptions of what is required for self-management practices – collaboration between health practitioners, clients and allied health workers is required (Maimela et al., 2015:10). It is important that, from the time of diagnosis, the health practitioner/s and the client focus on the same aspects of care in order to align educational needs with the education provided for self-management (Pikkemaat, Bengtsson Bostrom & Strandberg, 2019:10).

Living with a chronic illness that requires clients to make daily decisions regarding diet, exercise and medication to ensure a glycaemic balance may result in distress. Clients' mood should be assessed for symptoms of anxiety and depression during the initial encounter with a health practitioner as well as during subsequent encounters and when there are life changes or complications develop (ADA, 2018:20). Concerns about diabetes may increase distress, and it is therefore of value to provide emotional and

psychological support for the client with DM (Chittem, Chawak, Gomath Sridharan & Sahay, 2019:967).

To address the psychological needs of the client with DM, it must be accepted and therefore anticipated that diagnosis of the disease may exacerbate an existing mental health condition (Pearce, Pereira & Davis, 2013:582).

The provision of a safe environment within which to express the emotions related to the NCD, diabetes, may help in alleviating feelings of anxiety or distress. Of note is that differences in the emotional response to the diagnosis of DM were observed between men and women in a study by Mathew, Gucciardi, De Melo and Barata (2012:4). Women were more forthcoming in sharing or disclosing their diagnosis, and this trait assisted them in the management of their disease by means of support from those around them. The male participants reported that they did not want to disclose their diagnosis in fear of feeling shame or discomfort. Furthermore, they were more likely to experience concerns related to their own demise on diagnosis of DM (Mathew et al., 2012:4). Men also felt that they had a lower level of control over their disease, diabetes (Mesa, 2018:4).

Non-compliance to the recommended changes in lifestyle may result in more hospitalisations and even mortality, but many clients still do not adhere to the suggested lifestyle adaptations and treatments prescribed (Marinho, Moram, Rodrigues, Leite, Salles & Cardoso, 2018:6; Broadbent, Donkin & Stroh, 2011:338). According to Broadbent et al. (2011:339), clients ranked medication above diet and exercise in terms of their importance in the management of their disease. Compliance to medication prescribed was further perceived by the client to be associated with fewer adverse consequences of the disease, better control and a decrease in associated distress.

The findings of a study by Al-Maskari et al. (2013:6) were that a percentage of the study participants did not exercise (27.7%) or take their medication (9.8%) regularly. Higher cost of healthy foods and longing for customary foods were identified as barriers to following a recommended diet. Regular exercise was not done due to pain associated with the recommended physical activity and/or a schedule that was too



busy due to work or personal matters (Mikhael, Hassali, Hussain & Shawky, 2019:15). Educating clients about the disease, DM, improved exercise and compliance to diet and medication and also reduced stress related to the disease (Mikhael et al., 2019:16; Ibrahim, Attia, Sallam, Fetohy & El-Sewi, 2010:127). In support of this finding, it was found that an attitude may be challenged or changed through the provision of additional information and education relating to the subject matter. This is relevant to both attitudes and beliefs but is also dependent on the personal significance of one or the other to the individual (Coulson, Goldstein & Ntuli, 1998:59).

Mol (2008:53) suggests that the purpose of the collection of information is not to guide the lived experience but rather to find optimal, manageable ways of living within the situation that the affected individual finds themselves in. This is congruent with a study by Bukman, Teuscher, Feskens, Van Baak, Meershoek and Renes (2014:8) which found that participants were more likely to make changes once they had received adverse physical responses from their bodies to certain behaviours that were not in keeping with suggested adaptations. Participants of this and other studies requested that health education and promotion are adapted to their individual needs (Zheng, Liu, Liu & Deng, 2019:5-6; Dehkordi & Abdoli, 2017:116; Bukman et al., 2014:8).

The need to make daily changes was found to be challenging to women interviewed and caused conflict within themselves. Reasons for not effecting change were varied but presented often, reinforcing a possible desire to return to the way things were prior to the onset of the disease (Duarte, Da Silva Moreira, Almeida, de Souza Teles, Andrade, Reingold & Moreira Jr, 2018:7; Ahlin & Billhult, 2012:41,45-46). These studies recommended that recognition of the constraints that changes may present to the women will assist in motivating them to make the lifestyle adaptations such as development and application of an exercise routine and healthier dietary choices (Duarte et al., 2018:7; Ahlin & Billhult, 2012:41, 45-46).

When individuals no longer see themselves as passive bystanders to the disease but rather as individuals affected by a manageable disease, it could significantly impact the self-identity of the person with diabetes. This positive attitude towards the disease could give the individual with diabetes feelings of hope regarding the self-management practices required to achieve optimal health. This approach could furthermore allow

the individual to feel a sense of control over the disease, rather than the disease being in control, when they actively participate in making the changes required for effective management of their condition (Liu, Brown, Folias, Younge, Guzman, Close & Wood, 2017:33; Pearce et al., 2013:579).

The relationship between DM and depression on the one hand and poor treatment outcomes on the other, is a known one. Clients with DM are predisposed to developing depression, a combination of the diagnoses, can result in a poorer quality of life and increased risks for hyperglycaemia, complications, functional capabilities and mortality (Alajmani, Alkaabi, Alhosani, Folad, Abdouli, Carrick & Abdulrahman, 2019:1; Gonzalez et al., 2008:2398; Katon, Fan, Unutzer, Taylor, Pincus & Schoenbaum, 2008:1571). Despite the known association between depression and DM, it has not been ascertained whether the risk of depression is attributed directly to the diabetes.

It was, however, observed that the perceived threat of necessary adaptations and possible sense of loss associated with the diagnosis of DM and the subsequent changes to the client's lifestyle are causal to the increased risk of developing depression (Khan, Lutale & Moledina, 2019:4; Chen, Chan, Chen, Ko & Li, 2012:376). An association between depression and non-compliance to DM self-care was noted. The relationship was determined to be dependent on the type of care being measured (Alajmani et al., 2019:6-7; Gonzalez et al., 2008:2401).

## **2.7 Dietary practices**

Further investigation into the effects of Western-style fast food is needed. The global contribution of Western-style fast food to the epidemic of type 2 DM and cardiovascular disease in particular should be researched (McMorrow, Ludbrook, Macdiarmid & Olajide, 2016:336; Odegaard et al., 2012:187).

The obesity epidemic and increased prevalence in metabolic syndrome are partially due to nutritional changes from a diet of plant-based foods to one that is high in animal fat, sugar and processed foods and low in fibre. The increased prevalence relating to obesity is also attributed, in part, to a more sedentary lifestyle (Mozaffarian, Angell, Lang & Rivera, 2018:1; Kimokoti & Millen, 2011:1137). Findings of a study by Silver, Kramer, De Almeida, Steemburgo, Gross and Azevedo (2013:800) advocate increased

intake, for those with type 2 DM, of dietary fibre in order to lower the HbA1c and fasting plasma glucose levels.

Research supports vegetarian, Mediterranean and dietary approaches to stop hypertension nutritional approaches, also incorporating pulses and nuts, for those with DM. In summation, it was apparent that no one practice was optimal and that personalised diets were necessary. Furthermore, a diet should be adapted according to the individual “values, preferences, abilities and treatment goals of the patient” (Forouhi et al., 2018:2; Sievenpiper & Dworatzek, 2013:56). Low carbohydrate diets recommend the reduction of fruits, whole grains and legumes due to high sugar and starch content, but healthcare providers continue to include fruit in their recommendations (Forouhi et al., 2018:2).

Optimal nutritional education would include the development of a unique eating plan for each individual, taking into account their current eating habits, cultural and traditional norms and economic means (Evert, Dennison, Gardner, Garvey, Lau, MacLeod, Mitri, Pereira, Rawlings, Robinson, Saslow, Uelman, Urbanski & Yancy Jr., 2019:731).

Despite controversy, there is some evidentiary support for the positive effects of a diet that restricts carbohydrates for those with insulin resistance, metabolic syndrome or pre-diabetes states. The low carbohydrate diet has the additional benefit of weight reduction (Bolla, Caretto, Laurenzi, Scavini & Piemonti, 2019:8; Liebman, 2014:748). Although the benefits of a low carbohydrate high fat diet are promising, there is also evidence of less advantageous effects. Caution should therefore be exercised when recommending this dietary lifestyle due to the limited data available in support thereof (Brouns, 2018:1301).

When developing dietary guidelines or providing dietary information, it should be noted that until an individual can be effectively matched to a specific diet, adaptability should be exercised or recommended. The degree of restriction of carbohydrates should be made according to the source and dietary value thereof as the glycaemic index of each source will differ (Hu & Bazzano, 2014:339).

Consideration should be given to the intake of dietary sugar in view of the increasing burden of obesity and Type 2 DM. Changes at government level through suggestions of increased availability of subsidised fresh fruit and vegetables at affordable prices in all communities, better health choices in schools and the inclusion of guidelines for the consumption of sugar and sugar-infused drinks in the dietary guidelines are recommended (Mozaffarian et al., 2018:5; Bray & Popkin, 2014:955). A reduction in the intake of sugar was found to lessen the risk of a shift from impaired glucose regulation to Type 2 diabetes (Khalangot, Koutun, Gurianov, Pysarenko & Kravchenko, 2019:6).

Meal preparation according to the diabetic diet was identified as a barrier to self-management, since certain dishes have to be eliminated or a family has to resort to eating separate dishes. It was observed that over time this would often become too difficult to sustain, causing the healthier diet options to be discontinued. This accentuates the part played by the family in the individual with diabetes's eating habits in that they are able to assist the promotion of a healthy lifestyle with preparation of the appropriate meals as well as to remind the individual of what food types they should be consuming (Mikhael et al., 2019:6; Park & Wenzel, 2013:1404).

Additional barriers to healthy dietary practices were related to individuals missing their personal food choices and the higher costs, as perceived, of these recommended foods (Mikhael et al., 2019:15). A study conducted in the USA found foodstuffs constituting a healthier diet approach to be costlier than those deemed to be less healthy. Although this may be a reason for a lack of engagement with healthier eating choices in lower socioeconomic groups, other factors, such as the unavailability of products as well as specific cultural dietary influences, may also be involved (Rao, Afshin, Singh & Mozaffarian, 2013:9). This resonates with a further study that also reports that a lack of readily available, good quality products locally and a lack of the means to travel to areas where these products were available, negatively effects dietary choices (Breland, Leventhal, McAndrew, Horowitz & Gross, 2013:2896).

Economic constraints can play a dual role in the life of the person with DM, as this person is focused on working and may not have the time or the resources to choose and cook healthier food options. Despite knowing that healthier options are

appropriate, more readily available foodstuffs are purchased (Adu et al., 2019:15). Masupe et al. (2018:52) recommend that healthier diet options for diabetics should be marketed by promoting the benefits beyond glycaemic control.

The relevance and value of continued education and the support the individual with diabetes receives from family, health professionals, fellow DM-diagnosed persons and the community should not be underestimated (Powers et al., 2015:1375-1376; Mathew et al., 2012:9). The support from fellow persons diagnosed with DM, such as through shared experiences and social interaction, can serve as encouragement and produce feelings of self-empowerment (Dwarswaard, Bakker, Van Staa & Boeije, 2016:202). Clients with diabetes said that the temptation to indulge in dishes served in social situations (but not recommended for them) was a barrier to self-management (Reyes, Tripp-Reimer, Parker, Muller & Laroche, 2017:4).

As DM management should continue within a social setting, it is important that awareness is raised in the community to both reduce the stigma of diabetes and to cater for those with diabetes. Effective education of society as a whole would afford the opportunity for the community to play a role in the promotion of optimal wellness of those with diabetes (Liu et al., 2017:32).

## **2.8 Self-management of diabetes mellitus**

The majority of individuals living with diabetes (an estimated 79%) are from low- to middle-income countries. It is further expected that increases in the number of individuals diagnosed with diabetes will be from areas that experience an economy that is transitioning from low- to middle-income status (IDF, 2017:43). Socioeconomic status in low-income groups specifically is acknowledged as being contributory to an increased prevalence of DM (IDF, 2017:43; Rabi, Edwards, Southern, Svenson, Sargious, Norton, Larsen & Ghali, 2006:n.p.).

In South Africa, poorer communities present with decreased educational opportunities and subsequently an individual less informed about health, which may result in poorer outcomes of self-care practices due to limited knowledge (Maimela, 2015:9; Kagee & Van der Merwe, 2006:708). Rabi et al. (2006:n.p.) further note that DM may be up to twice as prevalent in low-income communities in comparison with more affluent

communities. The lack of knowledge and self-care and failure of primary care providers to address these issues are listed as reasons for high percentages of uncontrolled diabetes in the Cape Town Metropole (Mash, Levitt, Steyn, Zwarenstein & Rollnick, 2012:4-5).

Participants within a low socioeconomic status group were more concerned about costs, particularly with reference to choices of food, than the participants in the high socioeconomic status group. It seemed that these participants were more likely to be motivated to change when experiencing negative health effects to diet and not in an effort to be proactive or preventative (Worku, Abebe & Wassie, 2015:5; Bukman et al., 2014:8).

Several studies reveal that although some knowledge about the disease was evident, clients still found it difficult to optimally address all aspects of self-management. It was also observed that the client's knowledge regarding care was according to their own understanding about the disease and not an actual test of their factual knowledge. The inference is that, in improving the relationship between the client and the healthcare worker/s and the quality of the exchange of information between them, the client's understanding of self-care will improve. This in turn will influence clients' ability to manage their disease and ultimately present them with healthier outcomes (Gagliardino, Chantelot, Domenger, Ramachandran, Kaddaha, Mbanya, Shestakova & Chan, 2019:34; Mikhael et al., 2019:15-16; Jarab et al., 2018:304; Marinho et al., 2018:7).

Of relevance to the exchanges between the healthcare worker/s and the client is the client's literacy level. An association between poor literacy levels or "health literacy" and difficulty in adapting to self-management recommendations, particularly to dietary adaptations, was found (Salameh, Salem, Abdallah, Batran & Naerat, 2019:6,11; Vandenbosch, Van den Broucke, Schinckus, Schwarz, Doyle, Pelikan, Muller, Levin-Zamir, Schillinger, Chang & Terkildsen-Maindal, 2018:349).

A collective means of countering this finding, adopted by nurses for a study in Ethiopia, was to adapt education on self-management within a local context, by making use of illustrations and sharing practices (Hailu et al., 2018:7). Clients with low health literacy

responded better to interaction with their healthcare provider than to multimedia interventions, but attention should be given to all forms of interphase. The client's confidence to administer effective self-care should also be boosted (Kim & Lee, 2016:331).

