An investigative documentation of the homoeopathic management of diabetes mellitus type 2 in KwaZulu-Natal

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Declaration

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

_____ **14-12-2020**

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ABSTRACT

Introduction

Diabetes mellitus, or commonly known as diabetes, is a chronic condition that manifests when the pancreas can no longer produce insulin or when the body is unable to utilise the insulin that the pancreas produces. In diabetes mellitus type 2, patients commonly affected are middle aged adults. Prior to diagnosis there is an asymptomatic stage classified as prediabetes. During this stage there is mild hyperglycaemia, insulin resistance and an early decrease in insulin secretion. Diabetes mellitus type 2 is a growing concern among the Black and Asian community in South Africa, more so affecting the high density of the above-mentioned race groups in the KwaZulu-Natal Province. According to a recent investigation conducted (Brown *et al*, October 2015) in 2014 it was recorded that the KwaZulu-Natal Province had 1,288,973 diabetic patients registered in governmental health schemes. According to an article published on the National Health portal of India, Homoeopathy has had a positive role in the treatment and management of early diagnosed diabetes mellitus cases (Das 2016). Although at present there is no standard protocol for the Homoeopathic treatment and management of diabetes mellitus Type 2, Yoga, Naturopathy and homoeopathic remedies are among the many holistic methods utilized by homoeopaths. The main priority is to first control the elevated blood sugar levels to save the patient from life threatening complications. This is often done by prescribing homoeopathic remedies that could reduce the blood sugar levels.

Aim

The aim of this qualitative study is to determine the homoeopathic management of diabetes mellitus type 2 in the KwaZulu-Natal Province

Methodology

A study paradigm of qualitative, descriptive and exploratory design was employed in this study. Qualitative methods were selected for this study to gain an in-depth view of the methods homoeopathic practitioners use to manage type 2 diabetes in their patients. The population for this study included a minimum of 10 homoeopathic practitioners all of whom were registered with the Allied Health professions Council of South Africa (AHPCSA) and were practicing in

KwaZulu-Natal for a minimum of 5 years (in private practice), selected through purposive sampling. The data collected was analysed using Tesch and Creswell's methods of analysis.

Results

The results showed that the homeopathic management of diabetes mellitus type 2 involved in-depth case taking and analysis with individualization of each case. Practitioners were involved in the health and well-being of their patients and put emphasis on patient education. Some of the ways in which practitioners managed diabetes mellitus type 2 in their practices included prescription of a constitutional remedy attained through thorough case taking, phytotherapeutic modalities, nutrition advice and referrals to specialist practitioners when necessary

Conclusion

In light of the results and discussion shared in Chapters 4 and 5, the main aspects of the homoeopathic management of Diabetes mellitus type 2 consist of full case taking and analysis by the practitioner, leading to a constitutional prescription for the patient. The findings in this study reveal that, unlike in allopathic treatment, there is no one specific remedy or group of remedies that are the first point of treatment for a patient seeking homoeopathic care. The management process is a very tailored and individualized method of treatment that considers the patient in their entirety.

DEDICATION

For my mother, Patsy. The greatest woman I know.

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To my Jesus, you are my Lord and Saviour. You have fulfilled every promise along this journey. Thank you for walking with me. Jer29:11.

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CHAPTER ONE

1.1 Introduction

Diabetes mellitus, or commonly known as Diabetes, is a chronic condition that manifests when the pancreas can no longer produce insulin or when the body is unable to utilise the insulin that the pancreas produces. According to the International Diabetes Federation (2015) the hormone insulin functions to allow glucose, from the food we consume, to be passed from the blood stream into cells where glucose can be converted into energy. Failure to produce insulin, or utilise it well, leads to a build-up of glucose in the blood which is referred to as hyperglycaemia. Raised long term hyperglycaemia may result in Diabetes and the subsequent damage to the body's organs and tissues (International Diabetes Federation, 2015).

Diabetes mellitus type 1, previously referred to as insulin dependent diabetes or juvenile diabetes, is the most common type of diabetes affecting children and young adolescents going well into adult life. Type 1 is an auto immune disease that is characterised by the destruction of the beta cells of the pancreas which are responsible for producing insulin. As a result, the patient becomes totally insulin deficient (Mkhize 2016)

In diabetes mellitus type 2, patients commonly affected are middle aged adults. Prior to diagnosis there is an asymptomatic stage classified as prediabetes. During this stage there is mild hyperglycaemia, insulin resistance and an early decrease in insulin secretion. It is important to note that at this stage lifestyle changes can reverse the condition (Mkhize 2016). This however is not possible with type 1.

Diabetes mellitus Type 2 is a growing concern among the Black and Asian community in South Africa, more so affecting the high density of the above-mentioned race groups in the KwaZulu-Natal Province. According to a recent investigation conducted (Brown *et al*, October 2016) in 2014 it was recorded that the KwaZulu-Natal Province had 1,288,973 diabetic patients registered in governmental health schemes. In September 2014, a report released by Statistics SA (StatsSA, 2014) stated that Diabetes ranked second amongst the ten leading underlying natural causes of death in the eThekwini Metro District – the greater part of the KwaZulu-Natal Province. In the same report, under the category of the ten leading underlying natural causes of death by age and sex: KwaZulu-Natal, 2012, Diabetes features third in both sexes and all

ages (StatsSA, 2014). These figures reveal a concerning amount of the KwaZulu-Natal population being affected by this deadly disease.

According to an article published on the National Health portal of India, Homoeopathy has had a positive role in the treatment and management of early diagnosed Diabetes mellitus cases (Das 2016). Although at present there is no standard protocol for the Homoeopathic treatment and management of Diabetes mellitus Type 2, Yoga, Naturopathy and homoeopathic remedies are among the many holistic methods utilized by homoeopaths. The main priority is to first control the elevated blood sugar levels to save the patient from life threatening complications. This is often done by prescribing homoeopathic remedies that could reduce the blood sugar levels. The most commonly used remedies include *Uranium nitricum, Phosphoricum acidum, Syzigium jambolanum, Gymnema sylvestre* and *Cephalandre indica*. Physiologically active doses such as a mother tincture or a 3x preparation are administered. The dose is dependent on the blood sugar levels and the patient's requirements (Das 2016: para1).

An alternative approach is to use a method of patho-physiological profiling to understand the patient. This is done by detailed case taking and the selection of a constitutional remedy. Aspects of a detailed case include a detailed history of the patient, his personal and family history, his emotions, his individual preference, likes and dislikes, sleep, reactions at physical and mental levels et cetera. These allow for the homoeopath to arrive at individualizing features of the patient and for a disease picture to be created. The selected remedy will suit and align with the patient's disease picture. This method of treatment is gradually being accepted by modern science and has been termed personalized medicine or Theranostics (Das 2016: para2).

1.2. Research problem

In 2014, Statistics South Africa released a report that ranked Diabetes second in the ten leading underlying natural causes of death in KwaZulu-Natal in 2012. When compared to the Free State Province and the North West Province in 2012, KwaZulu-Natal outranked them both in the number of deaths due to endocrine, nutritional and metabolic diseases (StatsSA, 2014). According to a study conducted by the British Medical Journal, glucose lowering drugs showed the potential to increase a patient's risk of death from heart related causes (Boussageon *et al*, 2011). Homoeopathic medicine does not yield such destructive effects on the patient due to its

gentle action on the body. Clinical research published by the Indian Journal of Research in Homoeopathy reported positive effects of a homoeopathic mother tincture of *Cephalandra indica* when treating patients on antidiabetic medication. Out of the 88 participants, 17 patients had their antidiabetic medication completely withdrawn at the end of the 42-month trial (Baig *et al*.2008) This suggests that homoeopathy can successfully treat diabetes although there is no standard homoeopathic protocol.

From the above-mentioned data, we can deduce there exists an incredibly high incidence of Diabetes mellitus Type 2 in the KwaZulu-Natal province with a lack of standardised protocol for the treatment and management of Diabetes mellitus Type 2 in the Homoeopathic field.

1.3 Aim

The aim of this qualitative study is to determine the Homoeopathic Management of Diabetes mellitus Type 2 in the KwaZulu-Natal Province.

1.3.1 Grand Tour Question

What is the homoeopathic management of Diabetes mellitus Type 2 in your practice?