Attention should be given to time constraints in the meetings between client and healthcare workers. Time limitations may contribute to the healthcare worker/s providing the client with long-term generalised goals regarding their diet, exercise and self-care. Clients would be better equipped when provided with short-term goals that are specific to their needs (Dekhordi & Abdoli, 2017:115-116; Schulman-Green, Jaser, Park & Whitemore, 2015:1482). Another important issue to address is the discrepancy between the healthcare worker/s and the client's perception of the "normality" of daily living with DM. After presenting the client with the information about the management of their disease, healthcare workers seem convinced that a "normal" life can be lived. This is not the perception of the client, since significant changes to their lifestyle need to be made that will require extreme effort and planning. These findings reinforce the benefit/s of individualised health education when providing information to clients about their chronic disease. The need to address these discrepancies within the healthcare services is emphasised (Adu et al., 2019:16; Masupe et al., 2018:49).

Health education tailored to the individual needs of the client could improve health outcomes. Diet was found to be the most difficult variant in adaptive lifestyle changes by both clients and healthcare workers. In keeping with an individual approach to client's education, Muchiri et al. (2012:1) recommend "tailored nutrition education" to address the nutritional status of DM clients. This approach takes into consideration the needs of the client as a unique individual and is also recommended in relation to addressing other aspects of management of the disease, taking into consideration cultural norms and socioeconomic and health insurance status. Barriers to interventions, however, are that many healthcare workers lack the necessary communication skills and, at times, knowledge, rendering much of the encounters between client and professional as redundant (Masupe et al., 2018:43,47).

Although it may be expected that the healthcare worker has the necessary knowledge and skills, they may require development and further training. Healthcare workers

expressed the need to improve their subject knowledge on chronic disease management, reinforce medicine delivery at clinical sites and expand their community and allied health worker engagement (Maimela et al., 2015:1).

Improved practice principles would adopt an approach that is personalised in terms of the client's needs and understanding of their DM. This approach should in turn allow for an improved practitioner-client relationship, improved identification of areas needing to be addressed through information sharing and, if necessary, an amendment of strategies (Bagnasco et al., 2013:195). A joint position statement stresses the need for health professionals responsible for communicating self-management of DM to also determine possible obstacles and how to remove them. Furthermore, ways in which to improve diabetes self-management education and support for the individual should be developed continuously (Powers et al., 2015:1380). Edelman, Gierisch, McDuffie, Oddone and Williams (2014:99) recommend an approach to care for DM patients that incorporates shared medical appointments. These appointments would be shared not only by groups of patients with DM but by all the service providers relevant to this particular group. Specifically, care providers include individuals such as a healthcare worker, a psychologist and a provider with the necessary authority to prescribe treatment and devise and implement an all-inclusive care plan. Their findings showed that this approach improved the DM patient's biophysical outcomes (Edelman et al., 2014:99).

Tol, Baghbanian, Mohebbi, Shojaeizadeh, Azam, Shahmirzadi and Asfia (2013:3) associates dynamic and comprehensive education of a client with an individual who is better enabled to address self-management of their DM. Follow-up of clients through face-to-face as well as telephonic and electronic visits showed evidence of notable positive changes in HbA1c levels and self-care scores (Richardson, Derouin, Vorderstrasse, Hipkins & Thompson, 2014:138-139).

## **2.9 Support of the client with diabetes mellitus**

With regard to management of the client and the support provided to the client by the OHNP working in an occupational health clinic within an industry, Acutt (2016:188) states the following:



“It is the duty of the occupational health nurse to take care of the company and its employees and thus he/she must be committed to:

- The wellness of employees, employers and the surrounding community (if these are affected in any way by the organisation’s activities)
- A high standard of quality care and specified standards of practice
- Education and research
- Personal and professional accountability.”

Study results on the promotion of nurses as providers of self-management information, practices and support in sub-Saharan Africa are encouraging (Hailu et al., 2018:9).

Improved self-care behaviours have been associated with seemingly superior social support, accentuating the valuable role that family members and healthcare workers can play in clients’ adoption and maintenance of healthier lifestyles (Mohebi et al., 2018:3-4). In recognition of the critical role that the family of the diabetic plays, the IDF placed the focus of World Diabetes Day 2018-19 on the family (Lancet, 2018:911). Involving the family in the self-management practices of the individual is crucial to applying lifestyle adaptations. Consideration of the impact of a diagnosis and subsequent required lifestyle changes is also important when attempting to foster cohesive relationships (Isworo, Ekowati, Iskandar & Latifah, 2018:3).

## **2.10 Summary**

The literature reviewed focused on information about DM, the disease. Literature extended to the complications and prevalence of DM as well as the demographic profile of the area selected for completion of the study.

Predominantly qualitative studies were included in the literature review of the health beliefs and perceptions of individuals with DM regarding their self-management of this NCD.

Chapter 3 will provide a detailed account of the methodology applied in this study.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter will focus on the research methodology followed in this study. Scientific enquiry or research may be described as an effort or efforts to find answers to questions or to describe the characteristics of a problem to better identify possible solutions. This enquiry should be a structured process that is supported by validated evidence (Brynard, Hanekom & Brynard, 2017:3).

Methodology may be defined as the connection between theory or philosophical view and method chosen. Hesse-Biber and Leavy (2011) in Nieuwenhuis (2016:51) define the purpose as guiding the process of the research and to add structure to the procedures to be followed in conducting the research. The methodology is thus an integral overarching aspect of the research that may be consulted repeatedly in order to join the “philosophical standpoint” and the focus and methods selected to one another.

Research in nursing is dynamic, as it requires that set practices and ways of doing things be constantly challenged and evaluated to effect greater accountability. The ability to apply research to practice should result in decision-making and practice that is evidence-based (Brink, Van der Walt & Van Rensburg, 2018:1). The importance of research within the field of nursing, even at undergraduate level, must be emphasised in order to allow this dynamic discipline to continually develop and improve (Arries, 2018:293).

The purpose of this study was to explore and describe the perceptions and practices of employees on their self-management of DM in selected industries in Cape Town. The majority of individuals will place greater belief in that which they experience themselves, however, this can be damaging as it has been found that often the least informed are those who think that they do not require research consultation to enhance, advance or change what is known (Neuman, 2014:80).

### **3.2 Research paradigm**

When considering a research approach, the philosophical worldview or paradigm underpinning the research, described as “a basic set of beliefs that guide action”, should be explored. Four worldviews exist, namely postpositivism, constructivism, transformatism and pragmatism (Guba, 1990 in Creswell, 2014:6).

A postpositivism paradigm was departed from in this study. In order to describe postpositivism, it is important to understand positivism. The positivist paradigm identifies a world “out there” that develops order and routine out of phenomena encountered. Through these encounters and observations thereof, researchers of the positivist paradigm are able to assign “general principles” as predictors of future events (Bertram & Christiansen, 2014:23).

In contrast, the post-positivism paradigm alludes to a reality that is able to be studied but can never be fully understood, only approximated (Kivunja & Kuyini, 2017:32). Whilst positivist researchers will set out to prove a theory, post-positivist researchers will endeavour to disprove the theory or, if not done, to strengthen the theory (Bertram & Christiansen, 2014:23). It can also be said that post-positivist researchers will give attention to exploring the causes of a problem in order to determine the outcomes (Creswell, 2014:7).

This worldview was reviewed with the purpose of selecting a research design that could appropriately and meaningfully probe the questions that the researcher had formulated for the study.

### **3.3 Design**

Careful planning should precede the selection of a research design (Polit & Beck, 2017:160). The choice of which design to follow will be determined by the way that the researcher plans to answer the research question. The rationale for and the appropriateness of the design selection must be clarified. Essentially, this equates to sourcing the most fitting research design for the problem statement as developed. Three definitive research design types are identified, namely quantitative, qualitative and mixed methods research designs (Downing, 2018:329).

In applying the quantitative research method, a more traditional approach to research, a set of established steps are followed to accumulate data. The format is usually followed from the perspective of defining a problem to identifying a solution (Polit & Beck, 2018:11). Quantitative research is associated with measurable outcomes or those which are able to be counted in some way (Sutherland, 2017:37).

Qualitative research is descriptive of the individual' or individuals' "life experiences". It may be used to explore socially or culturally specific aspects from the perspective of the individual experiencing the particular phenomenon. It allows for the exploration of the unique complexities within each human being leading to a greater understanding of the individual (Gray, 2017:62). The researcher is an active participant in the application of this research design (Downing, 2018:332). The terms used to describe qualitative research designs are "subjective, inductive, transferability and words" (Downing, 2018:329).

The research approach selected for this study was qualitative, following an exploratory, descriptive and contextual design. Research approaches may be described as the "plans and procedures for research" (Creswell, 2014:3). It was anticipated that this approach would afford the researcher the opportunity to explore and capture the perceptions of the study participants with regard to self-management of their chronic disease, diabetes (Gray, 2017:64).

The qualitative research design afforded the researcher an opportunity to interact with the study participants in their own occupational environment with a focus on building trust and transparency in the relationship. This study of the experiences of the participants allowed the researcher to gain insight into the self-management practices of diabetes (Holloway & Galvin, 2017:13). These practices are, therefore, "evidence-informed", through the acquisition of knowledge (Arries, 2018:294).

An exploratory design may be described as one that sets out to identify and explore aspects of a phenomenon for the purpose of either adding to the existing body of knowledge where there is little known or through exploring the research question from a different perspective (Wright, 2011:459). The intention of the researcher was to explore the perceptions of the diabetic client regarding the self-management of their

disease and to provide descriptions of interest in promoting an understanding of how these individuals view their practices. As this study was predominantly in the exploratory stage of research, an exploratory, descriptive design was followed (Grove, 2017:29).

A descriptive design will be employed to determine the bonds or relationships between different concepts as identified in the literature and further explored in the study (Wright, 2011:461). In this study, questions were posed with the intention of probing the concept/s of self-management of the diabetic client to gain insight into the individual's perceptions and practices.

In planning the study, it was important to provide details of the context in which it occurred (Bazeley, 2013:375). This will be inclusive of the physical location and surroundings (Holloway & Galvin, 2017:41). Bazeley (2013:81) posits that "context" also alludes to the interpretation of the data and is, therefore, more subjective in nature. It is essential that attention is given to not only the information provided but also to the application of observational skills to view the information in relation to behaviour and/or other nuances.

### **3.4 Setting**

The choice of setting for the study was motivated by the researcher's area of specialisation, occupational health nursing. The employees who were eligible as study participants were interviewed in the workplace. The setting for the collection of data for the study was thus the occupational health clinics situated within various industries in the northern suburbs of Cape Town. A private room for conducting the interviews was requested when communicating with the OHNP's at the various industries.

During the interview process, one (1) of the OHNP's had booked a boardroom for use, one (1) had a separate interview room in her clinical facility and the other two (2) vacated their clinics for use. All areas were comfortable and relatively private in that background noise could be heard and the door was occasionally opened in error as someone tried to access the clinic, not knowing that it was occupied but there was no open access to the interview areas. It is important that the flow of the conversation

between the interviewer and the study participants is audible and understandable to both parties (Matthews & Ross, 2010:225).

A natural setting is one where the researcher does not make changes for the study purposes and is usually where qualitative research is conducted (Grove, 2017:353). As the interviews were conducted at the participants' various places of work, it can be said that the setting was a natural one.

All industries were geographically situated within the northern suburbs of Cape Town, specifically, Cibapac and Makro in Montague Gardens and On The Dot and Consol in Bellville South. These settings were selected as the OHNP's were known to the researcher and communication with and access to the occupational health clinics were facilitated with ease. Figure 3-1 indicates the northern suburbs of Cape Town.



**Figure 0-1: Map of the northern suburbs** (Map downloaded on 28 September 2018 from: <https://www.portfoliocollection.com/map/western-cape-northern-suburbs>)

### 3.5 Population

The District -Health Plan of 2007–2008 (DHP) identifies eight (8) sub-districts in the Cape Town Metro district (DHP, n.d.:9). The DHP aims to integrate and allow for greater cohesion of goals and quality of care between the region and the district. The

population status of the districts is a growing one, largely due to urbanisation. Socioeconomic conditions across the districts are decidedly uneven and differences are ever-increasing (DHP, n.d.:11). NCD's are listed in the top five (5) causes of a rising burden of disease in the districts. Once again, it is noted that this burden of disease is not evenly distributed, resulting in greater pressure on the existing services in the identified areas. The complexity of patient or client management is a further challenge (DHP, n.d.:11).

The Northern, Tygerberg and Western sub-district areas were identified by the researcher for the recruitment of participants. The population group consisted of male or female diabetic clients between the ages of thirty (30) and sixty-five (65) in the employ of one of the four companies approached for participation in the study. The OHNP's working in these companies were requested to recruit possible participants as described.

### **3.6 Sampling and sample**

#### **3.6.1 Sampling**

The process of selecting a sampling strategy is guided by considering who to include, in which type of setting and how many individuals are needed in order to meet the objectives of the study. As it is not possible to include all in a particular population, the researcher must ensure "representativeness" in the selected group (Bertram & Christiansen, 2014:59). Two focal types of sampling are identified by Bertram and Christiansen (2014:60), specifically random or probability sampling and purposive or non-probability sampling.

In purposive sampling, the aim is to obtain as much information as possible about the experience or occurrence that is the focus of the study. People or study participants are therefore identified and selected with this goal in mind (Grove, 2017:344). In order to adequately answer the question or questions asked in the research, the method of sampling will need to identify those able to do so and therefore "purposefully" be comprised of a selected group of individuals (Matthews & Ross, 2010:122).

*Heterogeneous sampling* consists of individuals who are different from one another in a key feature; this sampling type allows for varying perspectives to be drawn from the participants (Holloway & Galvin, 2017:147)

A purposive sampling strategy guided by a heterogeneous style was selected for this study. The motivations for the selection of the sampling method were specific in that the study participants were adults with DM, therefore best suited to describe their experiences of diabetes self-management practices, currently employed at the sites selected.

The adults selected included males and females between the ages of 30 to 65 years, in various professions and with varied socioeconomic backgrounds, hence the identification of a heterogeneous style. This was deemed to be the most appropriate selection for eliciting responses most suitable and relevant for this study. The occupational health clinics on site were managed by OHNP's known to the researcher through her years in practice and teaching and were, therefore, both convenient and accessible.

### **3.6.2 Sample**

The determination of the appropriate sample size does not follow any specific rules. Various factors should be considered when selecting a sample size and there can be both advantages and disadvantages to what is chosen. Ultimately, in qualitative research it is important that information is gathered until data saturation is reached or until the sample size, be it small or large, reveals no repeated data (Brink et al., 2018:128-129).

The sample consisted of adult males and females with diabetes employed at the various industries approached for participation in the study. These study participants were on the patient registers for the monitoring of their chronic condition at the clinics on site.

#### **3.6.2.1 Eligibility criteria**

The eligibility criteria are defined by Grove (2017:330) as those features critical for participation in the target population.



### **3.6.2.2 Inclusion criteria**

- Adult males and females diagnosed with DM;
- Adults aged between thirty (30) to sixty-five (65) years, who are on patient registers at occupational health clinics;
- Adults who are in the permanent employ of the company at which the occupational health clinic is situated.

### **3.6.2.3 Exclusion criteria**

- Adult males and females not in the permanent employ of the industries as selected for inclusion in the study.

Data saturation was reached when all that was of relevance to the research study has been captured. “Data saturation” is attained when any further sampling produces information deemed to be superfluous, whereas “theoretical saturation” is indicative of no new ideas or scopes for categories (Holloway & Galvin, 2017:152).

Data saturation was deemed to have been reached when no “new” information was obtained. The number of interviews conducted was eighteen (18), one of which was the pilot interview and one which was conducted in Afrikaans on request of the participant during the interview and was therefore not included. A total of seventeen (17) interviews were therefore completed. Table 3-1 below represents the number of sites from which the data was collected and the total number of interviews conducted.

**Table 3.1: Number of sites and interviews**

<b>Site</b>	<b>Clients</b>
A	5
B	5
C	2
D	5

## **3.7 Data collection**

### **3.7.1 Preparation of the field**

An initial request for permission to conduct the research study interviews at the site and a copy of the ethics certificate as issued by the Cape Peninsula University of Technology (CPUT) ethics committee, were attached and sent to the OHNP's identified for the study. Once approval had been granted, the planning of the visits to conduct interviews on site commenced.

An e-mail was sent to each of the Occupational Health Nurse Practitioners (OHNP's), requesting a visit to the clinic to interview clients as per the selection criteria. Dates and times were proposed and these were subsequently confirmed by the OHNP's.

A private room for the interviewing of these clients was requested. The OHNP was asked to contact those employees eligible as per the selection criteria, and to request their participation on the days and times as confirmed via e-mail. On arrival at the four clinics, the researcher was provided with a private room at two of the venues and at the other two, an area separate to the OHNP was allocated. It is important that a rapport is established between the interviewer and the interviewee to facilitate a flow of information (Gubrium & Holstein, 2002:19) and to engage in a discourse that is more representative of a dual effort rather than two separate roles. The researcher made every effort during the interviews to make the clients feel at ease. The interviews were conducted at the client's own workplace, which is deemed to minimise the risk of a power-relationship that often occurs between researcher and participant. This may also have encouraged the participant to share their story within one of the contexts in which it occurred (Creswell, 2014:98). In this particular study, the context was the workplace.

The OHNP's at all four (4) of the clinics visited contacted each prospective study participant by telephone and in the majority of instances, there was a second participant waiting to be interviewed on completion of the previous interview. This assisted in the time spent on data collection in that there was little time lost between the interviews.

### **3.7.2 Pilot interview**

A pilot interview was conducted at the initial site with an interview schedule. Following the interview, the researcher realised that the demographic question relating to

whether or not the clients were employed, was redundant as clients or study participants were interviewed in the workplace, so employment was confirmed. The question was removed from the semi-structured interview schedule.

On reviewing the pilot interview, the researcher reflected on her potentially “leading” the answers to the questions. The researcher endeavoured to avoid doing so during the interviews that followed.

### **3.7.3 Method**

Individual semi-structured interviews were conducted between the researcher and the study participants to gather data. The researcher therefore played an active role in the research specifically in the conducting of the interviews herself.

An interview may be described as a discussion between the study participant and the researcher. It differs from a conventional conversation in that the researcher has an agenda in mind with regards to what information they are wanting to elicit. In qualitative research, the questions asked of the study participant may be less structured (Bertram & Christiansen, 2017:80). The semi-structured interview is an exchange between the researcher and the participant in an effort to elicit information using a “set of open-ended questions”. The semi-structured interview is especially useful for the inexperienced researcher as the questions act as a guide for the interview (Gray, 2017:259). The researcher should remain cognisant of the need to maintain effective communication skills in order to conduct an effective interview. These may include listening skills and appropriate reflection as well as awareness of the tone and posture maintained during the process so as not to appear critical or judgemental of the information shared (Henning, 2011:78-79).

The questions formulated for the individual semi-structured interviews were developed with the objectives of the study in mind. These were; to explore and describe perceptions of adult diabetic clients on their self-management practices and to describe the existing support systems for adult diabetic clients within the family, the occupational health clinic and the community. In order to try and gain as much insight into the perceptions of the participants the questions sought to prompt responses about

their self-management practices and lifestyle adaptations. These areas of practice included diet, exercise, specific self-care behaviours and medication.

The interviews lasted no more than forty (40) minutes. The researcher undertook to keep field notes whilst interviewing the participants. Field notes may be defined as those describing the interactions and verbal exchanges between the researcher and participant in as objective a manner as possible (Polit & Beck, 2017:521). The field notes also serve as an additional resource for impressions created by the information shared and would be used to interpret the data should there be failure to record the interview. Fortunately the researcher obtained the permission of all participants to record the interviews with the use of a digital recorder and the recording function on her cellular telephone as a back-up in most of the interviews.

### **3.8 Data analysis**

Open coding was used to analyse the data obtained during the interviews. Open coding is described as whittling the data acquired into practicable portions thus enabling analysis (Gray, 2017:271).

To facilitate the process of open coding of the data, the semi-structured interviews were recorded as verbatim transcriptions. The interviews and field notes were analysed together (data-triangulation). A detailed analysis of the transcription of the recordings was done. The interviews were transcribed as soon as possible after they occurred and whilst the data was still fresh in the mind of the researcher (Delport et al., 2011:304). The information obtained during the interviews was transcribed verbatim. It is the right of the participant, referred to as the client in this study, to request to review the tape recording on completion of the interview (Delport et al., 2011:304).

In order to code the results, Tesch's steps (1990), as cited in Creswell (2014:198), were followed:

1. Get a sense of the whole. Read all the transcriptions carefully. Perhaps jot down some ideas as they come to mind as you read.
2. Pick one document (i.e., one interview) – the most interesting one, the shortest, the one on the top of the pile. Go through it, asking yourself, "What

is this about?” Do not think about the substance of the information, but its underlying meaning. Write thoughts in the margin.

3. When you have completed this task for several participants, make a list of all topics. Cluster together similar topics. Form these topics into columns, perhaps arrayed as major, unique, and leftover topics.
4. Now take this list and go back to your data. Abbreviate the topics as codes and write the codes next to the appropriate segments of the text. Try this preliminary organising scheme to see if new categories and codes emerge.
5. Find the most descriptive wording for your topics and turn them into categories. Look for ways of reducing your total list of categories by grouping topics that relate to each other. Perhaps draw lines between your categories to show interrelationships.
6. Make a final decision on the abbreviation for each category and alphabetise these codes.
7. Assemble the data material belonging to each category in one place and perform a preliminary analysis.
8. If necessary, recode your existing data.

The interviews were then captured on a spreadsheet in order to compare the responses and allow for the emergence of themes, categories and sub-categories.

The responses were then read and re-read by the researcher in order to formulate the structure and to organise similar information into themes, categories and sub-categories. Both the researcher and an independent coder sought to immerse themselves in the data obtained so as to better extrapolate the information into similar experiences and to try to define relationships between the groupings of data sets. Consensus was reached between the researcher and independent coder on the themes and categories.

Verbatim quotes were assigned to the groupings of information and the themes, categories and sub-categories were again reviewed for applicability to the headings assigned to represent them. Any changes or additions to the wording to improve the alignment of the information were then made.

### **3.8.1 Data storage**

All information transcribed electronically during the interviews and other details relating to the proceedings and instruments were saved electronically on a password-protected computer. Any hard copies of documents relating to the study or the study participants were stored in a locked safe.

The documents pertaining to the study will be kept, in a locked safe, for a minimum of five (5) years. The data should be destroyed thereafter to prevent it from being misused (Creswell, 2014:100).

### **3.9 Trustworthiness**

When reflecting on the concept and definition of validity in qualitative research, it can be said that the constructs of quantitative research offer no singular or stand-alone compatible comparison. Although the hallmarks of qualitative research may be of tractability and open-mindedness, the researchers engaged in qualitative research are also cautioned to be methodical and structured, as adherence to these criteria will add validity (Holloway & Galvin, 2017:303). Guba and Lincoln (1989) in Holloway and Galvin (2017:303) established the parallel concept of trustworthiness referred to, as opposed to references to the validity of the research, in this study.

Trustworthiness in qualitative research should ensure that the procedures applied through trustworthiness and the associated criteria produce quality and accuracy of the data (Brink et al., 2018:157-158). Polit and Beck (2017:559-560) discuss the associated criteria of trustworthiness as being those of credibility, dependability, confirmability and transferability as conceptualised by Lincoln and Guba (1985). Lincoln and Guba (1994) later added the concept of authenticity to their own criteria to enhance the validity and rigour as applied to research studies (Polit & Beck, 2017:559). In qualitative research, trustworthiness may be evident as having been applied meticulously and proficiently (Holloway & Galvin, 2017:304).

#### **3.9.1 Credibility**

Credibility in qualitative research relates to the application of the “truth” to the data and the interpretation thereof. It is important to apply this to the specific participants and to

ensure that the context within the “truth” is applied by the participants (Polit & Beck, 2017:559).

A logical flow between the data and the analysis of the data as per themes identified and discussed would be a demonstration of credibility within the study (Bazeley, 2013:405). This is the second aspect of credibility in that not only must confidence in the truth be sought but it must also be “demonstrated”, advocate Lincoln and Guba (1985) in Polit and Beck (2017:559). The verbatim quotes of the participants demonstrate the credibility of the themes identified. Each theme, category and sub-category is linked to data acquired during the study and in some instances corroborated by more than one of the participants.

### **3.9.2 Dependability**

Dependability refers to the findings of the study being constant and precise and, if repeated in comparable circumstances within a parallel context, producing results of a similar nature. A reliable study should act as a guide to other researchers wishing to pursue a similar path of research (Holloway & Galvin, 2017:309). Polit and Beck (2017:559) also note that without dependability, credibility would not be possible.

A literature review was conducted for the study and several of the findings resonated with the current studies results.

### **3.9.3 Confirmability**

A clear path, from collection to interpretation of the data, should be evidenced in the findings and should allow the reader of the study to identify with the results without feeling influenced by any possible prior perceptions or expectations of the researcher. It is important that the findings reported are a true indication of what was verbalised by the participants and not the researcher’s interpretation thereof. (Polit & Beck, 2017:559; Holloway & Galvin, 2017:309). Confirmability is achieved when there is alignment about the significance and connotation of the data sets by two or more individual’s (Polit & Beck, 2017:559-560).

The study findings confirm that several of the participants expressed similar perceptions or experiences in relation to their self-management practices and these have been captured in chapter four (4).

#### **3.9.4 Transferability**

The ability to which an existing study's findings could be transferred to or have relevance in other locations or situations is defined as transferability (Polit & Beck, 2017:560). Demonstration of the concept of transferability will be dependent on those who apply the research findings of completed studies within the context of their own research (Brink et al., 2018:159). A number of the studies referred to in the current study clearly demonstrated transferability of the findings.

#### **3.9.5 Authenticity**

Authenticity is achieved when the study is a fair and true reflection of the information obtained from the study participants. The study should also be able to provide insight that enhances the existing knowledge and the lives of the study participants and other like groups in relation to the topic of investigation in the research conducted (Holloway & Galvin, 2017:310). The use of the verbatim quotations of the clients interviewed is indicative of the authenticity of the study.

### **3.10 Ethical considerations**

The conducting of research must abide by certain principles and be guided by the ethical considerations as detailed in the Helsinki declaration of 1964 (Gray, 2017:159). It is imperative that the participant remains the focus of the study and not the information that the researcher is wanting to obtain through conducting the study. The study participants are required to give their consent to join the study in writing. With regards to the consent, it is important that the participant has a sound understanding of what they are consenting to. Also pertinent is that they have a right to withdraw without fear of recrimination, should the proceedings result in them being uncomfortable or not as they understood them to be (Van der Wal, 2016:332).

The research protocol of the study was approved by the Health and Wellness Sciences Research Ethics Committee of the Cape Peninsula University of Technology.



The ethical considerations, as alluded to, will be upheld throughout the course of this study. The ethical principles for consideration when interacting with the client are those of autonomy, beneficence, non-maleficence, fairness, justice and confidentiality (Hattingh et al., 2006:177).

### **3.10.1 Autonomy**

Autonomy affords the client the ability to decide what is optimal for their own interest. The client has the right to privacy and all interviewees were reassured that the data collected would be kept confidential (Brink et al., 2018:29). All interviewees signed consent forms for their participation in the interviews and for the interviews to be recorded. The study participants may have exercised autonomy without the researcher's knowledge through withholding information during the interviews deemed to be of a confidential or destructive nature to themselves or their self-image.

Respect for autonomy refers to the participants' choices in that they must not be coerced and must be at liberty to make autonomous and knowledgeable pronouncements about participation in the study. This also applies to their responses to questions (Holloway & Galvin, 2017:53).

Autonomy may also be linked to the principles of veracity and fidelity, meaning that it is incumbent upon both the participant and the healthcare provider or researcher to tell the truth. The telling of the truth must further be shared in a manner that is clear and comprehensible. Fidelity is an aspect of the ethical considerations that refers to the promise by the healthcare provider to keep shared information confidential (Pera, 2016:60). Fidelity may further be upheld by the researcher through divulgence to the participant/s of any institutional affiliations or conflicts of interest (Holloway & Galvin, 2017:54).

All of the study participants were advised of their right to elect to participate in the study, as well as their right to withdraw at any time. During the initial contact with the participants, they were also advised of their right to refuse to answer any of the questions posed to them.

### **3.10.2 Beneficence and non-maleficence**

To achieve beneficence, the researcher must ensure that foremost in their actions is to “do good” for the client. The interviews of the clients focused only on the concepts relating to clients’ perceptions and practices of their self-management of diabetes so as to inflict no harm. Non-maleficence was upheld in this manner (Holloway & Galvin, 2017:53). The client had the right to refuse to participate in the research once the study to be conducted had been described to them. The researcher did not use deception or coercion to lure the clients and therefore respected their right to self-determination. Furthermore, no data was collected without ensuring that the client was aware of the subject matter and the manner of collection thereof (Gray et al., 2017). The clients or study participants were also advised of their right to withdraw from the study at any time without fear of recrimination.

In simple terms these principles allude to the consideration that the positives of participation in the study should outweigh any negatives. No harm should arise from the study to the participants or the wider community in general. The potential for any risks should be assessed and considered with care prior to commencing the study (Holloway & Galvin, 2017:53). No overt risks were foreseen in this study.

Beneficence is not simply doing no harm but actively averting and eradicating harm and endorsing good (Pera, 2016:55).

### **3.10.3 Justice**

The ethical principle of justice refers to the right to fair treatment. The researcher followed the order in which the questions were compiled and endeavoured to treat each participant fairly and to maintain consistency of engagement with all clients (Gray et al., 2017:172). The researcher attempted to protect clients from discomfort and harm by refraining from probing into certain topics which a client seemed to find uncomfortable. As no areas requiring follow-up outside of the clinic on site were identified, no referrals were made. Should any concerns have been identified during the course of the interviews, the researcher would have referred the client, by means of a written referral letter, to the social worker at Tygerberg Hospital. Alternatively, should the client have been on a medical aid, they would have been referred to their general practitioner or physician.