1.3.2 Probing Questions

1) What is your general perception of the role that Homeopathy plays in diabetes mellitus type 2?
2) Describe the type of patient that seeks homoeopathic management for diabetes mellitus type 2?
3) Discuss some of the measures you employ to diagnose the patient as having diabetes mellitus type 2?
4) As a homoeopathic practitioner what is your standard protocol for the treatment and management of diabetes mellitus type 2?
5) What are the other modalities that you may employ to supplement the Homoeopathic Management for diabetes mellitus type 2?
6) What are the nutritional recommendations that you suggest in your management of diabetes mellitus type 2?
7) What are the reasons for referral of patients to other practitioners in your management of diabetes mellitus type 2?

8) What recommendations do you feel should be made to the AHPCSA and HSA with regard to including the Homoeopathic management for diabetes mellitus type 2 in the future National Health Plan.

1.4 Rationale for the study

By conducting this study, the researcher aims to document clinical experiences of homoeopathic practitioners when managing diabetic* patients (*diabetes mellitus type 2), identify and document the clinical challenges and success rates of homoeopathic practitioners when managing diabetic patients, report on the effectiveness of practices put in place by homoeopathic practitioners to secure the management of patients with diabetes mellitus type 2 and establish trends and themes in the homoeopathic management of diabetes mellitus type 2 to possibly implement a treatment protocol for future research.

1.5 Delimitations of the study

This study was limited to homoeopathic practitioners with a minimum of 5 years in practice and who are practicing in the KwaZulu-Natal province.

1.6 Overview of the research design

The study conducted was of a qualitative nature which employed a semi-structured interview guide. Practitioners practicing homoeopathy for more than 5 years in KwaZulu-Natal were selected to participate in this study through purposive sampling. The data collection process included contacting practitioners and obtaining consent to participate in the study, thereafter the interviews were conducted. Data collected was then transcribed by the researcher and analysed to obtain the current themes and trends of the homoeopathic management of diabetes mellitus type 2.

CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

Diabetes mellitus, or more commonly known as diabetes, is a chronic condition that manifests when the pancreas can no longer produce insulin or when the body is unable to utilise the insulin produced by the pancreas. The hormone insulin functions to allow glucose, from the food we consume, to be passed from the blood stream into cells where glucose can be converted into energy (International Diabetes Federation, 2015). Failure to produce insulin, or utilise it well, leads to a build-up of glucose in the blood which is referred to as hyperglycaemia. Raised long term blood glucose levels or hyperglycaemia may result in diabetes and the subsequent damage to the body's organs and tissues (International Diabetes Federation, 2015). According to the American Diabetes Association, diabetes may be classified into the following general categories: Type 1, Type 2, Gestational Diabetes and specific types of diabetes due to other causes (American Diabetes Association 2015). There exists another category classified as pre-diabetes or borderline diabetes which occurs when the blood glucose levels are higher than normal but not in the range to be diagnosed as diabetic, (*Prediabetes Borderline Diabetes* 2019: para 3. Line 1-2).

At present, diabetes remains a chronic disease highly impacted by lifestyle and eating habits. This disease has become one of the most prevalent chronic illness both in South Africa and internationally. It is estimated that about 5.5% of the South African population over the age of 30 years, has diabetes (Diab 2017). In a report compiled by statistics South Africa, Diabetes was the third leading cause of death in KwaZulu-Natal in 2012 and the fifth leading cause of death in South Africa in the same year. A study conducted by Pillay *et al* (2016) indicates that the larger part of patients in KZN (ranged between 63% and 80%) are diagnosed with diabetes at local clinics where initial management of the disease began. They go on to state that these clinics are often resource limited and headed by nurses.

A recommendation was made that in order to control diabetes, intervention plans and strategies are needing to be intensified at this level. The implementation of this recommendation is vital because very often the patient has already developed long term complications by the time, they visit a higher level of healthcare. According to Diab (2017), diabetes has a significant impact on morbidity and mortality rates in South Africa as well as on socio-economic development. In order to effectively manage this rising epidemic, an improvement is needed on diabetic

education and awareness. Thus, is vital in addressing patient adherence to management plans and the prevention of fatal and non-fatal complications.

2.2 Classification of Diabetes mellitus

2.2.1 Type 1

Type 1 diabetes is caused by an autoimmune response which leads to the destruction of β-cells in the pancreas. These β-cells are responsible for the production of insulin and due to their destruction, the body becomes insulin deficient. This causes a rise in blood sugar also known as hyperglycaemia. LADA (latent autoimmune diabetes in adults) is classified as type 1 diabetes (Kerner and Brückel 2014).

2.2.2 Type 2

Type 2 diabetes is caused by healthy β-cells that are unable to keep up with and produce the large amounts of insulin needed by the body. This ranges from predominant insulin resistance with relative insulin deficiency to prevailing defective secretion with insulin resistance (Kerner and Brückel 2014). There are combinations of factors that may lead to the development of this disease. Genetic factors related to impaired insulin secretion, insulin resistance and environmental factors such as obesity, overeating, lack of exercise, stress and aging all increase the risk of developing this disease (Ozougwu *et al* 2013).

2.2.3 Gestational Diabetes

This type of diabetes is classified by an impairment of glucose tolerance that first appears, are recognised and diagnosed during pregnancy (Kerner and Brückel 2014). An assessment for possible risks of developing Gestational diabetes mellitus (GDM) should be conducted at the first prenatal visit. Clinical characteristics consistent with a high risk of GDM include marked obesity, personal history of GDM, glycosuria, or a strong family history of diabetes. Glucose levels in these patients should be closely monitored. If the initial tests at the prenatal visit are negative for GDM, it is suggested that they are retested between 24 and 28 weeks of gestation. The following characteristics are those of women who are at low risk of GDM: Age <25 years, weight normal before pregnancy, member of an ethnic group with a low prevalence of GDM, no known diabetes in first-degree relatives, no history of abnormal glucose tolerance, no history of poor obstetric outcome (American Diabetes Association 2004)

2.2.4 Pre-Diabetes

The national diabetes data group first introduced glucose intolerance in 1979. This concept is defined as the metabolic state intermediate between normal glucose homeostasis and high glucose readings consistent with diabetes. Patients whom exhibited glucose intolerance fell short on the criteria for being diagnosed with diabetes however still had glucose levels higher than those that were considered normal. This concept was further extended by the Expert Committee on the Diagnosis and Classification of Diabetes mellitus in 1997 by recognising and including test outcomes of impaired fasting glucose (IFG) and impaired glucose tolerance (IGT). Both these categories, IGT and IFG, were referred to as prediabetes and are now considered substantial risk factors for the progression of diabetes (Buysschaert, and Bergman 2011).

2.2.5 Other types

There also exists other specific types of diabetes related to conditions of the endocrine and exocrine system and other causes:

2.2.5.1 Monogenic diabetes syndromes such as neonatal diabetes and maturity-onset diabetes of the young (MODY)

Maturity onset diabetes of the young (MODY), is a non-insulin dependent form of diabetes that typically presents in adolescents or young adults. This form of diabetes is a monogenic disorder that presents before the age of 25 years. Mody currently makes up 1% of all diabetes cases and frequently goes misdiagnosed as diabetes mellitus type 1 or diabetes mellitus type 2. The most common causes of MODY have been identified as mutations in the glucokinase (*GCK)* (MODY 2) and hepatocyte nuclear factor (*HNF)1A/4A* (MODY 3 and MODY 1) genes (Anik *et al*, 2015)

2.2.5.2 Diseases of the exocrine pancreas (such as cystic fibrosis)

This type of diabetes occurs as a result of disruption of the physiology of the pancreas. There are a few processes which may cause this disruption, they are either inflammation, neoplasia or due to surgical resection. As a result, exocrine and endocrine dysfunction occurs (Woodmansey *et al*, 2017).