Further consideration of justice may define it broadly as observing the protocols of fair selection, fair conduct towards all and respect for the privacy of the participants. These concepts are not limited to treatment being the same for all participants but also ensuring that customs and cultures do not meet with any disrespect from the researcher, should information be shared relating thereto (Polit & Beck, 2017:141). Should any potential participant have elected to not participate in the study or to withdraw, they would be treated in a manner that is free from prejudice.

Participants' right to privacy must be observed and no researcher is permitted to share knowledge or information obtained without the participant being aware thereof and having provided consent. Information obtained from participants may also not be shared against their will (Brink et al., 2018:30).

#### **3.10.4 Confidentiality**

The nature of qualitative research is that it is more invasive than quantitative research and sound communication skills are required to elicit responses that will provide rich data. It is important, for this reason, to assure the prospective participant of anonymity and the confidentiality of any information shared (Holloway & Galvin, 2017:59). As the participant group or sample size is smaller but more descriptive, it may be easy to identify those included. The researcher must make every effort to disguise the details of the participants if there is any indication that they may be identifiable (Holloway & Galvin, 2017:59).

In the interest of maintaining confidentiality, no names were used in any of the transcribed data. A code number was allocated to each client to ensure that it will not be possible to link the client's identity to individual responses (Gray et al., 2017:170). In addition, all tape recordings and transcriptions are to be kept in a locked safe and/or stored on a password-protected computer for a minimum of three (3) years. The back-up recordings made on the researcher's cellular telephone were kept confidential in that the telephone was protected by password and thumb print identification and these were deleted once the transcriptions had been completed. Clients were advised of their right to withdraw from the study at any time to preserve their right to self-determination (Gray et al., 2017:162). No clients exercised this right during the interviewing process.

In this study, the researcher further ensured confidentiality by assigning numbers to the clients interviewed at each site. On transcription of the interviews, the participants were assigned a code so as to allow for assimilation into a single document.

### **3.11 Summary**

Chapter 3 provided the structure for the study in that the research methodology was discussed. The methodology refers to the philosophies and ideologies that guide the flow of the study and establishes a framework for the population of information (Holloway & Galvin, 2017:21). The application of the various aspects relating to the methodology was elaborated upon.

Chapter 4 will focus on the findings of the study as per the verbatim quotes obtained during the interviews conducted with seventeen (17) clients. These quotes were assigned to the themes, categories and sub-categories that emerged during the analysis of the data.

## **CHAPTER 4**

### **FINDINGS**

#### **4.1 Introduction**

Chapter 4 presents the findings of the study. A clear description of the data should be revealed as the researcher familiarises herself with the data set (Gray, 2017:270). The analysis of data in qualitative research should produce text that is filled with the “verbatim” quotes of the study participants (Polit & Beck, 2017:60).

This chapter focuses primarily on the first objective of the study that was to:

- Explore and describe perceptions of adult diabetic clients on their self-management practices.

A pilot individual interview was conducted, followed by sixteen (n=16) interviews with the study participants. The study participants were employed at four (4) different industries; these were respectively related to packaging, printing, retail and manufacturing. Semi-structured interviews were conducted with the participants, referred to as clients, until data saturation was reached. The interviews were then transcribed.

#### **4.2 Findings**

##### **4.2.1 Participants**

Demographic information refers to generic details gathered, for example, age, gender and income (Bazeley, 2013:141). The sample of participants (n=17) consisted of males and females between the ages of thirty (30) and sixty-five (65) years, employed at industries where an on-site occupational health clinic was managed.

In this study, 13 of the study participants were male, whilst four (4) were female. Therefore, the gender profile of the study participants was predominantly male (Table 4-1).

**Table 0-1:** The demographic data of the study participants

<b>Participants</b>	<b>Male</b>	<b>Female</b>	<b>Age</b>	<b>Income</b>	<b>Hourly/Weekly/ Monthly Rate</b>
Pilot 1	Male		30	1300	Weekly
Participant 2	Male		44	44000	Monthly
Participant 3	Male		37	1500	Weekly
Participant 4		Female	53	53000	Monthly
Participant 5		Female	38	20000	Monthly
Participant 6	Male		30	640	Weekly
Participant 7	Male		45	8800	Monthly
Participant 8		Female	51	14000	Monthly
Participant 9	Male		45	11000	Monthly
Participant 10	Male		42	2900	Monthly
Participant 11	Male		57	7400	Monthly
Participant 12		Female	42	10000 - 13000	Monthly
Participant 13	Male		55	22000	Monthly
Participant 14	Male		36	23000	Monthly
Participant 15	Male		51	14000	Monthly
Participant 16	Male		52	130	Hourly
Participant 17	Male		45	28000	Monthly

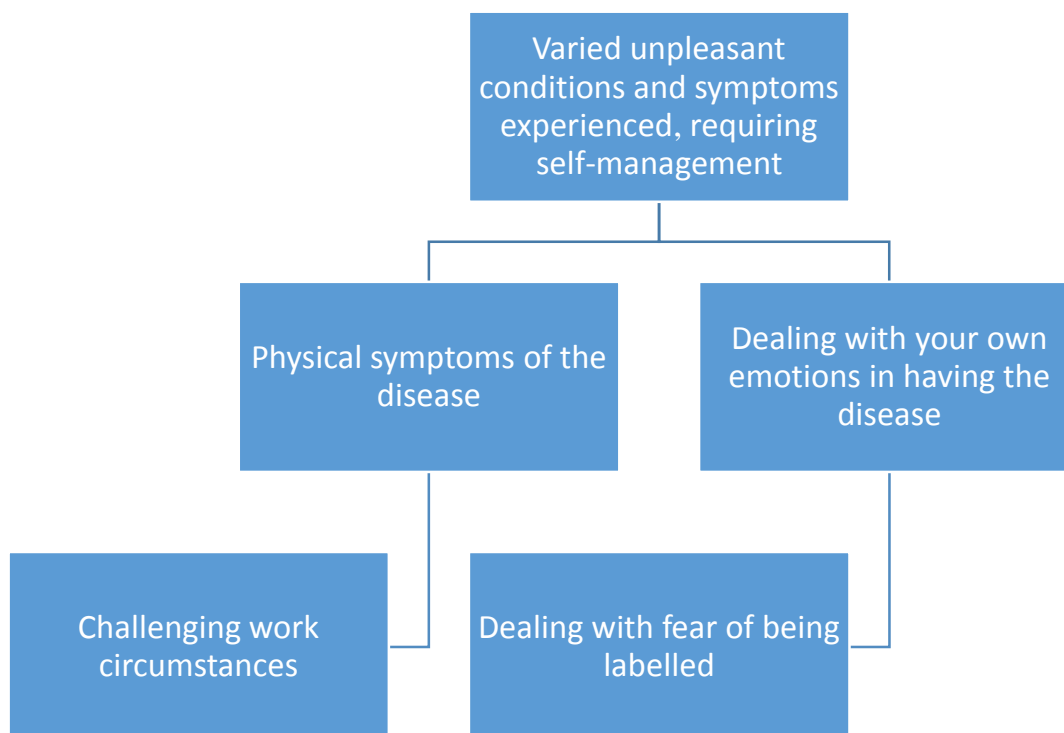
### **4.3 Themes, categories and sub-categories**

Four (4) main themes, nine (9) categories and two (2) sub-categories emerged from the analysis of the data. The themes, categories and sub-categories are listed in Table 4-2.

**Table 0-2:** Themes and categories

<b>Themes</b>	<b>Categories</b>	<b>Sub-categories</b>
Varied unpleasant conditions and symptoms experienced during the course of the disease, requiring self-management	Physical symptoms of the disease	Challenging work circumstances
	Dealing with your own emotions in having the disease	Dealing with fear of being labelled
Modification of lifestyle in adapting behaviour to manage the condition	Planning and adjusting eating habits and dietary management	
	Avoiding possible complications of the disease	
	Taking ownership of living with the disease	
	Developing self-knowledge to attain health	
Appropriate medication for management of Diabetes Mellitus	Types of medication used to manage diabetes	
Overall support to the client managing diabetes	Attitudes of healthcare worker/s towards the client with diabetes	
	Community support to the client	

### 4.3.1 Theme 1: Varied unpleasant conditions and symptoms experienced, requiring self-management



**Figure 0-1:** Theme 1: Varied unpleasant conditions and symptoms experienced, requiring self-management

Study findings of Rwegerera, Moshomo, Gaenamong, Oyewo, Gollakota, Rivera, Masaka, Godman, Shimwela and Habte (2018:116) identify fairly low health-related physical and mental quality of life for some diabetic patients. Although the study is limited to Botswana, the current study's results resonated with these findings in some instances. Physical and emotional symptoms were experienced by participants.

One participant, when asked specifically about how being diabetic made him feel, responded by describing a physical symptom of tiredness that he felt might be associated with the disease:

*“Er, sometimes I feel tired. I don’t know if it is because of the diabetes. This, sometimes I just feel I want to sleep.” (P2)*

A similar response was provided by another male participant:



*“Uhm, tiredness and, uhm, I’m not short of breath but I’m just sometimes feel tired.” (P3)*

Of concern in the context of this specific physical impact of the chronic disease is that a patient who is tired or sleepy may be less likely to identify an episode of hypoglycaemia. It has also been found that variations in glycaemic measurements may be as a result of poor quality of sleep and symptoms of depression (Biggers, Sharp, Nimitphong, Saetung, Siwasaranond, Manodpitipong, Crowley, Hood, Gerber & Reutrakul, 2019:64). A study by Jarab et al. (2018:304) noted that the majority of study participants lacked knowledge of their disease and the symptoms, which the authors found to have an effect on the approach to self-management of the condition.

Emotional symptoms were mentioned by participants. A participant was the first in her family to be diagnosed with diabetes (field note) and she verbalised during the interview that she regretted and felt guilty that she had potentially been the initiator of chronic disease and possible negative genetic link for future relatives:

*“That makes it more regrettable for me. So for me, I’m going to be more or less the start of the genetic...” [Laughing] (P5)*

A study by Masupe, Ndayi, Tsolekile, Delobelle and Puoane (2018:52) suggests that having diabetes has different meanings to the afflicted person than the health professional interacting with the person. The study alludes to these perceptions translating to possibly differing interpretations of the principles of self-management in the domains of physical, social and psychological adaptations resulting from the diagnosis (Masupe et al., 2018:52).

#### **4.3.1.1 Category: Physical symptoms of the disease**

Rwegerera et al. (2018:111) purport that physical aspects of health influence quality of life. The individual’s specific belief system and perceptions can play a role in self-adapting to a situation. Adaptive behaviour is described by Tasse (2013) as a set of abstract, social, and practical skills acquired by individuals to enable them to operate in their daily lives.

The ADA recommends at least 150 minutes per week of moderate to intense physical activity as a behavioural lifestyle modification (2018:21). The study participants advised of a variety of physical effects, which may present as barriers to conducting exercise, related to their diagnosis of diabetes. One participant mentioned that she was at times aware of pain whilst walking:

*“And, uhm, sometimes when you walk in the street and when you got shoes on and you walk on the stones, you can immediately feel like a pain.” (P6)*

To continue walking for physical health and staying positive and motivated, a person needs to focus on the end result.

A male participant complained of fatigue, which in turn appeared to also affect his libido at times:

*“There are sometimes I feel a little bit tired, then sometimes I have to go to the pharmacy to buy me some tablets or drinks to give me that energy, but then my sugar level is high, that stuff doesn’t even help me, cos my sugar burns that stuff just like that. So whatever tablets they say no this is the best tablets it can increase your, your sex drive, it doesn’t work for me.” (P6)*

It is important to recognise that clients may experience limitations regarding suggested interventions and that further exploration of client-specific barriers and sourcing alternative activities could promote adherence and in turn improved health outcomes (Marinho et al., 2018:7).

A male participant expressed his regret in losing a sporting activity due to his disease, diabetes mellitus:

*“I used to play soccer, yes, and I was disappointed towards my training. And when I left soccer, everything just went down.” (P3)*

Study participants identified various visual disturbances as being one of the initial physical changes with the diagnosis of the disease, which deteriorated during the course of the disease:

*“The thing I am worried about ... also is my eyesight.” (P11)*

*“My eyes, that was actually one of the first signs, visual. I couldn’t see properly.”  
(P12)*

*“Eyes, they call it floaters. Ooh, it feel like something walking over your eyes.”  
(P17)*

Diabetic Retinopathy (DR) is highlighted worldwide as one of the leading causes of vision loss (Cheloni, Gandolfi, Signorelli & Odone, 2019:1). The Society for Endocrinology, Metabolism and Diabetes South Africa (SEMDSA) cites the sustaining of glycaemic control as the most manageable of possible preventative actions to be taken by the diabetic client in the prevention of DR (SEMDSA, 2017:95).

A study by Wei, Wang, Li, Zhang and Gao (2019:145) reports that self-care behaviours were not practiced well, apart from the taking of medication. An explanation may be that the taking of medication evidences effective blood glucose control, whereas other self-adaptive practices do not give evidence of change or the change effected may be slower. Wei et al. (2019:145) further posit that taking medication does not place a high cognitive demand on the client, whereas other practices may require more intellectual application, which may contribute to the less than optimal adaptations.

A participant linked the benefit of personally controlling and maintaining the balance of his blood glucose levels to the relief of this physical symptom:

*“...if I see I’m not focusing so much then I look at my sugars, then I have to look after it for a week or two before it comes right.” (P17)*

The person with diabetes needs to make daily decisions about self-care in order to maintain a balance between their disease and their lifestyle. This requires focus and adaptability, as well as being provided with the information necessary to sustain these characteristics (Dehkordi & Abdoli, 2017:111). The American Diabetes Association’s (ADA) recommendations concur with the findings of the study by Dehkordi and Abdoli in that health service providers should target education and treatment specifically to meet the varying needs of the individual (ADA, 2019:61; Dehkordi & Abdoli, 2017:116).

A male participant identified the dietary changes recommended to manage his condition as one of the challenges accompanying the chronic disease:

*“...it wasn’t so lekker in the beginning, because all the chicken meat was have to be boiled without the skin on and sometimes when your body was so, no your body have to go now through changes now to accept these kind of stuff”. (P6)*

Masupe et al. (2018:52) suggest that client education on positive self-management practices should focus on the benefits of exercise and balanced nutrition. More specifically, advertising the “rewards” of lifestyle interventions, promoting ageing well and increased energy levels derived from these activities when conducted in a positive manner, should be emphasised.

It cannot be disputed that diabetes will have an effect on an individual’s life and the physical symptoms thereof will be one such area of influence (Trikkalinou et al., 2017:121). Stress related to the manifestations of the disease can be mitigated by exploration and discourse to assist the client in adapting to lifestyle challenges and changes (Chittem, Chawak, Sridharan & Sahay, 2018:967).

#### **4.3.1.2 Category: Dealing with your own emotions in having the disease**

Perceptions of the physical, social and emotional impacts of a diabetes diagnosis on an individual could differ between a health care worker and client. Care should be taken to assign “meaning” to the feelings of a person in order to provide self-management options that motivate positive changes (Masupe et al., 2018:50).

Various emotions can be experienced by persons diagnosed with diabetes, often different between males and females. These can include “anger, fear, depression, denial and uncertainty, to acceptance” (Reyes et al., 2017:6). Different experiences were expressed by participants.

A female participant responded candidly when questioned as to how being diabetic made her feel:

*“I feel awful about it.” (P5)*

A male participant in the current study expressed feelings of disheartenment about having diabetes after reading a pamphlet on the self-management of meal consumption:

*“...so when I found out of these disease that I got, I was disappointed.” (P6)*

It was clear that participants were aware of their feelings. Other studies found that the male participants reported wanting to maintain the confidentiality of their diagnosis for fear of shame or discomfort by others' awareness of their disease. Men were also more likely to experience concerns related to their own demise on the diagnosis of DM (Mesa, 2018:1; Mathew, Gucciardi, De Melo & Barata, 2012:4).

The initial and later feelings about being diagnosed with diabetes can be radically different in nature. A male participant reflected on the emotional journey towards acceptance of the condition and a positive self-esteem:

*“In the beginning it was a shock. Obviously, the main concern was acceptance. But I'm in it now.” (P16)*

Another male participant expressed what appeared to be acceptance of the disease:

*“I'm getting used to it now, because I was, uhm, for 12 years I've drink Coke like it's water.” (P7)*

Without self-acceptance and a healthy self-esteem, an individual's psychological wellbeing may suffer and render beneficial interventions less effective (PositivePsychology.Com., n.d.). It was assumed that it is important to pay attention to building a positive self-esteem when lifestyle changes are promoted (Point 1.4).

Self-acceptance may be defined as an individual being able to accept all aspects of themselves, both positive and negative. This includes a positive body image, an ability to “protect oneself from criticism” and having faith in one's capabilities (Pillay, 2016). Enhanced self-efficacy may be exhibited through acceptance of the responsibility to adhere to treatment recommendations (Jarab et al., 2018:303).

Participants shared feelings of denial but also acceptance of the need to adopt new behaviours. Each of us has a unique purpose and self-management is a point of departure to achieve this. By internalising and taking hold of this concept, the realisation of this purpose is achievable by staying focused on an earnest notion and thus transforming oneself into what is envisioned as the ideal (Tracey, 2019:n.p.).

One participant had overlooked her diagnosis for a long period and reflected:

*“Uhm, I’ve kind of ignored it for a long time, but things had to kind of get to a certain point where I had to do something about it. So I eventually did.”*

(Laughing) (P4)

It was assumed that the exploration of the individual's perceptions and practices of self-management of diabetes allow for critical self-evaluation, enabling them to challenge and gain insight into these practices (Point 1.4).

As one matures, cognitive patterns develop. These patterns will largely determine how an individual will address a situation presented to them. If positive cognitive patterns have been nurtured, the client will be able to make decisions that convert to actions in a short time. However, negative cognitive sets could have an adverse effect on the individual's reaction to a situation, for example, a diagnosis of DM (Uys & Middleton, 2017:28). This reinforces the need for individual assessment and tailored health education for the person with diabetes, in a holistic manner.

#### *4.3.1.2.1 Sub-category: Challenging work circumstances*

In a cross-sectional investigation by Thiyagarajan and John (2017:43), it was identified that there are adverse effects of being diabetic in the workplace.

Some possible effects are that severe diabetes or complications of the disease may prohibit the individual from working or may result in an increase in absenteeism or a loss of efficiency evidenced through work outputs. One participant described the effect of his condition on his energy levels at work:

*“I have to work at the airport at a rental car company and the money that I earned there was quite good to was enough money to buy me some stuff to eat and*

*extra but, then I get tired of working on holidays like Sundays, Saturdays and holidays now. Working from 6 o'clock in the morning till 11 o'clock of 12 o'clock. I told my wife no, I, had enough of this, I just drop out of work" (P6)*

This participant made an autonomous decision to leave his previous workplace due to the negative effects of his working circumstances impacting his health. A "healthy lifestyle functioning" affords the individual the opportunity to make independent decisions to improve their health, in this instance in relation to the workplace (Uys & Middleton, 2017:18).

The concerns around possible adverse effects on the quality of life of the person with diabetes need to be addressed and call for change (Gredig & Bartelsen-Raemy, 2016:1620).

In this study, a male participant revealed that working hours were prohibitive to the recommended exercise that, according to studies done, should be incorporated into the diabetic's self-management practices:

*"No. It's because of work...At my previous job I worked early mornings, late evenings, weekends. So because of time, I don't have enough time to exercise."*  
(P2)

The same participant commented on not always being able to adhere to medication times due to working hours and rigid or structured break times:

*"I don't stick to them 100% because when you come work it's difficult because you don't eat and drink in the time."* (P2)

Considering the complexity of lifestyle adaptations, which require enforcement for the duration of the individual's life, it could be assumed that it is challenging for clients with DM to be compliant (Point 1.4).

Less than favourable associations were identified between occupation and dietary changes, as well as fatigue related to work being adversely linked to following a healthy diet and exercising regularly (Salameh et al., 2019:4; Poulsen, Cleal, Clausen & Andersen, 2014:7). The findings align with the verbatim statements of the study

participants in that they did not have the time to dedicate to adapting their diets and exercising regularly or may have been too fatigued to do so. Mohebi et al. (2018:5) found social support as a psychosocial component to positively influence self-efficacy and glycaemic control. Promotion of these concepts by the family and healthcare professionals has the potential to inadvertently influence the client to be self-disciplined in their practical application. However, the client will still need to apply self-discipline and self-determination in order to manage a routine.

#### *4.3.1.2.2 Sub-category: Dealing with the fear of being labelled*

A study of stigma in diabetic patients found that the majority of study participants felt that they were somehow flawed in their characters or did not meet their individual duties, whilst expressing fear of being a burden on the healthcare system (Liu, Brown, Foliass, Younge, Guzman, Close & Wood, 2017:29).

A female study participant rejected the concept of joining a support group for diabetics for fear of being labelled in a negative context:

*“Because then it’s an official label, like senior citizens. Like people saying like that is a senior citizen, is for you.... When you said that now, I immediately see myself in this group ‘oh we diabetic!’”. (P5)*

A positive sense of self or *self-identity* is important. A study by Gredig and Bartelsen-Raemy (2016:1629) confirms an increased level of psychological distress and enhanced symptoms of depression related to the negative definition of stereotypes in persons with diabetes.

This study participant elaborated with the following comment:

*“I can’t get my mind to be in a group of just that. A group of smokers or drinkers, yes then we party. See, that has a ring to it.” [Laughing] (P5)*

The ADA (2018:45) recommends standards of medical care in lifestyle management that include addressing “Diabetes Distress” (DD). DD alludes to the various psychological responses, including but not limited to fears that can occur due to living



with a chronic disease. The client should be regularly monitored for signs of stress, especially when treatment does not bring control and when complications arise.

Similarly, another participant expressed the concern that a diabetic support group might represent others' negative or depressed states of mind and rather wanted to manage his situation himself:

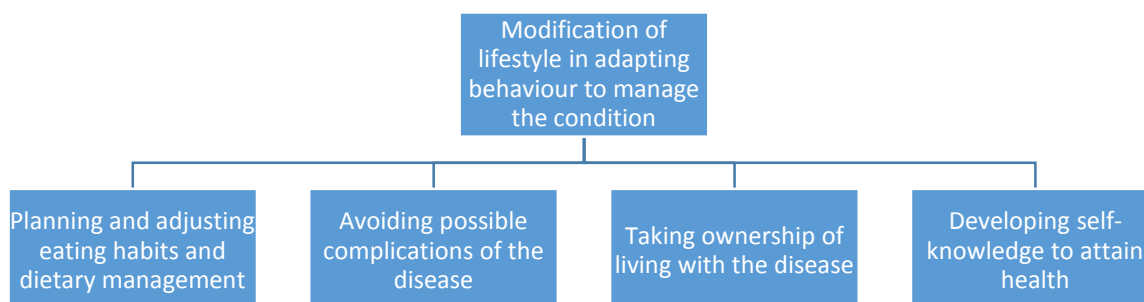
*“No, no I don't know. I don't know, maybe it will be a good thing that. I mean I'm easy with people and stuff but I don't know if there's, I won't say morbid people, that's the right word or no no down in the dumps. I don't know, I don't like negative people”.* (P9)

On the other end of the spectrum, however, one of the older participants, when advised of his confidentiality, self-confidently responded that he was not concerned about the need for privacy as he did not feel ashamed of his disease:

*“I really don't have nothing to hide, about diabetic, I mean it's a disease, not a criminal record.”* (P17)

Although there is evidence to be found that there is a stigma attached to people living with diabetes, there is a lack of knowledge about the effects this might have. Of interest in this study's findings, is that younger persons with diabetes could be less accepting of reported stigma and inequality resulting from their disease and are challenging the stereotype (Gredig & Bartelsen-Raemy, 2016:1620,1631).

### 4.3.2 Theme 2: Modification of lifestyle in adapting behaviour to manage the condition



**Figure 0-2:** Theme 2: Modification of lifestyle in adapting behaviour to manage the condition

In order to improve self-management strategies of those living with diabetes, defining what influences and contributes to behaviours both positive and negative is of value. The defining factors can then be translated into actions to improve the management of this chronic disease (Schulman-Green et al., 2016:1470). The WHO recommends National Guidelines and Management Protocols in terms of lifestyle modifications relating to the principles of healthy living, medication, appropriate screening and referral systems (WHO, 2016:50). An individualised and all-encompassing approach to the health education of diabetes patients/clients that is promotive of teaching skills for day-to-day living is advocated (Powers et al., 2015:71).

The study participants' engagement with the recommended changes to their lifestyles were diverse. All participants were aware of the need to adopt new behaviours but their experiences of these adaptations varied. A participant expressed a feeling of surprise at her own response to dietary modifications suggested:

*"I don't really miss it that much. Ha ah 'nogat'. It's actually strange and it's just a few months from last year that the doctor diagnosed me as diabetic. And I've*

*easily, come to think about it, it's for me even like luxuries stuff. Chocolate stuff. I'm not first in the line anymore.” (P5)*

When probed about exercising regularly, a participant's response was that although aware of the recommendation, there was not sufficient time to do this:

*“I didn't try exercise yet, because uhm, my time is such a rush and there is no time for me like to do it. My wife is working 7-7 then I must go drop her, pick her up, then the time is not there. And when do I have time to spend with them?” (P7)*

Another participant responded positively to an enquiry about whether or not suggested changes regarding self-management made a difference to his health but admitted that maintaining these changes was necessary:

*“I just need to change a couple of things. I'm not exactly where I want to be. I was there and I went backwards and now I'm trying to get back.” (P15)*

Studies show that there are multiple reasons for patients with DM to not adhere to the recommended self-care and self-management practices. Lack of knowledge, limited resources, literacy issues and poor support systems are some of the reasons cited (Mikhael et al., 2019:16; Reyes et al., 2017:10).

#### **4.3.2.1 Category: Planning and adjusting eating habits and dietary management**

Patients in a study by Reyes et al. (2017:5) communicated that they missed eating some of the foods that they should now not eat. Substituting healthy options in place of less healthy options was noted as a way of addressing the temptation (Reyes et al., 2017:5). Study participants expressed some disappointment at not being able to indulge in past food pleasures. An illustration thereof was the following participant's response when questioned about dietary adaptations:

*“Ja, it is difficult, now I must leave my salt and sauces, everything, like salt and everything. And it is a bit hard...But I must get used to it for my health.” (P7)*

Another participant seemed to accept that a dietary adaptation was necessary but this appeared to be easier for him as he was not responsible for his own meal preparation:

*“And eating healthy, my mother makes healthy food because it’s me and my father that is diabetic in the house.” (P14)*

Of note is that there is no specific definition of what determines the quality of life, as it is based on the patient’s perception thereof. It may, therefore, be difficult to determine how health quality of life is affected in the diabetic patient (Trikkalinou et al., 2017:121).

Participants reported that although they were aware of the need to adhere to a healthy diet, there were occasions when they did not:

*“It’s Ja. Like I said mos. I stopped with the biscuits but sometimes I do eat it because I like it, I love it. But I know that I mustn’t eat it twice.” (P1)*

*“Sometimes I buy a chocolate (laughing), because you feel like eating something different and breaking away from the normal routine. But if I eat that, I try and eat it once a week and don’t eat it every day. I try to stay disciplined.” (P2)*

*“I just adapted to it. I just tried to eat the right food, change my diet. I am a bit naughty. But like I said, it’s not easy.” (P15)*

The ADA advocates that support should be provided for the patient with diabetes at diagnosis; after that at least yearly; when any complications or co-existing conditions are present or may develop and when there are changes in care (ADA, 2018:538). In practice this care that should be constant.

Recent research regarding the use of diabetes apps suggests that engaging with these resources has the potential to improve self-care and self-management practices, which in turn could result in better overall health (Ayre, Bonner, Bramwell, McClelland, Jayaballa, Maberly & McCaffery, 2019:8; Kebede & Pischke, 2019:12). Challenging the existing “one size fits all” mode of delivery of health promotion for patients with diabetes is a further measure to augment lifestyle adaptations. In support of an individualized health education provision, the manner in which patients define the

recommendations for self-care and self-management should be explored rather than the interpretation of these concepts by health professionals (Masupe et al., 2018:52).

A study by Jaworski, Panczyk, Cedro and Kucharsha (2018:167) found that a shared constraint for the participating families was the lack of availability of recommended healthy food options in the market place. Some participants commented on being able to find healthy food options but not always being able to afford them:

*“Ha they are not difficult to find, not difficult to find. It’s only the thing that is difficult is about the money, I can’t afford.”* (P11)

*“Yes, at a special price.”* (P15)

Another participant experienced difficulty (swearing) in locating the recommended food options as well as financial constraints related to these options:

*“No not really and when you find it, its bloody expensive.”* (P17)

Similarly, the study by Reyes et al. (2017:4) found that participants were restricted in what they could eat at social events due to suitable foods not being offered.

#### **4.3.2.2 Category: Avoiding possible complications of the disease**

The WHO cites the risk of uncontrolled diabetes developing into complications, specifically blindness, kidney failure, lower limb amputation and several additional long-term consequences impacting on the quality of life (WHO, 2016:30).