2.3 Risk Factors

According to the International Diabetes Federation, although more research needs to be conducted on determining the exact cause of diabetes mellitus type 2, there exists a viable link between the onset of this type of diabetes and the patient's weight, level of obesity, ethnicity as well as family history (*IDF Diabetes Atlas 2019).*

- Ethnicity

  An important risk factor for the development of type 2 diabetes is ethnicity. Research conducted by Amod et al 2012 shows the following percentages of diabetes mellitus type 2 amongst the ethnic groups in South Africa:
  - Indian/Asian descents make up the majority of the diagnosed population with 17.1% and are shown to be at higher risk from an earlier age, about 10 years earlier than other ethnic groups.
  - Urbanised black risk is 6.4%, with the risk in females older than 60 increasing to 16.7%.
  - White risk is 6.2%.
  - Coloured risk is 6.2%, increasing after 60 years of age to 25.3%, with females (Amod et al 2012).

- Age

  In 2010, the age of onset for diabetes peaked at between 40-59 years of age. According to the progression in trends of patient diagnosis, by the year 2030, the greatest prevalence of the disease will be shown amongst patients aged 60-79 years. Patients in sub-Saharan countries have shown peak diagnosis between 55-64 years. With increased westernisation and sedentary lifestyles, the peak of onset of this disease will shift to a younger age group indicating an earlier onset (Mbanya, *et al.* 2010).

- Family history of diabetes

  There have been numerous studies conducted depicting a link between affected youth and at at least one parent with diabetes or a first or second degree relative with type 2

diabetes. This is further linked to a positive family history of cardiovascular disease *(*IDF Diabetes Atlas 2006).

- Obesity

  Obesity amongst children and adults is one of the major risk factors for diabetes type 2. The highest rate of obesity amongst adults in the sub-Saharan African continent was recorded in SA with 42% of women and 39% of men being obese. Obesity is a concern for the predisposition to diabetes as adipocytes or fat cells are shown to decrease the bodies sensitivity to insulin (Gill et al 2009).

- Socioeconomic status

  The International Diabetes Federation reports that approximately 70% of the active cases of diabetes type 2 occur in low- and middle-income countries *(*IDF Diabetes Atlas 2019). This statistic could be owing to the lack of financial and economical comfort which could prevent people from attaining healthy, fresh and adequate nutrition.

2.4 Pathophysiology

Diabetes occurs when there is a problem with insulin secretion, insulin action or a combination of both. Due to this, glucose from broken down carbohydrates; fat and protein cannot be stored and used by the tissues for energy. Insulin provides the mechanism for glucose to be taken up by the tissues as tissues are sensitive to insulin and insulin secretion. This is how plasma glucose concentrations are maintained, however the range for maintenance of plasma glucose concentration is very narrow. Plasma glucose concentration levels progressively increase due to the physiological cause of diabetes. Beta cells of the pancreas are responsible for the secretion of insulin, when these cells fail to produce adequate amounts of insulin, plasma glucose concentration levels rise. The key pathogenic event that causes the progression from a healthy patient to a diabetic patient occurs when the beta cell insulin secretion deficit causes the patient to transition from a normal glucose tolerance to an impaired glucose tolerance. When impaired blood glucose tolerance first occurs and blood glucose levels rise, the body provides a compensatory reaction by

stimulating the pancreas to secrete increased levels of insulin. The increased levels allow the body to provide insulin to not only the vital organs but also the peripheral tissues. The body adapts to the compensatory increase, and these increased insulin secretion levels become the body's normal insulin levels. The increase in insulin secretion causes the beta cells of the pancreas to enlarge in an effort to maintain a normal glucose level. This is characterised by increased levels of plasma insulin and is a clear indication of impaired glucose tolerance and insulin resistance. The pancreas is unable to maintain the compensatory effect of the insulin secretion over a long period of time and as a result insulin levels begin to decline. Through the over compensatory process, the pancreas is placed under a large amount of stress and beta cells exhaust themselves and deteriorate. The patient finds themselves back at stage one where there are increased amounts of glucose in the blood plasma and insufficient amounts of insulin. (Prakashandra 2016).

2.5 Signs and Symptoms

Diabetes can very often be an asymptomatic disease, making it difficult for patients to act on and be aware of. This is mainly due to the asymptomatic nature of the main sign and symptom, hyperglycaemia. Many patients disregard the seriousness of diabetes as the effects of prolonged hyperglycaemia do not develop immediately. However early diagnosis of this disease is imperative to control hyperglycaemia and prevent long term vasculature complications and fatalities. It is therefore important for patients and health care practitioners alike to be well educated and have a vast knowledge on the signs and symptoms of this disease. The following are possible warning signs for diabetes type 2 –

- Unexplained weight loss
- Persistent fatigue
- Irritability
- Recurrent infection in the genital areas, urinary tract, oral cavity, and skin.
- Delayed wound healing
- Dry mouth
- Burning, pain and numbness on feet
- Itching
- Reactive hypoglycaemia

- Skin discolouration such as acanthoses nigricans – dark patches on neck, armpit and groin, which indicates insulin resistance.
- Decreased or blurry vision
- Impotence or erectile dysfunction.

2.6 Diagnosing diabetes

According to the Society for Endocrinology, Metabolism and Diabetes of South Africa, there are many ways to diagnose diabetes (SEMDSA 2017). Each test should be performed twice when suspecting diabetes, preferably on a different day. There are two criteria for patients in which diabetes is suspected, patients who are asymptomatic and those who exhibit signs and symptoms of diabetes (polyuria; polydipsia; blurred vision, weight loss and metabolic decomposition such as diabetic ketoacidosis) (SEMDSA 2017).

2.6.1 A1C Test

The A1C test is a blood test that is used to diagnose diabetes. Other common names for this test include glycosylated haemoglobin, glycated haemoglobin, haemoglobin A1C and HbA1c. It is also commonly used to determine how well the patient is managing their diabetes. Results of the A1C test reflect the average blood sugar level of the patient for the past two to three months. This is done by measuring the percentage glycated haemoglobin cells. A percentage of 6.5 and higher is a positive diagnosis for diabetes (Kerner and Brückel 2014).

2.6.2. Fasting Plasma Glucose

The fasting plasma glucose test is a blood test that is commonly used to diagnose diabetes. No meals or drinks should be consumed 8 hours prior to conducting this test. Blood is drawn and sent to a lab for analysis (Kerner and Brückel 2014).

2.6.3 Oral Glucose tolerance Test

Once blood has been drawn for the fasting plasma glucose test, the patient will be asked to consume a glucose loaded drink. After two hours the patients' blood will be drawn once again to test how their body handled the glucose load (National health and Nutritional Examination Survey 2007). A normal result indicates a blood glucose level of less than 7.8 mmol/l, a

prediabetic result will show blood glucose levels of 7.8mmol/l to 11.0mmol/l and a positive diabetic result is a blood glucose level of 11.1mmol/l or higher (SEMDSA 2017).

1 TABLE 2.6. SEMDSA 2017 RECOMMENDATIONS FOR THE DIAGNOSIS OF DIABETES (SEMDSA 2017)

<table>
<tr><td colspan="2">The diagnosis of diabetes is confirmed:</td></tr>
<tr><td>a. In patients with symptoms of hyperglycaemia (polyuria, polydipsia, blurred vision, weight loss) or metabolic decompensation (diabetic ketoacidosis or hyperosmolar non-ketotic state), when any one single test confirms that the:
◦ Random plasma glucose is ≥ 11.1 mmol/L
◦ Fasting plasma glucose is ≥ 7.0 mmol/L
◦ HbA1c is ≥ 6.5%
◦ 2-hour post-load glucose is ≥ 11.1 mmol/L. However, a GTT is rarely needed in this category of patient.</td><td>b. In an asymptomatic individual, when any one of the following tests, repeated on separate days within a 2-week period confirms that the:
◦ Fasting plasma glucose is ≥ 7.0 mmol/L
◦ 2 hr-post load glucose (OGTT) is ≥ 11.1 mmol/L
◦ HbA1c is ≥ 6.5%</td></tr>
<tr><td colspan="2">If the diagnosis of diabetes is not confirmed with the repeated test, institute lifestyle modification and retest in 3 to 6 months.</td></tr>
</table>

2.7 Complications

There are two categories of complications that can occur as a result of uncontrolled Diabetes. They are microvascular disease or macrovascular disease. These complications may be accelerated in the presence of co-morbid conditions such as hypertension or dyslipidaemia.

2.7.1 Microvascular Complications

2.7.1.2 Diabetic retinopathy

The most common microvascular complication of diabetes is diabetic retinopathy. This complication is the main cause of blindness and visual impairment in patients with diabetes. Long term raise in blood glucose levels stunts retinal blood flow by causing an increase in inflammatory cell adhesion to the retinal blood vessels which in turn causes the capillaries to be blocked and the retinas are starved of oxygen (Prakashandra 2016). Screening for diabetic retinopathy includes dilated eye examinations, optical coherence imaging and intravenous fluorescein angiography (Vinik *et al* 2003).

2.7.1.2 Diabetic Nephropathy

Diabetic nephropathy has been identified as the leading cause of kidney disease in patients needing renal replacement therapy and has been shown to affect an estimated 40% of type 1 and type 2 diabetic patients. Risk of death is significantly increased due to cardiovascular causes and can be identified by an increase in urinary albumin excretion (UAE) in the absence of other renal diseases (Gross *et al* 2005). The changes that occur in the kidneys of a patient with diabetic nephropathy have similar underlying mechanisms as diabetic retinopathy. There occurs an increase in the thickness of the glomerular basement membrane, glomerular hyperfiltration occurs as well as the expansion of the extracellular matrix – all these changes contribute to the increase in UAE. Over time glomerular sclerosis occurs ultimately leading to renal failure (Prakashandra 2016) Screening for diabetic nephropathy includes testing for and monitoring urine microalbumin (Vinik *et al* 2003)

2.7.1.3 Diabetic Neuropathy

Diabetic neuropathy is a group of nerve disorders that may cause numbness and pain in a diabetic patient. It can affect any nerves in the body including extremities (feet, legs, arms) and internal organs (heart digestive system and sex organs). There is no limitation to the number of nerves that may be affected, an individual nerve may be targeted but more likely neuropathy will occur in patterns, affecting many nerves and different locations. This is known as polyneuropathy. This condition manifests, over time due to poor glucose control, as peripheral nerve dysfunction. Long term hyperglycaemia causes the impairment of the structural microvasculature of neurons leading to abnormal action potential propagation which eventually causes demyelination. Physical symptoms manifest as decreased sensation in the lower extremities and impaired peripheral vascular function which are contributing factors to lower extremity ulceration (Prakashandra 2016). Screening for neuropathy includes monofilament testing (Vinik *et al* 2003).

2.7.1.4 Diabetic Cardiomyopathy

This is a distinct primary disease process, that is independent of the occurrence of coronary artery disease, and causes heart failure in diabetic patients. Diabetic cardiomyopathy is diagnosed by structural or functional abnormalities in the myocardium of diabetic patients that is not caused by the presence of coronary artery disease or hypertension. The abnormalities in the myocardium are observed and diagnosed by use of an echocardiogram. The main characteristics of this disease are abnormal filling and relaxation of the diastoles and over time dysfunction of the systoles and heart failure (Prakashandra 2016).

2.7.2 Macrovascular Complications

Macrovascular complications refer to complications affecting the larger blood vessels of the body and occur as the disease progresses. These include but are not limited to the coronary arteries, peripheral arteries and cerebrovascular system. In the early stages, the major sign of progressive macrovascular complications is the presence of atherosclerotic plaque in the

vasculature that supplies blood to the limbs, heart, brain and other organs. Over time, the plaque may detach from the vasculature walls and join the blood stream. Occlusion and obstruction of the vessels may occur through this process cutting off blood supply to vital organs. This increases the risk of myocardial infarction, cerebrovascular accidents, claudication and gangrene. Cardiovascular disease is occurring as a result of macrovascular complications and is a high cause of morbidity and mortality in patients with diabetes. Screening for macrovascular complications include measuring and observing patients' blood pressure at every visit as well as annually testing for and monitoring the fasting lipid profiles of diabetic patients. Associated complications include hypertension and dyslipidaemia (Vinik *et al* 2003).

2.8 Incidence, Epidemiology and Prevalence

According to the International Diabetes Federation there are 425 million people living with diabetes worldwide. Of that figure, it is reported that 16 million people make up the population in the Africa region and it is estimated that this number will grow to 41 million by 2045. This is a percentage increase of 156.25% in 28 years.

In 2010, the prevalence of Diabetes in South Africa among adults stood at 4.5%. In 2017, this figure increased to 7% of the South African adult population. This means that 3.85 million South Africans aged between 21 and 79 are living with this disease. The concern arises not only because these figures have shown such a drastic increase in a matter of 6 years, but also because there may be many more people living with undiagnosed diabetes (International Diabetes Federation 2015).

In a study conducted to assess the burden of diabetes mellitus in KwaZulu-Natal's public sector: A 5-year perspective, it was recorded that the combination of unemployment rates in the metropolitan municipality and the ten district municipalities of KZN (32.5%) were much higher than the total unemployment rates for South Africa (24.3%) as reported by statistics south Africa. This comparison is important to note as unemployment leading causing poverty can lead to a detrimental lack of access to healthcare and healthcare information. This lack can directly impact the control, management and complications of diabetes.

In 2013 more than 68 thousand deaths in South Africa were caused by Diabetes. International Diabetes Federation. IDF Diabetes Atlas. 6th ed. 2013 (International Diabetes Federation 2015). KwaZulu-Natal is one of South Africa's 9 provinces and holds the country's second

largest population. In that same year, diabetes was the fourth highest cause of death in the KwaZulu-Natal province escalating to the second highest cause of death in KZN the following year (Statistics South Africa 2014).

2.9 Impact of diabetes on physical and psychosocial health

Diabetes is a chronic, demanding disease that has to be managed daily along with a strict compliance to medication, diet and exercise. Patients who are unable to adhere to these regimens may develop uncontrolled blood sugar levels leading to complications such as blindness, damage to nerves, kidney failure and limb amputation. Along with the physical symptoms, the diagnosis of diabetes has been described as a lifelong psychological burden on the patient and their family. As a chronic disease, the burden of diabetes is observed to be a stressor that patients with diabetes are expected to cope with on a daily basis. There exists a risk to the physical and psychological health should the patient lack the ability to thoroughly plan and adhere to routines of healthy diet, activity and medication prescribed – irrespective of the demands of life, stressors or temporary moods. It is difficult for some patients to successfully adapt and integrate the demands of their disease into their day to day lives and struggle with the acceptance of the disease. Rejection of the diagnosis, or difficulty in accepting the disease may cause a decrease in the patient's ability to care for themselves, a decrease in the adherence to medication routines and may have an overall adverse impact on their metabolic control. Adding to the psychosocial effects of diabetes on patients, is a condition termed diabetes-related distress. This is described as a totality of the patients concerns surrounding the self-management of diabetes, their perception of support, the emotional burden of the disease and access to quality healthcare. The daily demands and chronicity of this disease can often leave patients overwhelmed and 'burnt out' adding to diabetes related distress. According to Rubin *et al* (2009), distress created by problems associated with living with diabetes can cause a decrease in motivation, poor self-care, higher blood glucose levels, increased risk of complications and a poorer quality of life.

Research conducted shows that clinical depression is so common in patients with diabetes – almost twice the number of the general population. Diabetes related distress is another concerning condition that has been shown to closely link with demands of self-care and glycaemic control. The description of diabetes related distress is an emotional response to a

demanding health related condition and should not be confused with clinical depression in patients with diabetes (Ramkisson *et al* 2017).

2.10 Allopathic Treatment of diabetes

The treatment of Diabetes mellitus Type 2 with oral hypoglycaemic agents is indicated where patients have not yet reached stable and adequate levels of glycaemic control despite following an effective programme of diet and exercise for 4-6 months or in patients who have been symptomatic from the outset (Huddle 1999).

The main allopathic drug of choice in the treatment of Diabetes mellitus Type 2 that is metformin, forms part of a group of medicines called Biguanides. It is advised that at the time of diagnosis, in all patients, Metformin should be prescribed whether patients are overweight or not. (Bailey and Turner 1996). Metformin works by reducing gluconeogenesis, improves insulin sensitivity to assist glucose utilisation, reduces gastrointestinal glucose absorption, improves free fatty metabolism, lipid profiles and enhances incretin responses (Eurich *et al.* 2005). It is the only diabetic allopathic drug that reduces circulating insulin and does not cause weight gain nor does it cause hypoglycaemic episodes when used in monotherapy (Rena, Pearson and Sakamoto 2013).