The study participants responded to enquiries about which areas of their bodies concerned them most since having diabetes. Responses firstly related to vision:

*“The thing I am worried about also is my eyesight.”* (P11)

*“My eyes, that was actually one of the first signs, visual. I couldn’t see properly. They gave me trifocals and multifocal it didn’t help.”* (P12)

*“Eyes, they call it floaters... So I went to the doctor there, uhm, my doctor, uhm is a eye doctor he explained to me what it’s like the cover of our eye, all that sort of stuff...”* (P17)

Some of the male participants expressed concern with their genitals since being diagnosed with diabetes:

*“It’s this ‘Oke’ I sometime have problems with him. You know and sometimes when I wee. And it’s only, sometimes it’s alright and it feels almost like a yo-yo.”*  
(P3)

*“Uhm now, it’s my penis. Uhm I don’t know why, what happened, but frankly it won’t go over, if I can say it like that, anymore. So I need to go schedule me an appointment for circumcision.”* (P14)

A further area of concern was the fear of developing problems with their feet. The ADA makes specific reference to the importance of exercise in the presence of peripheral neuropathy and recommends moderate-intensity walking to counter the progression of the complication (ADA, 2018:544). Participants verbalised their concerns as follows:

*“I’m very paranoid over my feet, I’m paranoid.”* (P8)

*“And my feet. And being on my feet all night. It was so, so sore. I would lie awake in bed all night. Even if I haven’t been to work for two days it would still ache. It felt like walking on marbles.”* (P12)

One of the participants expressed concern about a cardiac complication and the subsequent need to take care of herself in this area:

*“And also my heart... I have got arrhythmia so I have to be very careful.”*  
(P4)

These findings confirm the theoretical assumption (in Chapter 1) that a chronic illness may be described as progressive when the physical condition of the individual affected is not static but changing. The management of co-morbid diseases also requires inputs from both the medical specialist and the patient but achieving and maintaining optimal personal health is essentially driven by the patient (Raghupathi & Raghupathi, 2018:22).

#### **4.3.2.3 Category: Taking ownership of living with the disease**

The results of a study conducted by Jaworski et al. (2018:169) confirm that the ability to appropriately accept the presence of the disease influences the adherence to dietary recommendations, albeit minor.

A participant acknowledged that his self-management practices were necessary to delay complications of the disease in order to be present for his partner:

*“I must look after myself and it’s not for me, it’s for my spouse. So that I’m gonna be left here, type of thing. It’s not to be selfish and just stuff myself with whatever.”* (P9)

It seemed that the participant was aware of the possible outcome of dying. This comment confirms the assumption (Point 1.4) that the coping mechanisms of the individual when facing many changes and losses will be challenged, and that the onset of any illness, whether acute or chronic, can end in death.

Another participant reached the conclusion that not adhering to dietary recommendations could result in a loss of productivity:

*“If I don’t look after my diet, I can feel very tired, really restless and that affects work.”* (P11)

A study by Thiyagarajan and John (2017:45) showed that a greater percentage of the Type 2 diabetic participants experienced symptoms of struggling to rise in the morning and becoming active than those who did not.

A participant alluded to the changes in lifestyle that were necessitated with the diagnosis of diabetes:

*“It’s not a good thing, I mean because you have to adapt to a certain lifestyle or whatever that I wasn’t used to before.”* (P14)

#### **4.3.2.4 Category: Developing self-knowledge to attain health**

The promotion of a positive mindset towards managing the chronic disease is suggested as an additional step in achieving optimal outcomes (Jaworski et al., 2018:169; DuBois, Millstein, Celano, Wexler & Huffman, 2016:6).

With reference to self-discipline and variation regarding diet, a study participant provided a rationale for a repeatedly poor eating cycle:

*“Its lack of self-control. This one little cheat will come another one and another one. I feel also tiredness as well, get lazy at work like in December. You’re like ‘let me just have something quick’ and by the third day your body is so tired of eating badly, you have something quick again because you don’t have the energy to cook” (P12).*

Conversely, a participant spoke of his efforts to adhere to an eating plan to try to maintain healthy habits:

*“When I got diagnosed, I got an eating plan from the dietician that I stick to.*

*Uhm but I try and stay healthy by eating vegetables and eating low GI bread.”*  
(P2)

A participant summarised a commitment to maintaining health through exercise and medications as follows:

*“Yes, I work a lot and I jog a lot and I use the pills the doctor gave me.”* (P13)

A study protocol by Burch, Williams, Makepeace, Alston-Knox and Ball (2019:1) describes the need to identify the factors that may influence the diet of the diabetic in a positive and ongoing manner to promote glycaemic control. In the study by Jaworski et al. (2018:167), it was further observed that variations from recommended eating patterns were more likely to occur when the foods suggested deviated from those regularly consumed by the study participants. Several of the current study participants noted that the cost of recommended foods should be considered in relation to their



means: participants indicated that they either did not have money, or food was too expensive or buying higher quality food was impossible.

A participant mentioned the lack of financial means:

*“Oh. It’s because I don’t have the money to go buy that healthy food. That is a major fact that people with authority shouldn’t ignore.” (P5)*

The fact of expensive food came to the fore:

*“No. It’s very very expensive especially the breads.” (P12)*

*“... sometime it’s a little bit expensive. Ja, but we manage.” (P13)*

Some participants were focused on healthy eating, however found it too expensive:

*“I try when I do the shopping to buy my health products (inaudible) it’s very difficult and very expensive.” (P15)*

*“Sugar-free things are very expensive, it’s pricey.” (P16)*

It is advocated that a “multisectoral approach” be adopted by governments to address the dietary options and costs of foodstuffs available (Mozaffarian, 2018:5). A meta-analysis by Rao et al. (2013:15) found that healthier food options were more expensive. Other barriers to a healthy diet or eating pattern included availability and cultural acceptability.

The majority of participants in a qualitative study by Mikhael et al. (2019:13) verbalised during face-to-face interviews that they could benefit from additional information about their diet, medication, exercise and management of their stress. The SEMDSA made guidelines available for the diet management of patients with Type 2 diabetes. Birkinshaw et al. (2018:39) conclude, however, that participant adherence to these guidelines is low, which will increase the risk of adverse outcomes and complications of diabetes.

In the current study, participants intimated that they sought to know more about their chronic disease, diabetes mellitus, with the anticipation that having more knowledge

regarding management of diet and other aspects of the disease would improve their health:

*“I just want to know more about that. Tell me how much sugar and so. I do research but I still would like to know about that perhaps. Maybe if I could get a list.” (P1)*

*“I don’t think I know enough, and because diabetic is a kind subject that a lot of people think they know enough and they pass that misconceptions and stuff onto me, that really don’t know enough, but I must know.” (P5)*

A different participant advised that one can never know all that there is to know about chronic disease:

*“I know quite a bit, but there is always little things that you learn along the way.” (P12)*

In expressing feelings about having diabetes, the same study participant equated knowledge about and a better understanding of the disease with past health experiences. Knowledge about the disease also seemed to bring a measure of acceptance:

*“I know quite a bit, but there is always little things that you learn along the way. Like before I was diagnosed I was in hospital with pneumonia and it took 4 weeks to recover afterwards and I could not understand why. And then my new GP that I found now, said that’s exactly why you were at home for 8 weeks.” (P12)*

Dehkordi and Abdoli (2017:115) found that although newly diagnosed persons with diabetes were satisfied with the content the education provided for them, those living with the disease for several years experienced the information available to be lacking in terms of their expectations.

Two other participants made similar statements regarding their knowledge levels:

*“I don’t think anyone will ever know everything there is to know about being diabetic.” (P14)*

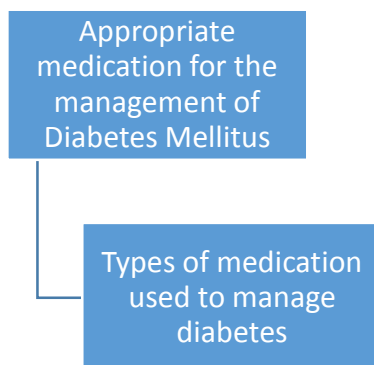
*“Do you ever know enough, because there is a lot of myths and drink this juice, this will help you, drink this you know and...” (P17)*

This participant also noted that he gained insight into his condition through communication with others:

*“Uhm, at first you don’t know what to expect, but then I did lot of study about it, I went to go and see people... And I, so now I know what it is.” (P17)*

It could be assumed that learning opportunities for patients could occur through observational, direct, indirect and imitation learning (Point 1.4).

#### **4.3.3 Theme 3: Appropriate medication for the management of diabetes mellitus**



**Figure 0-3:** Theme 3: Appropriate medication for the management of diabetes mellitus

Studies conducted on diabetes self-management indicated a need for greater community-based education concerning the principles of self-management and the treatment of DM (Masupe et al., 2018:48; Powers et al., 2015:78). A study conducted on Ethiopian patients’ perspectives of adherence to anti-diabetic medications revealed a need to bolster health education by taking individual perceptions into account when defining or prescribing self-management strategies and medication (Habte et al., 2017:8).

A participant spoke of “trauma” experienced through the passing of his wife as a result of not taking anti-diabetic medication:

*“She passed away as a diabetic, uhm but she wasn’t on medication, she refused.” (P9)*

He further spoke of his surprise at his own diagnosis of DM after his wife’s death:

*“I mean, and then suddenly they say I also now have sugar, diabetes.” (P9)*

A participant verbalised a difficult journey of changing from oral medication to injectable insulin due to repeatedly raised glycaemic levels:

*“And I, I use now metformin now, and the problem I have now is this insulin. I think when, last time when I go then my sugar was 17, so they give me insulin...then 4 days I didn’t feel well, because my body doesn’t respond to that. But to the other tablets is nothing wrong, so I spoke to the doctor, so now the doctor said that if my sugar level is high and there’s no other way, they have to put me on insulin.” (P6)*

Although discussion between the health care provider and the client is essential, there will be times when choices are limited for the client. This reinforces the need for education that is ongoing and that is sensitive to the needs of the client without detracting from the need for optimal health for the client. National Standards for Diabetes Self-Management Education and Support were developed and made available in the US to varied and multiple service providers as guidance for evidence-based practice. The standards identify a need for services that are client-centred as well as inclusive of new and emerging technologies (Beck et al., 2017:1409).

The client needs to be motivated to take the prescribed medication, a client spoke of how he had felt physically after not taking his medication for some time and how this had been a motivation to resume taking it correctly:

*“Ja, I slipped up say about 6 months ago. I hadn’t taken my medicine or for about, for a week. And I felt completely drained and my mouth felt dry. So if I take my medicine everything is right. Everything is good.”(P14)*

#### **4.3.3.1 Category: Types of medication used to manage diabetes**

The ADA (ADA Position Statement, 2018:14) recommends standards of care for those with diabetes that is patient-centred and conscious of patient preferences, timeous and based on evidence gathered through practice. Specific guidelines for “pharmacologic approaches to glycaemic treatment” are also defined in the standards of care as published by the ADA. These describe proposed medication regimens for the initial and continued management of both Type 1 and Type 2 diabetes (ADA Position Statement, 2018:24-25). Clients taking oral medication found this easier to self-manage than those prescribed insulin (Salameh et al., 2019:12).

A study participant advised that although they were originally on Glucophage, the oral medication had been replaced with injectable insulin:

*“Yes. I’ve got Glucophage 1000 and I used to be Type 2, now I’m on insulin.”*  
(P2)

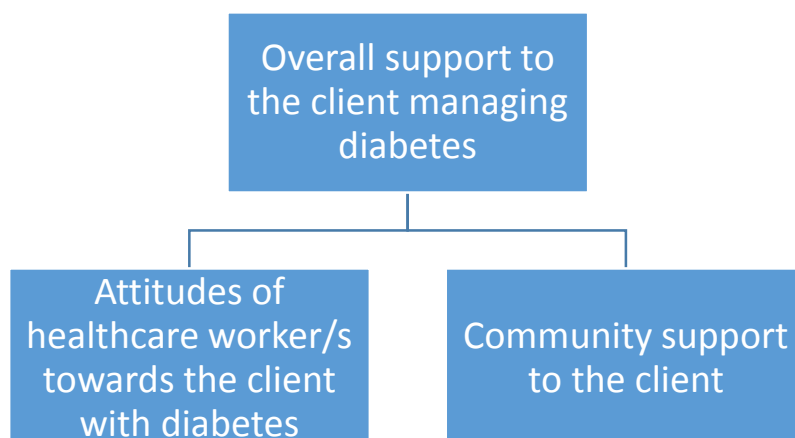
Two (2) other study participants were commenced on Metformin and although dosages had increased at times, were still on oral medication:

*“No, I get my, my tablets, my medicine from the clinic every month, and uhm a piece of card there with the dates on. I just told sister now is that the last month they have increased my, my tablets with Metformin now.”* (P6)

*“Yes I do take, Metformin 850, twice a day.”* (P8)

Aquino, Souza, Sanches, Pereira and Baldoni (2019:2) conclude that empowerment of Type 2 diabetes patients through pharmacotherapeutic support is effective in the short-term. They further recommend that pharmacists, as members of the multidisciplinary medical team, should engage in the continuous follow-up of the diabetic patient.

#### 4.3.4 Theme 4: Overall support to the client managing diabetes



**Figure 0-4:** Theme 4: Overall support to the client managing diabetes

A study conducted in Ethiopia on the impact of nurse-led diabetes self-management education strategies indicated promising results. In addition, a marked improvement of HbA1c levels was noted in the participants of this study (Hailu et al., 2018:9). The ADA cites “support” as one of the four (4) fundamental areas of lifestyle management for diabetics. They further elaborate that diabetes education and support should focus on the patient, may make use of technology and should direct clinical care (ADA, 2018:38).

The positive effect of social support is the focus of a study by Mohebi et al. (2018:5); it is advocated that family members and healthcare service providers invest in the emotional support of the affected family member or patient. A study by Jaworski et al. (2018:169) acknowledges the importance of the support that is offered in various forms – educational, motivational or informative – but argues that social support alone will not necessarily translate to action, even though the patient’s lifestyle is enhanced. For this reason, the authors selected the role of disease acceptance in the promotion of dietary adherence as the focus of their study. This is supported by the findings of Masupe et al. (2018:49), who cite self-acceptance as one of the integral definers of self-management behaviours capable of effecting lifestyle changes necessary to obtain healthy outcomes.

The 2018 and 2019 theme of World Diabetes Day is the family and diabetes. An editorial published in the *Lancet Diabetes Endocrinol* (2018:911) suggests that clients with type 2 diabetes benefit positively from the support of their family or other social support. In the current study, when asked who provided the most support to them, the majority of the participants identified a close family member:

*“My wife.”* (P1); *“My wife.”* (P2); *“My sister.”* (P3)

*“Well, besides work, I think my husband does. He has been very good. He has needed the diet as well so he is also enjoying the benefit of weight loss.”* (P4)

*“I think my wife...she’s on my case every day.”* (P7)

*“Obviously my family, especially my son... he loves his mom.”* (P8)

*“It’s my wife, my spouse.”* (P11)

The assumption that the family will need to adapt to the changes in a beloved family member and possibly changes to their own lifestyle (Point 1.4) is thus confirmed.