The side effects of Metformin include diarrhoea, cramping, bloating and flatulence and are noted in approximately 30% of patients prescribed this drug. Lactic acidosis with Metformin is rare and only occurs in cases of inappropriate usage (Eurich *et al.* 2005).

Alternate allopathic drugs used to treat Diabetes mellitus Type 2 include Sulphonylureas such as Glibenclamide or Thiazoledenediones such as Rosiglitazone.

Sulphonylureas are used when the patient is intolerant of Metformin or when rapid control of hyperglycaemic symptoms is needed. Another cause for sulphonylureas is when the HbA1C is above target and the patient is normal weight and therefore weight loss is not a requirement of the medication (SEMDSA, 2010:509).

The major mode of action of Sulphonylureas relies on the ability of the pancreas to secrete insulin and they are therefore known as insulin “secretagogues” (Whittaker, 2010:22-24). The adverse effects of Sulphonylureas include hypoglycaemia and weight gain (+ 2 kg) (SEMDSA, 2010:509).

Thiazoledenediones (e.g. Rosiglitazone) are generic agents and are preferred because of cost-effectiveness (SEMDSA, 2010:509). Thiazoledenediones act by enhancing insulin action and promoting glucose utilisation in peripheral tissues and suppressing gluconeogenesis in the liver. They reduce insulin resistance but have no effect on insulin secretion (Whittaker, 2010:24). The adverse effects of Thiazoledenediones include unpredictable weight gain, development of peripheral oedema, mild anaemia and worsening heart failure (Whittaker, 2010:25). Potential beneficial effects of Thiazoledenediones include an improved cholesterol profile (Whittaker, 2010:24). Thiazoledenediones reduces HbA1C by 0.5-1.4 per cent (SEMDSA, 2010:510).

2.11 Homoeopathic Studies conducted on Diabetes

2.11.1 *A Comparison of the Effectiveness of 2 Homoeopathic Dosage Forms of Momordica Charantia in the Treatment of Type 2 Diabetes mellitus in Patients on Metformin*

Govender (2012: 37) conducted a randomized clinical trial to compare the effectiveness of *Momordica charantia* homoeopathic mother tincture to Momordica charantia 6ch in the treatment of Diabetes mellitus Type 2 in patients on Metformin

A sample of 30 patients who met the inclusion criteria were recruited and randomly divided into 2 groups. One group receiving the Momordica charantia homoeopathic mother tincture and one group receiving the preparation of Momordica charantia 6ch. Over a period of 2 months, each participant attended four consultations in total. All consultations were carried out by the researcher where a full detailed case history, physical examinations and glycosylated haemoglobin (HBA1C) tests were performed. Each participant was also given a daily log sheet to complete by recording daily fasting glucose readings – for the 5-week duration of the study.

At the end of the study, both groups showed a statistically non-significant decrease in fasting blood glucose with no significant differences between the 2 groups. (Govender, 2012: 48)

Govender (2012: 73) concluded that “although not statistically significant, a general reduction in fasting blood glucose levels evident in both groups’ data does suggest a degree of clinical significance which warrants further investigation.”

2.11.2 *A Comparison of the Efficacy of Syzygium Jambolanum (Java Plum) 6CH and Syzygium Jambolanum (Java Plum) Homoeopathic Mother Tincture in the Treatment of Type 2 Diabetes mellitus in Patients on Metformin*

A study was conducted by Mkhize on the efficacy of *Syzigium Jambolanum* 6ch and Syzigium Jambolanum homoeopathic mother tincture on daily fasting blood glucose and glycosylated haemoglobin levels in Diabetes mellitus Type 2 patients on metformin.

During the study a sample of 24 volunteers were randomly divided into 2 groups. One group receiving the preparation of 6ch and the other receiving the mother tincture. Over a period of fourteen weeks, each participant attended a total of 5 consultations, including a 2-week baseline followed by a twelve-week treatment period. During the 14 weeks, participants were required to fill out a log sheet with their fasting blood glucose readings taken daily. Another requirement was for participants to have their glycosylated haemoglobin measurements tested pre and post study. (Mkhize, 2016:57,58)

The study resulted in both groups reflecting a statistically significant reduction in fasting blood glucose levels when compared to the baseline. However, no significant difference was noted between the 2 groups. Both groups reflected a statistically non-significant reduction in the glycosylated haemoglobin (HBA1C) and there were no significant differences between the 2 groups when comparing HBA1C levels. (Mkhize, 2016:104)

2.12 Homoeopathy and Diabetes

Homoeopathy is a form of complementary and alternate medicine that encompasses holistic practice. Homoeopathic medicine is specially prepared, highly diluted substances that are prescribed with the aim of triggering the body’s own healing mechanisms. A homoeopath prescribes medicines according to the patient’s specific set of symptoms and how these symptoms are experienced by the patient. It is a system of individualised care and treatment that takes into account the overall level of health of the patient.

Homoeopathy was first explored by Samuel Hahnemann, a German physician. He sought out a system able to reduce the harmful side effects associated with the medical treatment of his time which included the use of poisons. Experimentations were conducted on himself and a group of healthy volunteers who were administered smaller and smaller medicinal doses. Dr

Hahnemann discovered that as medicinal doses were lowered, so too was the toxicity of the medicine while the medicines became more effective. He made another remarkable observation, that symptoms brought on by the toxic medicinal doses, such as mercury which was being used to treat Syphilis, were similar to those of the diseases they were being used to treat. This led to the important principle in homoeopathy of treating 'likes with likes.

The term 'like treats like' or the system of treating 'likes with likes' is defined as a substance which can bring about symptoms - in healthy patients - when taken in large doses, can be used

in smaller doses to treat similar symptoms. This concept has been used in allopathic medicine when the stimulant Ritalin is used to treat patients with attention deficit hyperactivity disorder. The most important difference with homoeopathy is that medicinal doses are so small that toxic side effects are avoided (De Schepper 2001).

According to Gray (2004:14), a patient with Diabetes can greatly improve their general health with homoeopathic treatment. If a person with Diabetes is in good health, his or her drug or insulin requirements will be steady and the blood glucose well controlled. If the general health is poor, it can be very difficult to achieve good control. By administering a constitutional remedy based on the totality of the patient's symptoms and characteristics, homoeopathy can positively impact a patient's general state of health. The effect will be to improve the general sense of well-being, to improve Diabetes control, and maybe to lower the drug or insulin requirements.

Vithoulkas (2002:258) states that Type 2 Diabetes is relatively easy to benefit and cure by homoeopathy if complications have not become too serious. Oral hypoglycaemic agents can simply be discontinued in most cases, diet controlled, and homoeopathic treatment pursued as usual.

According to Munta (2011), the following are some of the commonly used homoeopathic remedies for the treatment of Diabetes:

2.12.1 *Arsenicum album*

A remedy known for the profound action on every organ and tissue. General symptoms include unquenchable thirst, burning relieved by heat and gradual loss of weight from impaired nutrition. There is great anguish and restlessness of the mind. Metallic taste in the mouth. There is great

thirst; drinks much, but little at a time but gulping up of burning water. Urinary indications include scanty, burning, involuntary urination. Paralysis of lower limbs with atrophy and indicated for Diabetic gangrene (Boericke, 2001).

2.12.2 *Argentum metallicum*

Clinical indications for this remedy include diuresis, profuse urination that is turid with a sweet odour. Polyuria and frequent. Lower extremities become weak and tremble, worsening during descending stairs. Ankles are prone to swelling (Boericke, 2001).

2.12.3 *Calcarea carbonica*

The chief action of this remedy is centered in the vegetative sphere, with impaired nutrition being the keynote of its action. Symptoms include profusely increased local and general perspiration, while asleep the pillow becomes wet. Easy dyspnoea. acidity and dislike of fat. Mouth fills with sour water, persistent sour taste in mouth. Increased thirst with longing for cold drinks. Increase of fat in abdomen. Pituitary and thyroid disfunction with swelling of glands. Irritable bladder with enuresis and presentation of dark, brown, sour, fetid, abundant, with white sediment and bloody urine. Small wounds do not heal readily (Boericke, 2001).