Jaworski et al. (2018:170) posit that factors which improve nutritional observance include appropriate education about the dietary adaptations required for the effective management of diabetes and sufficient social support for the patient and their family member/s or those closest to them. A study by Marinho et al. (2018:7) reports a correlation between, notwithstanding other aspects, emotional support and improved treatment adherence.

Another participant named a family member as well as several close friends as being supportive of her dietary changes:

*“My mom them are very good. When I visit, they try and make the food I should eat. And my friends, in fact I have four other people Banting with me in my circle of friends. They are not diabetic, they are just healthy and they have lost the weight and can see the difference.”* (P12)

Ojewale, Oluwatosin, Fasanmade and Odusan (2019:213) established that self-management practices amongst diabetic clients were enhanced by the presence of

family support. In keeping with this statement, Isworo, Ekowati, Iskandar and Latifah (2018:1) proposed that because of this positive effect on the psychological status of the client, healthcare mediations should incorporate family support.

Two (2) other participants elected themselves as being their biggest support:

*“I like myself.”* (P15)

*“Myself. I don’t think that there is anyone else that should support you, but yourself.”* (P17)

A participant explained his rationale for being his own choice of support as follows:

*“It’s nice if you have support, but then it gets ... I have a very dear friend. He is young, I’ve known him since he was six, he is like 26 now. Now I can’t go eat out with this oke. He is like constantly like, ‘No don’t eat that. You can’t have that.’ He is like loud about it. He takes out a Canderel. Like whatever.”* (P17)

Similarly, the findings of a qualitative study by Reyes et al. (2017:8) noted that the participants either avoided social functions altogether or found that they could not fully share in the festivities due to their dietary restrictions. This links to the assumption that the presence of a physical illness in an individual could have a marked effect on that person, their families and friends and even, in the case of DM, on society in general.

#### **4.3.4.1 Category: Attitudes of healthcare worker/s towards the client with diabetes**

Relationships between health professionals and clients could be either a hindrance or a catalyst in the promotion of correct medication usage and lifestyle adaptations (Habte et al., 2017:5). Reyes et al. (2017:8) identified that the assistance provided by health professionals in all aspects of management of the disease was found to be of value but the emphasis was placed on the availability of the service provider to answer specific questions that the clients had regarding their chronic disease.

Studies reveal that health professionals can motivate clients to adhere to healthier lifestyle options through language that is free from bias, judgment and negative



connotations about DM. Further, it is the responsibility of the health professional to provide support for people with diabetes in rejecting stereotyping and stigmatisation and dispelling myths surrounding the chronic disease (Dickinson, Guzman, Maryniuk, O'Brien, Kadohiro, Jackson, D'Hondt, Montgomery, Close & Funnell, 2017:1790; Gredig & Bartelsen-Raemy, 2016:1632).

Several participants responded positively regarding the support received from the health professional, the OHNP, at their place of work:

*"Nurse X does everything. I'm actually very fortunate to have her because I don't think that I maybe would have taken it as seriously."* (P4)

*"Sister X is very good, I must say. The others before her, nope... they didn't want to see us, but she sees me."* (P8)

*"Yes I always come here."* (P13)

*"They do. 100%."* (P16)

A participant volunteered that he visited the on-site clinic for regular checks of his blood sugar levels:

*"I'm here on a regular basis. Cause when I come sometimes, we do tests, blood tests and sometimes in the morning before I go on the road."* (P3)

Another participant spoke of medical testing facilitated by her general practitioner that included additional screening measures due to the dietary lifestyle that she was following:

*"It depends on if I'm ill or not, but lately it's been more likely, maybe every few months, but definitely every six months for diabetic check-up, liver function, sugar, cholesterol. Because of the Banting diet he checks that every sixmonths."* (P12)

Social support is deemed to be relevant in improving the outcomes of diabetes, both in terms of self-care activities and coping with potential stressors related to maintaining a healthy lifestyle (Mohebi et al., 2018:4). Healthcare professionals caring for and

educating diabetic clients should be supported and their skills enhanced to better impart the knowledge required to instil the principles of sound self-management practices (Riemenschneider, Saha, Van den Broucke, Maindal, Doyle, Levin-Zamir, Muller, Ganahl, Sorensen, Chang, Schillinger, Schwarz & Muller, 2018:6). By implication, this necessitates that healthcare professionals should seek to remain current in the information that they share with their diabetic clients. This also implies constantly endeavouring to equip themselves with the relevant knowledge required to identify those at risk of developing diabetes in the general population (Nansseu, Petnga, Atangana, Ossa, Sangong, Ebendeng & Noubiap, 2018:6).

#### **4.3.4.2 Category: Community support to the client**

Ojewale et al. (2019:214) recommend that diabetics who have had the chronic disease for several years should be empowered to motivate and educate others within the community. Community members could also be trained to offer education within their areas to raise awareness of the chronic disease (Nansseu et al., 2018:6).

A female participant, when asked if she had sought assistance within the community for her NCD or belonged to a community support group, responded that she did not feel that she had a need to:

*“I manage and I have got it under control. Here and with my doctor.”* (P04)

Another female participant responded that she was not aware of any support groups but would be reluctant to join for fear of being labelled:

*“Do a person get something like that? No I also don’t want to mess around with my sickness all the time. I think that is not so healthy. Because then it’s an official label, like senior citizens.”* (P05)

When asked how others made them feel about their diabetes, individuals reported experiencing feelings associated with shame and embarrassment. These feelings could be a deterrent to joining a support group or to seeking support for fear of humiliation (Liu et al., 2017:31).

A male participant also indicated that he was not aware of any support groups:

*“Uhm, I’m not part of any group, honestly I didn’t even ask if there is a group like that” (P06)*

A female participant, when asked if she belonged to any support groups for diabetics, replied that she did not, due to time constraints but that she would be most willing to do so, time permitting:

*“No, I’m not. Probably when I’m retired I’ll join. At the moment I don’t have the time. I would love to.” (P08)*

Another male participant advised that he did not belong to any group and provided his reasons for not doing so as not having the time, as well as feeling that he did not need support other than that provided by his family:

*“No I don’t belong to one, but uhm, I must go to the clinic, the government hospital, the day hospital and I don’t have the time. Because most of the time I’m here at work. And that keeps me...I don’t think I need a support group. Because my wife and my kids, they support me and they give me that.” (P13)*

Of all the responses provided, a male participant verbalised that he belonged to a support group:

*“Ja, no it’s very interesting. Sometimes we all sit at the table and the sister sits with us. Then especially for people who are new then there is a board we play on. Every time you get a nice question you can move forward with your car. It’s actually nice. It’s like we joking, but we actually learn a lot.” (P17)*

Although the majority of the participants were not support group members, the single participant of a support group provided feedback that the group was both motivational and informative.

A number of recent studies have focused on the implementation of mobile phone messaging or the use of mobile apps to unite groups of diabetics. Outcomes ranged from no improved self-management practices to marginally better to significant improvement. The need for further investigation into this mode of sharing of knowledge, experience and support could benefit from further research (Fottrell, Ahmed, Morrison,

Kuddus, Shaha, King, Jennings, Akter, Nahar, Haghparast-Bidgoli, Khan, Costello & Azad, 2019:210-211; Kebede & Pischke, 2019:7-9; Dobson et al., 2018:8).

#### **4.4 Summary**

This chapter provided insight into the self-management perceptions and practices of diabetic clients working in industries where there is an occupational health clinic. The information was gathered from verbatim statements of those interviewed.

Chapter 5 will present the conclusions, recommendations and limitations of the study.

## CHAPTER 5

### CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

#### 5.1 Introduction

The purpose of the study was to explore and describe the self-management perceptions and practices of clients with DM in selected industries in Cape Town.

The study commenced with a literature review indicating varied responses by diabetic clients regarding the success or failure of their self-management practices. The employment of self-management practices was then broadly defined in the *areas of exercise, nutrition and medication adherence*. These components guided the semi-structured questionnaire with reference to the perceptions of self-management practices of clients, information provided to the client as well as *support* given by healthcare professionals working in the on-site occupational health clinics and family members or friends.

Conclusions and recommendations will be provided and elaborated upon. Limitations identified during the course of the study will be discussed.

#### 5.2 Conclusions

The majority of the study participants were male (n=13), whilst female study participants were in the minority (n=4). Study participants were identified within industries in Cape Town and were, therefore, part of the South African labour market. The greater number of male participants is congruent with statements by Statistics South Africa which found that the South African workforce is still more amenable to men than to women (2018:n.p.).

The study findings produced some vivid insights into the manner in which study participants perceived their behaviour/s to be or expressed their feelings relating to self-management practices. This linked with literature related to the importance of identifying the clients' perceptions of their disease. It cannot be over-emphasised that we do not all share the same insights and principles and these differences need to be taken into account when sharing information and planning care (Pera, 2016:14). *This*

*aligns with aspects of the theoretical framework that refer to the complex nature of adaptations necessary for an individual when diagnosed with DM.*

The data obtained through the seventeen individual interviews illustrated the multiple facets of self-management of diabetes as a chronic disease, as was evidenced by the verbatim quotes of the study participants.

The conclusions drawn from the study will be discussed under the emergent themes with literature deemed to be relevant in support thereof. The *1<sup>st</sup> theme* was related to varied unpleasant conditions and symptoms experienced during the course of the disease, which required self-management. The *2<sup>nd</sup> theme* investigated the modification of lifestyle in adapting behaviour to manage the condition; the *3<sup>rd</sup> theme* addressed appropriate medication for the management of diabetes mellitus and the *4<sup>th</sup> theme* explored overall support to the client in managing diabetes.

### **5.2.1 Varied unpleasant conditions and symptoms experienced during the course of the disease, requiring self-management**

The focal aspects of these conditions and symptoms were either physical or emotional. An emotion expressed by a participant at having developed diabetes was regret (Point 4.3.1), whilst another participant verbalised disappointment (Point 4.3.2) at having to make dietary changes to self-manage his DM. Interviews conducted by Pikkemaat, Bostrom and Strandberg (2019:5) with newly diagnosed diabetic patients similarly extrapolated a theme from their data analysis documenting reactions of guilt, shame and disappointment in the diagnosis. *This is an assumption in the theoretical framework in which the HBM alludes to the individual with DM needing to apply self-reflection in order to gain insight into their perceptions of the disease in order to apply self-management principles.*

The study participants discussed and described challenges experienced in the realms of physical and emotional symptoms but overall seemed to be accepting of the notion that their degree of acceptance and application of the self-management principles could result in positive health outcomes (Point 4.3.2).

Working circumstances were cited by some study participants as reasons for not eating regularly or adhering to a healthy diet and exercise routine (Point 4.3.4).

The majority of the study participants had not joined a community or clinic support group system for diabetics, some for fear of stigma and others out of the concern that the group may focus on the negative aspects of DM (Point 4.3.5).

### **5.2.2 Modification of lifestyle in adapting behaviour to manage the condition**

Study participants experienced differing emotions when asked about their feelings related to dietary adaptations. Some expressed disappointment at having to stop eating certain foodstuffs, whilst others advised that the dietary changes had over time become their preferred choice (Point 4.3.6 and 4.3.7). Many of the study participants advised that the foodstuffs recommended for them were sometimes difficult to source, at times costly and even for some in the community, not affordable (Point 4.3.7).

Some participants admitted to an awareness of the need to change their eating habits. They were also reluctant to do so due to the sense of loss or disappointment experienced at not being able to indulge in what they previously could. It was noted that although some partook of what was not maintaining optimal blood glucose levels, they sought to instil discipline in their eating habits for the majority of the time (Point 4.3.7). *Similarly, the social learning theory of Bandura and Walters advises that learning occurs through observation, direct and indirect learning and imitation.*

In most instances, regular exercise was difficult to achieve due to working conditions (Point 4.3.6). A common concern or complication of the disease was related to patients' eyesight (Point 4.3.8). Several of the male participants of the study reported experiencing a lack of libido or erectile dysfunction (Point 4.3.8). Finally, a few of the participants expressed concern regarding their feet (Point 4.3.8).

Participants were motivated to take responsibility for lifestyle adaptations by means of self-management practices to delay or avert the complications of diabetes. They were also urged, together with their families, to take responsibility for the effects experienced when management practices were not applied (Point 4.3.9). Patients fear leaving their spouse or children alone should they not address the disease and die as a result of

the disease or complications thereof. *This links to the assumption in the theoretical departure stating that the onset of either an acute or chronic illness or disease could result in the death of the individual affected.*

It was noted by participants that an aspect of ownership of the disease was the need to educate themselves about it – this knowledge could be used to improve their quality of life in different areas. They furthermore observed that one would never be able to know everything about the disease and that ongoing reading and sourcing of information was important to update knowledge of the condition (Point 4.3.10). It was also noted that information about the disease was important in order to ensure that the client was able to separate myth from truth regarding the self-management practices adopted to address the condition.

### **5.2.3 Appropriate medication for the management of diabetes mellitus**

Participants were predominantly using oral medications obtained from either their local community health centre or their general practitioner (Point 4.3.12).

Clients advised of adjustments in dosages as required by the healthcare worker during the course of the disease (Point 4.3.12).

The participants reported adherence to medications taken but that, due to work commitments, these were at times taken later than prescribed or indicated.

### **5.2.4 Overall support to the client managing diabetes**

Many of the participants identified their partner and other family members as their primary source of support (Point 4.3.13). A number of the participants also alluded to the supportive role of the OHNP (Point 4.3.14). This support is described as education, motivation of the self-care practices adopted, as well as monitoring the client's blood glucose levels. *The conclusion is aligned to the assumption in the theoretical departure, in that DM affects not only the individual but also the family*

Support was further described as motivation by family, colleagues and friends in the community to adhere to a healthy diet, as well as motivation to sustain other self-care



practices. Catering for the participants in terms of their diet at functions by these community members was an example of this support (Point 4.3.14).

A number of study participants cited a lack of time as a reason for not joining a support group for diabetics (Point 4.3.15).

### **5.3 Recommendations**

Recommendations were made to address self-management and the support systems needed by adult diabetic clients with regards to nursing practice, nursing education, staff development and research.

#### **5.3.1 Nursing practice**

- OHNP's should schedule formal appointments at regular intervals with clients, with DM and if possible, their family members, to share individualised, "tailored" information in relation to self-care and self-management behaviours and adaptations. This information should be provided in the context of the specific community in order that clients are able to manage themselves through identifying their special needs, within the means available to them.

Regular meetings with clients with diabetes will enable monitoring of their chronic condition, offering of ongoing education, including education about reproductive health; and motivating sustained lifestyle changes. The meetings should focus on the uniqueness of each client and how these individual needs can be used to implement their knowledge. Sharing or interpretation of those elements of uniqueness could contribute to the existing body of knowledge of DM within the broader community.

Recipients of health information regarding self-management are better able to practice the principles taught and thus attained improved health outcomes (Gagliardino, Chatelot, Domenger, Ramachandran, Kaddaha, Mbanya, Shestakova & Chan, 2018:29).

- Educational support by the OHNP should continue to serve to guide and motivate clients to maintain their self-management practices. Clear examples of

planning of their day, organising their routine, self-talk during directing their own positive behaviour and daily reflections on challenges that have been addressed, should be shared.