2.12.4 *China officinalis*

Excess discharges and loss of vital fluids that exhaust and debilitate the patient are indications for this remedy. Hypersalivation with a bitter taste in the mouth and food tastes too salty. Indicated for Jaundice and the patient complains of sharp pains across kidneys, aggravated by movement and at night. There is chronic suppurative pyelitis. The patient's joints are very sensitive and swollen – open air causes pain, numb sensation. Averse to exercise; sensitive to touch. Coldness; much sweat. Anasarca occurs (Boericke, 2001).

2.12.5 *Lycopodium clavatum*

In nearly all cases where Lycopodium is the remedy, some evidence of urinary or digestive disturbance will be found. failures of the digestive powers, where the function of the liver is seriously disturbed. Desire for sweet things. Food tastes sour. Sour eructations. Pain in back before urinating; ceases after flow; slow in coming, must strain. Retention. Polyuria during the

night. Heavy red sediment. Numbness, also drawing and tearing in limbs, especially while at rest or at night Profuse sweat of the feet. Hands and feet numb. Cramps in calves and toes at night in bed. Limbs go to sleep. Twitching and jerking (Boericke, 2001).

2.12.6 *Lacticum acidum*

Tongue dry, parched. Thirst; voracious hunger. Urine. --Large quantities passed, frequently (Boericke, 2001).

2.12.7 *Natrum sulphuricum*

Loaded with bile. Brisk-dust sediment. Excessive secretion. Diabetes. Thirst for something cold (Boericke, 2001).

2.12.8 *Nitricum acidum*

All discharges very offensive, especially urine, faeces, and perspiration, putrid breath. Salivation. Great hunger, with sweetish taste. Dyspepsia with excess of oxalic acid, uric acid and phosphates in urine and great mental depression. Loves fat and salt. Jaundice, aching in liver. Scanty, dark, offensive. Smells like horse's urine. Cold on passing. Burning and stinging. Urine bloody and albuminous. Alternation of cloudy, phosphatic urine with profuse urinary secretion. Fetid foot-sweat, causing soreness of toes, with sticking pain; chilblains on toes. Sweating of palms, hands; cold, blue nails. Offensive sweat in axillae at night (Boericke, 2001).

2.12.9 *Uranium nitricum*

Causes glycosuria and increased urine. Is known to produce nephritis, diabetes, degeneration of the liver. Excessive thirst; nausea; vomiting. Ravenous appetite. Copious urination. Diuresis. Incontinence of urine. Diabetes. Emaciation and tympanites. Burning in urethra, with very acid urine. Unable to retain urine without pain. Enuresis (Boericke, 2001).

2.12.10 *Silicea terra*

Excessive thirst. Bloody urine that is involuntary, with red or yellow sediment (Boericke, 2001).

2.12.11 *Sulphur*

Frequent micturition, especially at night. Enuresis, Burning in urethra during micturition. Urge to urinate comes on suddenly. Great quantities of colorless urine expelled (Boericke, 2001).

2.12.12 *Syzygium jambolanum*

No other remedy causes such a drastic degree the diminution and disappearance of sugar in the urine. The patient is very thirsty, marked weakness and obvious emaciation. Very large amount of urine, specific gravity high. Indicated for Diabetic ulceration (Boericke, 2001).

2.12.13 *Phosphoricum acidum*

Indicated for Diabetes where there is frequent, profuse, watery, milky urination. Micturition, preceded by anxiety and followed by burning. Frequent urination at night. Phosphaturia. (Boericke, 2001).

2.12.14 *Plumbum metallicum*

Frequent, ineffectual tenesmus. Albuminous urine with low specific gravity. Chronic interstitial nephritis, with great pain in abdomen. Urine scanty. Tenesmus of bladder. Urine emissions are drop by drop (Boericke, 2001).

2.12.15 *Bryonia alba*

Dry, parched lips and mouth with excessive thirst. Dryness of mouth and throat with sticking on swallowing, scraped and constricted feeling. Abnormal and ravenous hunger with loss of taste. Thirst for large draughts. Urine is red, brown, like beer; scanty and hot (Boericke, 2001).

2.12.16 *Thuja*

Frequent micturition accompanying pains. Desire sudden and urgent, but cannot be controlled (Boericke, 2001).

2.12.17 *Helonias dioca*

Urine is albuminous, phosphatic; profuse and clear, saccharine. Indicated for Diabetes. Sensation as if a cool wind streamed up calves of legs. Feet feel numb when sitting (Boericke, 2001).

In a study conducted by Patra (2005), 430 patients with Type 2 Diabetes mellitus were taken and split into 2 groups:

Group 1 (215 patients – who were under proper diet and exercise) and Group 2 (215 patients – who were given a similimum after a thorough case study). They were advised to discontinue allopathic medicines. In Group one, 65 patients were fully controlled by proper diet and exercise. In Group 2, 170 patients responded to the homoeopathic medicine, while 45 patients developed complications and were referred for allopathic intervention.

2.13 Alternative Management of Diabetes mellitus type 2

There has been an increase in the extensive research of alternative therapies with anti-diabetic activity and in turn, an emerging trend worldwide on patient use of complementary and alternative medications. Due to the increasing prevalence of use, complementary and alternative medication continues to gain academic, industrial and economic interest (Medagama and Bandara 2014). According to Egede *et al* (2002) the functional definition of complementary and alternative medicine is based on the idea that the treatments and healthcare practices of complementary and alternative healthcare are not widely taught in medical schools. The National Center for Complementary and Alternative Medicine (NCCAM) defines CAM as those healthcare and medical practices that are not currently an integral part of conventional medicine (Egede *et al* 2002). In ideal alternative therapies, a similar degree of efficacy is needed without the plaguing side effects of allopathic drugs. Due to the increase in the number of patients affected by Diabetes, alternative therapies for diabetes have become increasingly popular. Treatments and practices may include medicinal herbs, nutritional supplementation, acupuncture, massage therapy, hot tub therapy, yoga, and biofeedback.

2.13.1 Acupuncture

Acupuncture is a method of treatment that originated in China over 2000 years ago. This procedure requires a licensed acupuncturist penetrating the skin at specific points with thin, solid, metallic needles that have been manipulated manually or electrically. The effects of treatment of diabetes with acupuncture generally lasts 2-3 months and it has been observed that patients with type 2 diabetes seemingly have a better response than those with type 1 diabetes. Studies have reported the reduction of both hyperglycaemia and the improvement of insulin resistance in diabetic patients (Dham *et al* 2006)

2.13.2 Massage

Massage therapy is the manipulation of muscle and connective tissue used to improve their function and to promote relaxation and well-being in the patient. Diabetic treatment through massage therapy is supposed to improve blood circulation, metabolism and promote healthy pancreatic function. In a study conducted by Dillon (1983), it was demonstrated that massaging the site of insulin injection can increase the short-term absorption and blood levels of insulin in type 1 diabetes (compared with no massage) and lower the blood glucose. Eight patients were treated in this manner for 18 months and showed improved long-term glycaemic control (A1c 10.5% to 8.4%) (Dham *et al* 2006).

2.13.3 Hot Tub Therapy

A study conducted with hot tub therapy involved 8 patients with diabetes type 2 being treated by immersion in hot water. The study was carried out over 3 weeks with no changes in factors such as diet, exercise, medications, and insulin. The results of the study showed a decrease in body weight, fasting plasma glucose (182 ± 37 to 159 ± 42 mg/dL), and haemoglobin A1c (HbA1c) (11.3% ± 3.1% to 10.3% ± 2.6%). The treatment was based on the principle that partial immersion in hot water simulates the effects of exercise with benefits resulting from increased muscle blood flow and glucose uptake (Dham *et al* 2006).

2.13.4 Biofeedback

Biofeedback is a process that trains patients to relax and thereby reduces stress through guided imagery – here positive images - such as peaceful mental images or images of controlling a chronic disease such as diabetes - are evoked. Progressive muscle relaxation is another part of biofeedback treatment. It involves the tensing and relaxing of a specific muscle group combined with deep breathing and mental imagery. Randomized controlled studies showed varied results with authors suggesting relaxation training may improve glucose tolerance in a subset of anxious patients (Dham *et al* 2006).

2.13.5 Yoga

Yoga is an ancient practice that originated in India. It is since practiced worldwide for its health benefits which include physical fitness, relaxation and awareness of self. The basic principle of healing through yoga is that the mind and body are intimately related. Stress in a patient will produce a state of mental and physical tension, through physical postures and breathing exercises mental and physical tension may be relieved as improvements in muscle strength, flexibility, blood circulation, and oxygen uptake as well as hormonal functions occur. Although there exists vast literature on the health benefits of yoga, only a small section is devoted to its effects on diabetes (Dham *et al*). However, a few clinical trials done in India suggest that yoga can improve glycaemic control (Malhotra *et al* 2002).

2.13.6 Phytotherapy

Plants play a vital role in complementary and alternate medicine (Malhotra *et al* 2002). Metformin is the most commonly used antidiabetic drug and is derived from the French lilac or *Galega officinalis*. The plant is rich in guanidine and has been known as the antidiabetic agent since the middle ages. Guanidine's mechanism of action works to lower the blood glucose and the toxicity of guanidine led to the development of alkyl diguanides and later biguanides including metformin (Bailey and Day 1989).

2.13.6.1 *Coccinia indica*

Also known as ivy gourd, this plant is native to India and is part of the Ayurvedic pharmacopeia. Studies have shown effectiveness of this plant in assisting with lowering high levels of blood glucose with little toxicity. The mechanism of action appears to be by insulin-mimetic properties (Dham *et al* 2006).

2.13.6.2 *Momordica charantia*

This plant is a cultivated fruit that is widely used in India, South America, Africa, and Asia. It is commonly referred to as bitter melon, balsam pear or karela. The fruit is consumed as part of the diet by either cooking and frying or by extracting the raw juice. It is common among South American or West Indian patients to prepare a tea from the leaves of the wild variety known as cerasee. There is evidence that *Momordica charantia* works by decreasing gluconeogenesis and increasing insulin secretion as well as glucose uptake. The juice and the fruit are both exceedingly bitter and this may be a common element relevant to its mechanism of action (Dham *et al* 2006).

2.13.6.3 *Gymnema sylvestre*

Gymnema sylvestre is another native of the Indian subcontinent and was first prescribed for diabetes by the 6th century physician Sushruta. Like *Momordica*, the active ingredient may also be a glycoside. The leaves are reputed to cause a loss of taste for sweetness and bitterness and are known as “gurmar” or “killer of sweet.” (Dham *et al* 2006). In patients with both type 1 and type 2 diabetes, it is reported to improve glycaemic control when added to conventional treatment (Dham *et al* 2006).

2.13.6.4 *Aloe vera*

Aloe vera is a member of the *Liliaceae* family. It is successfully used for many medicinal purposes, including wound healing and various skin lesion and is suspected to have anti-inflammatory properties. The part of the plant used for diabetes is the sap or the gelatinous part of the stem as it contains glucomannan, which may be the active principle (Dham *et al* 2006).

2.14 National Health Insurance

The National Health Insurance system (NHI) provides essential healthcare to all citizens of South Africa and its legal long-term residents. The employment status of individuals as well as their ability to make a direct monetary contribution to the NHI fund is disregarded and irrelevant to the system. The main focus of the NHI revolves around access to healthcare being a human right that should not depend on how much an individual earns or chooses to live. The South African Department of Health states that the right to obtain healthcare is written into our constitution which further proves the point of access to healthcare being a human right.

Contrary to the belief that access to healthcare is a human right, many of the South African population continue to suffer unnecessarily and sometimes fatally from poor health. This may be due to healthcare being inaccessible and as a result, treatable conditions are not being treated on time and preventable diseases are not being prevented.

Failure to implement the NHI will further increase the burden of disease in the country as the majority of the population, which is impacted the greatest by ill health, will not afford and access good quality healthcare.

CHAPTER THREE - RESEARCH METHODOLOGY

3.1 Introduction

Qualitative research methods refer to the process of data collection and transcription in a manner that uses text as empirical matter (instead of numbers – such as in the case of quantitative research). The purpose for using qualitative methods in a study design is the interest in the perspectives of the participants whom are engaged in the daily practices and possess the daily knowledge referring to the issue under study. According to Denzin and Lincoln (2011), qualitative research is a set activity that locates the observer in the world. It comprises interpretive material practices that visually enhance and transform the world. These practices remodel the world into a series of representations, including field notes, interviews, conversations, photographs, recordings and memos to the self. Denzin and Lincoln (2011) further elaborate that at this level of qualitative research, an interpretive and naturalistic approach to the world is required. In this regard, researchers of qualitative studies investigate things in their natural settings allowing them to make sense of or interpret phenomena in terms of the meanings people convey (Denzin and Lincoln, 2011).

3.2 Study Design

A study paradigm of qualitative, descriptive and exploratory design was employed in this study.

Holloway and Galvin (2017) explore seven common elements of qualitative approaches:

- Data collected has primacy; the theoretical framework of the research at hand is not pre-determined but rather obtained directly from the data gathered by the researcher.
- Researchers of qualitative studies must be context sensitive as qualitative research is context bound.
- Qualitative researchers submerge themselves in the natural setting of the participants whose thoughts, behaviours and situations they wish to explore.
- The focus of qualitative researchers should be on the ‘inside view’ of the participants concerned and their perceptions, meanings and interpretations.
- Qualitative researches use ‘thick description’: they are able to describe, analyse and interpret the data but also go beyond the reports, descriptions and constructions of the participants.

- There exists a close relationship between the researcher and the researched based on a position of submergence in the field as well as equality as human beings.
- And finally, the researcher should maintain reflexivity as an explicit stance – as they are the main research tool (Holloway and Galvin, 2017).

Qualitative methods were selected for this study to gain an in-depth view of the methods homoeopathic practitioners use to manage type 2 diabetes in their patients.

Descriptive research design is used by researchers to acquire data that is pertinent to the current position of the phenomena being studied and to describe what exists with regard to the various conditions in a situation (Ngobese 2016). For this study, the use of descriptive research design allowed for the collection of data pertaining directly to descriptions of the homoeopathic management of diabetes type 2 in KwaZulu-Natal.

The purpose of exploratory studies is to investigate the research questions and establish the nature of the problem. Research of an exploratory nature tends to cast focus on new problems where little or no research has been conducted. The research topic is explored with varying levels of depth where unstructured interviews are the most popular primary data collection method (Saunders *et al* 2012) The following points highlight the advantages of exploratory research methods:

- Exploratory studies allow for data flexibility and adaptability to change as new ideas, themes and trends are brought to light.
- Research of an exploratory nature is valuable when laying the groundwork that will assist in leading to future studies.
- By conducting exploratory studies, researchers can potentially save time and other resources by deciding at an earlier stage the types of research that are worth pursuing (Saunders *et al* 2012).

3.3 Sampling

Volunteers who participate in qualitative research are called participants rather than subjects - as observed in quantitative studies. Purposive sampling is used rather than random sampling which is the preferred method in a qualitative study as all participants are intended. This is because researchers collecting qualitative data are inclined to acquire information and data from specific individuals who could provide inside information about the subject being studied. A purposive sample is a sample that has been selected intentionally but includes volunteers who are willing to tell their story (Mauk 2017).

Another important point to note is the number of participants in a qualitative research study differs from the numbers used in a quantitative study. In general, a smaller sample size is required in qualitative studies (often 6 to 10 participants). In a quantitative study, the sample size is largely determined by the number of variables the researcher might include, where as in a qualitative design, sample size is determined by the information being provided by the participants. This allows data collection to cease when no new information is being obtained and repetition of the information provided is consistently heard. This is called data saturation (Mauk 2017).

3.4 Study Population

The population for this study included a minimum of 10 homoeopathic practitioners all of whom were registered with the Allied Health Professions Council of South Africa (AHPCSA) and were practicing in KwaZulu-Natal for a minimum of 5 years (in private practice), selected through purposive sampling. The population size was not restricted to 10 and may increase depending on when data saturation is reached.

3.5 Inclusion Criteria

- Each participant must be registered with the Allied Health Professions Council of South Africa and subsequently possess a valid practice number.
- Each participant must be practicing in KwaZulu-Natal.
- Each participant must be practicing for a minimum of 5 years in a private practice.