This sentiment is supported by a study of Zheng, Liu, Liu and Deng (2019:6), who recounted a low level of self-management in clients. With the education interventions applied, an increase in self-management activity, general wellbeing and glycaemic control were evidenced. Monthly meetings with clients may also assist in preventing or delaying complications of the disease. Adu, Malabu, Malau-Aduli and Malau-Aduli (2019:15) state that self-management practices were implemented most often out of concern or fear of developing complications related to DM.

- Regular interactions between the client and the OHNP are needed to monitor blood glucose levels and review self-care practices and may also assist in maintaining a more productive employee during working hours.
- OHNP's should present health promotion sessions on DM to all staff within the industry to advance education in an effort to prevent stigma related to the disease as well as to assist the DM client in dealing with their own fears of stigma about the disease.

The stigmas reported the most were that diabetes occurred due to a lack of self-care and that those with diabetes were a liability to the healthcare system. The National Standards for Diabetes Self-Management Education and Support (Beck et al., 2017:1413) should be adhered to. It advocates that whilst initial information sharing and support is essential, the individual with diabetes should also be made aware of continuing means to not only sustain change but to augment knowledge. Support groups may be one strategy to address this need.

- OHNP's should engage with the relevant stakeholders in the workplace to promote accommodation of the needs of the individual with diabetes, for example, the availability of healthy meal choices for diabetics in the staff canteen. Clients should be asked to share their ideas on how they could be assisted, to prepare nutritious meals. Also, company employees, including the

individuals with diabetes, should be encouraged to access a venue on the company premises, e.g. a gym, for the development of a regular exercise routine with an emphasis on the self-control of the client to attend if available and accessible. .

Clients should be advised to identify the side-effects of either their medication or the disease that could potentially hinder their exercise routine and their work. The effects of stress and a loaded work schedule should be addressed and clients encouraged to engage in regular exercise. Follow-up meetings should be held to allow clients to share their ownership of personal management strategies for stress and how they have learned to manage their time during the day.

- OHNP's should consider initiating support groups within the workplace for individuals with diabetes to encourage the sharing of experiences and to provide support for one another. Clients who are adequately managing their disease should also be encouraged to create a support group for peers. Group members should be encouraged to engage in activities such as the exchange of recipes, group excursions that include exercise and education of peers and colleagues about the disease. A system should be in place to follow-up the success of these support groups and how belonging to these groups assists clients to better manage their disease.
- OHNP's could promote collaboration and coordination of service delivery between the various health sectors to optimally serve the individual with DM. Members of the community should be involved in these meetings, as they are the family members of patients. This could be managed by scheduling regular collaborative meetings with all health sector representations and monitoring the statistics on DM nationally. The meetings should include information sessions on the latest research available regarding diabetes.
- The Allied health worker team should include a nutritionist as this is the area identified as the most difficult for the client to self-manage. Information sessions

could also be held in the community, for addressing of interesting healthy living ideas.

- The inclusion of a pharmacologist in the Allied health worker team is recommended to address optimal medication management as well as ongoing education to ensure the management of side-effects and dosage. A specific time of the day could be allocated to clients to provide them with a few minutes for discussions around their medication.
- The Allied health worker team should also include a social worker or psychologist to assist in the development of self-confidence in the individual with diabetes. The client should be given educational tools for building their self-esteem which, at regular intervals, should allow for them to provide feedback on their progress.

### **5.3.2 Nursing education**

- Providers of tertiary education should focus learning material on the holistic management of clients with chronic diseases to ensure that all aspects of any illness are addressed to achieve optimal health and avoid complications of the disease. The focus should be on the prevention of complications not just the treatment of complications. The development of “acquired behaviour”, is achieved through a process based on the principles of learning (Point 1.4) and related theories should be integrated, for example, into the sharing of information with clients.
- The curriculum addressing the subjects Psychology and Sociology should include information affirming that life can continue with the diagnosis of a chronic disease such as DM (positive emotion). Nursing education curricula should therefore strive to move beyond merely the anatomical, physiological and pharmaceutical aspects of chronic disease management. Work-integrated learning should focus on the prevention of DM and education to clients about the disease and how to prevent it.

### **5.3.3 Staff development**

- Ongoing professional development for nurses is currently not regulated, the introduction of Continuous Professional Development point's accrual should include chronic disease management in the "areas of practice". This should be linked to the maintaining of skills that allow for the provision of health education in the manner of motivational presentations that promote the building of self-confidence and improve self-esteem in clients.
- OHNP's should endeavor to up skill themselves if they deem their knowledge to be deficient or inadequate in addressing all aspects of care for the individual with diabetes. This could be through attending conferences, reading accredited nursing journals or website articles and attending professional meetings.

### **5.3.4 Research**

- Once diagnosed, the emphasis of diabetes management should not be on how it developed but rather on the manner in which it should be managed. A longitudinal study can be undertaken in investigating the journey of DM from an early stage to a more advanced stage. It is important to assess the client's practices at the time of diagnosis in order to make suggestions and adaptations for self-management.
- Research the experiences of the OHNP on personal beliefs, customs and practices to assist in providing information that is unique to the client, allowing the client to make adjustments within the realm of what is known to them. Encourage the OHNP's to share their findings so as to add to the existing body of knowledge related to the unique perspectives of the individual with diabetes.
- Further research is recommended to determine the OHNP's knowledge gaps in order to facilitate an enhanced service provision within the workplace.
- Further research at government level is recommended to develop measures to combat the availability and cost of unhealthy food options versus the perceived higher cost and availability of healthier food choices.

## **5.4 Limitations**

The participants in this study were recruited from the natural setting of an industry that varied in their purposes of work function and goods delivery. The findings were limited to those individuals who were employed at the time of the study.

OHNP's are not trained specifically in the lifestyle management of the disease and therefore, although uniquely and conveniently placed, there still needs to be a liaison with other allied professions/professionals to ensure comprehensive delivery of care. The current study did not address or seek to identify these potential gaps in knowledge.

The study was conducted with 17 participants, which is a small number, however, these participants worked in a variety of industrial settings with an OHNP on site. The findings can be shared with OHNP's in other industries, although they do not represent their perceptions, to be able to make generalisations.

## **5.5 Summary**

The study was qualitative in nature, conducted by means of semi-structured interviews. Seventeen participants took part in individual interviews, making use of an interview schedule. Data was coded and themes and categories emerged. Ethical principles and trustworthiness were important considerations whilst conducting the research.

The purpose of the study was to explore and describe the perceptions and practices of clients on their self-management of DM in selected industries in Cape Town.

The conclusions reached indicate that the research questions were answered.

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## Appendix A – Request for permission



Faculty of Health and Wellness Sciences  
Department of Nursing and Radiography  
Telephone: (021) 9538640  
Fax: 086 7718400  
Email: CopelingN@cput.ac.za

18 September 2014

For Attention: The Occupational Health Nurse Practitioner  
The Occupational Health Facility

Dear Sr,

I am in the process of studying towards a Masters qualification in nursing at the Cape Peninsula University of Technology (CPUT). I am a registered professional nurse and have been in the practice and teaching of occupational health nursing for more than twenty (20) years. My study is titled “Attitudes and practices related to compliance in a group of adult diabetic clients in Cape Town”.

I would like to request your permission to complete the data collection process of the study at your facility, with the consent of the clients with diabetes mellitus attending the facility. The study will include the collection of information from the adults with diabetes mellitus by means of individual interviews. Each interview should be no longer than thirty (30) to forty-five (45) minutes in length. The interview aims to determine the attitudes and practices of adults with diabetes mellitus to the management of their illness. Exclusion criteria for the study would include anyone not employed by the company on a permanent basis. It would be appreciated if each clinic could provide between one (1) and five (5) participants. It would further be appreciated if you could discuss this with management to enable permission to be granted for me to undertake this study at your facility. All activities conducted by myself will be with the supervision of my study supervisor, Professor Emeritus Doris Khalil.

Should you require any additional information regarding any aspect of the above request, please do not hesitate to contact me. Many thanks for your consideration of the above request.

Regards

Natalie Copeling  
Clinical Skills Co-ordinator: Occupational Health Nursing  
Bellville Campus  
Cape Peninsula University of Technology

## **Appendix B – Information to participants**

### Introduction and briefing of respondents

(To be read to participants before each interview session)

I am conducting these interviews as part of my research towards the completion of a Master's degree at the Cape Peninsula University of Technology (CPUT). I have selected to conduct the research on the topic of the perceptions and practices of adult diabetic clients on self-management of their diabetes (relating to compliance), working in industries in Cape Town. I have selected and been given approval to conduct the study at the on-site Occupational Health Clinics of Makro, On-The-Dot, Consol and Cibapac.

Thank-you for agreeing to participate in this research and for allowing yourself to be interviewed for the purposes of this study.

I would like to request your permission to digitally-record the interview. This recording will assist me in remembering and documenting the things that were said during the interview process. Should you wish to have a copy of the interview, I can make a copy for you. However, should you not be comfortable with being recorded, I will rely on note-taking to write down your responses to the questions. Your name will not appear in any record of the interview. You may elect to not answer any of the questions that you feel uncomfortable with. You will not be penalised in any manner or form should you elect to do so.

The discussion will take between thirty (30) to forty-five (45) minutes. Once again, you are welcome to discontinue the discussion should you feel uncomfortable at any time. Your answers/responses to the questions will be transcribed once the interview has been completed.

May we please commence with the interview.

## Appendix C – Consent form



Bellville Campus,  
P O Box 1906, Bellville, 7535  
Faculty of Health and Wellness Sciences  
Website: [www.cput.ac.za](http://www.cput.ac.za)

Research title: “**Attitudes and practices related to compliance in a group of adult diabetic clients in Cape Town**”

I, the undersigned

....., acknowledge understanding of the study.

The researcher has explained the ethical issues involved and what the study is about. I agree to participate/take part in the study and am aware that the interview will be recorded with the use of an audio-recorder. I have not been forced or coerced in any manner to participate in the study. I have been informed that I may choose to not answer a specific question. I am aware that I may choose to withdraw from the study at any time. This will not affect myself or my family in any manner.

This study will provide me with an opportunity to share my personal experiences and viewpoint on the management of my disease.

Date:.....

Signature:..... Client

Date:.....

Signature:..... Natalie Copeling (Researcher)

Natalie Copeling (Researcher) contact details:

Cellular Telephone: +27 (0)83 440 0506 and E-mail: [CopelingN@cput.ac.za](mailto:CopelingN@cput.ac.za)

Supervisor: Professor Emeritus Doris Deedei Khalil

E-mail: [khalild@cput.ac.za](mailto:khalild@cput.ac.za)



## **Appendix D - Semi-Structured Interview Questions**

### Section A: Demographics

A.1 Please provide your age according to the group that you would fit into:

30 – 35; 36 – 40; 41 – 45; 46 – 50; 51 – 55; 56 – 60; 61 – 65 years, and your gender (male or female)?

A.2 Are you currently working/employed?

A.3 What is your approximate current income/how much do you earn per week or per month?

### Section B: Health beliefs/attitudes

B.1 How does being diabetic make you feel?

### Section C: Practice

C.1 What do you do to take care of your health? (Especially with regards to what and how you eat, what types of food you eat, do you exercise and if you do how often, any habits, taking of medication and taking care of your eyes and feet in particular).

### Section D: Support systems within the clinic, family and community

D.1 Who would you say supports you the most with regards to your diabetes?

D.2 Do you think the clinic staff do all that they can to help you now that you have diabetes?

D.3 Do you know of or are you a part of, any diabetes support group/s in your area?

## Appendix E - Ethical clearance



### HEALTH AND WELLNESS SCIENCES RESEARCH ETHICS COMMITTEE (HWS-REC)

Registration Number NHREC: REC-230408-014

P.O. Box 1906 • Bellville 7535 South Africa  
Symphony Road Bellville 7535  
Tel: +27 21 959 6917  
Email: sethn@cput.ac.za

24 April 2015  
*REC Approval Reference No:*  
*CPUT/HWS-REC 2015/H09*

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Faculty of Health and Wellness Sciences

Dear Ms Natalie Copeling

**Re: APPLICATION TO THE HWS-REC FOR ETHICS CLEARANCE**

Your application for ethics approval has reference. This serves to inform you that approval was granted by the Health and Wellness Sciences-REC on 17 April 2015 to Ms Copeling for ethical clearance. This approval is for research activities related to the MTech: Nursing at this Institution.

**TITLE: Attitudes and practices of dietary compliance among adults with diabetes mellitus from selected Northern Suburbs of Cape Town.**

**Internal Supervisor:**

1. Prof D Khalil
2. Dr H Vember

**Comment:**

**Approval will not extend beyond 25 April 2016.** An extension should be applied for 6 weeks before this expiry date should data collection and use/analysis of data, information and/or samples for this study continue beyond this date.

The investigator(s) should understand the ethical conditions under which they are authorized to carry out this study and they should be compliant to these conditions. It is required that the investigator(s) complete an **annual progress report** that should be submitted to the HWS-REC in December of that particular year, for the HWS-REC to be kept informed of the progress and of any problems you may have encountered.

Kind Regards



*Mr. Navindhra Naidoo*  
**Chairperson – Research Ethics Committee**  
Faculty of Health and Wellness Sciences

**HEALTH AND WELLNESS SCIENCES RESEARCH ETHICS COMMITTEE (HWS-REC)**  
Registration Number NHREC: REC- 230408-014

P.O. Box 1906 • Bellville 7535 South Africa  
Symphony Road Bellville 7535  
Tel: +27 21 959 6917  
Email: sethn@cput.ac.za

6 May 2019  
*REC Approval Reference No:*  
*CPUT/HWS-REC 2015/H09(renewal)*

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Faculty of Health and Wellness Sciences

Dear Ms Natalie Copeling

**Re: APPLICATION TO THE HWS-REC FOR ETHICS CLEARANCE**

Your application for ethics approval has reference. This serves to inform you that approval was granted by the Health and Wellness Sciences-REC on 30 March 2017 to Ms Copeling for ethical clearance. This approval is for research activities related to the student research in the Department of Nursing at this Institution.

**TITLE: Attitudes and practices of dietary compliance among adults with diabetes mellitus from selected Northern Suburbs of Cape Town.**

**Supervisor:** Prof K Jooste

**Comment:**

**Approval will not extend beyond 7 May 2020.** An extension should be applied for 6 weeks before this expiry date should data collection and use/analysis of data, information and/or samples for this study continue beyond this date.

The investigator(s) should understand the ethical conditions under which they are authorized to carry out this study and they should be compliant to these conditions. It is required that the investigator(s) complete an **annual progress report** that should be submitted to the HWS-REC in December of that particular year, for the HWS-REC to be kept informed of the progress and of any problems you may have encountered.

Kind Regards



*Dr. Navindhra Naidoo*  
**Chairperson – Research Ethics Committee**  
Faculty of Health and Wellness Sciences