3.6 Exclusion Criteria

- Participants who do not sign the letter of information nor the letter of informed consent
- Participants who are not registered with the Allied Health Professions Council of South Africa and who do not possess a valid practice number.
- Participants who are practicing out of KwaZulu-Natal.
- Participants practicing for less than 5 years in a private practice.

3.7 Pilot study in KwaZulu-Natal

The aim of the pilot study served as a pre-test technique used to develop and refine the research topic. This process allowed the researcher to examine the adequacy of the test questions, identify any logistical issues which may have occurred during the actual test and assess whether the research protocol is realistic and workable. The researcher conducted a pilot study with 3 homoeopathic practitioners prior to the recruitment of participants. The pilot study was carried out using the proposed grand tour question and subsequent sub questions. During this time, alterations and refining of the study was carried out. The participants selected for the pilot study were excluded from participating in the main study.

3.8 Grand Tour Question:

What is the Homoeopathic management of Diabetes mellitus Type 2 in your practice?

3.8.1 Probing Questions

Probing questions will only be used to guide and should only be applied when necessary.

- What is your general perception of the role that Homeopathy plays in diabetes mellitus type 2?
- Describe the Type of patient that seeks Homoeopathic Management for diabetes mellitus type 2?
- Discuss some of the measures you employ to diagnose the patient as having diabetes mellitus type 2?
- As a homoeopathic practitioner what is your standard protocol for the treatment and management of diabetes mellitus type 2?
- What are the other modalities that you may employ to supplement the homoeopathic management for diabetes mellitus type 2?

- What are nutritional recommendations that you suggest in your management for Diabetes mellitus Type 2?
- What are the reasons for referral to other practitioners of patients in your management for diabetes mellitus type 2?
- What recommendations do you feel should be made to the AHPCSA and HSA with regard to including the Homoeopathic management for diabetes mellitus type 2 in the future national health plan.

3.9 Recruitment of Participants and Sampling Process

A total of 10 homoeopathic practitioners who fit the inclusion criteria were selected. They were then contacted telephonically or via email and informed about the study. Verbal consent was then given to the researcher to proceed with setting up an appointment for the interview. Once a time and venue were confirmed, the researcher then met with the practitioner and was given a letter of information on the study. The practitioner then read through the letter of information and agreed to proceed, a consent letter was thereafter provided by the researcher and signed by the participating practitioner. Participation was strictly voluntary and no forms of coercion or incentives were used in the recruitment process. Participating practitioners were informed that all data collected would remain private and confidential. Copies of the letter of information was made available for participants to take home.

3.10 Data Collection procedure

Once informed consent was obtained, data collection was conducted in a private room by means of one on one semi-structured interviews. At this stage practitioners were again reminded that participation is voluntary and they may withdraw from the study at any stage. The practitioners were asked the grand tour question then allowed to elaborate with use of the probing questions. All interviews were recorded to allow for data transcription and analysis by the researcher at a later stage. Data collection ceased with each practitioner once they were satisfied, they had conveyed all relevant and pertinent information.

3.11 Data Analysis

The data analysis process allowed the researcher to identify the emerging themes and trends with regard to the homoeopathic management of diabetes mellitus type 2.

Once the data collection process was complete, the researcher then made use of Tesch's (1992) eight steps to data analysis as well as Creswell's (2014) six steps to data analysis as a tool to evaluate the data collected.

Unstructured qualitative data can be organised into a system using detailed guidelines provided by Tesch (1992:142–145). The eight steps to data analysis follow below:

- Get a sense of the whole through reading all the data carefully. By doing this, the researchers are able to get the necessary background information. If something comes to mind about the data, the researchers should write these ideas down.
- The researchers start with one document and whilst going through it, ask themselves 'What is this about?' The question does not refer to the content of the document, but to the topic. Write these topics in the margin of the document.
- After completing this procedure for several documents, the researchers make a list of all the topics, one column per data document, placing all the columns on the same sheet. They need to compare all the topics and group similar topics together. Write these groups in columns, perhaps with headings that represent the major topics, the unique topics and all that is left.
- Abbreviate these topics as codes. With this list of codes, the researchers go back to the data and write the codes next to the appropriate segments of the text. Be open for new categories and codes that may emerge. If any ideas about the data come to mind, the researchers should write it down in their notes (analytic memos).
- Find the most descriptive words for the topics, which have begun to turn into categories. Try to reduce the categories by grouping together those that relate to each other. Try to look for subcategories. A 'normal' number of categories is between 20 and 50. This is the organising system for the data.
- Make a final decision on the abbreviation of each category and alphabetise the codes to ensure that no duplication occurs. The researchers should remember that categories have fuzzy boundaries and a segment of data can fit in two or three categories.

- Put the data belonging to each category together and perform a preliminary analysis, looking at all the material in one category at a time. The focus is now on the content of each category. During this process, keep the research question in mind in order to discard irrelevant data.
- If necessary, recode the existing data. The organising system may help the researchers to give structure to their research reports.

Creswells (2014:196–200) approach to data analysis is presented as a linear, hierarchical process, he states categorically that the six steps are interrelated and do not necessarily follow in the order they are given (Creswell 2014).

- **Organise and prepare the data for analysis**

This refers to the transcribing of the interviews and the sorting and arranging of the data if different sources of information are used.

- **Read through all the data**

By doing this, the researchers get a general sense of the information and possibly its overall meaning. Perhaps the researchers want to write down general ideas about the data.

- **Coding of the data**

It is the process of organising the data into chunks of information and writing a word that represents a category in the margin.

- **Description of the setting or people and categories or themes for analysis**

During the coding process, the researchers give detailed descriptions of the setting or the people involved as well as descriptions of the categories or themes for analysis.

- **Present the results of the analysis**

This is often done in a narrative passage to convey the findings of the analysis. It may include a chronology of events, a detailed discussion of several themes or a discussion of interconnecting themes.

- **Interpretation of the results of the analysis**

The aim is to answer the following question: ‘What were the lessons learned?’

3.12 Trustworthiness

Schmitt (2005) states that it is important to note that before findings from qualitative studies can be applied to practice, researchers must have the ability to critically appraise and evaluate qualitative studies. To ensure that qualitative research and evidence is trustworthy, it is important to understand the basics of sampling, collecting data, analysing and interpreting data as well as evaluating the data presented.

3.13 Ethical Conduct

- All participants were given a letter of informed voluntary consent and a letter of information prior to the commencement of data collection and were free to withdraw from the study at any time.
- Confidentiality of all participants was maintained at all times. No personal details of participants were required to be recorded as each participating practitioner was assigned a unique code known only to the researcher and the research supervisors.
- Only the researcher and research supervisors will have access to the information collected – which was electronically saved and password protected. Files were stored in a locked cupboard.
- The data collected will be stored at the Homeopathy Department at the Durban University of Technology for a maximum of 5 years. Thereafter any data remaining shall be shredded or destroyed.

CHAPTER 4 - RESULTS

This chapter reviews the results and analysis of the qualitative data collected during the one-on-one interviews. The results were analysed and are presented and discussed with reference to the aim of the research topic which was to determine the Homoeopathic Management of Diabetes mellitus Type 2 in the KwaZulu-Natal Province as well as the research questions that guided the study.

4.1 Participant Demographics

As shown in table 4.1 female participants constitute 70% of the total number of practitioners interviewed, while male participants constitute 30%. Of the total population, 30% were African practitioners – of which 33.3% were female while 66.6% were male; 30% were Indian practitioners – of which 100% were females and 40% of practitioners were white practitioners – of which 75% comprised female practitioners and 25% male. The overall ratio of male to female practitioners was 3:7.

2 TABLE 4.1. PRACTITIONER DEMOGRAPHICS

Race		**Gender**	
	% of total population	**Female**	**Male**
African	30.00%	33.33%	66.66%
Indian	30.00%	100.00%	0.00%
White	40.00%	25.00%	75.00%

4.2 Themes and Trends

The data analysis process also allowed for the identification, description and exploration of the themes and trends that exist in the homoeopathic management of diabetes mellitus type 2 in KwaZulu-Natal. The themes were identified from the response of participants to the Grand tour Question as well as the probing questions.

3 TABLE 4.2. IDENTIFIED THEMES

Theme	Sub – Theme
Practitioner perception of the role Homoeopathy plays in diabetes mellitus type 2.	
Practitioner perception of the type of patient that seeks homeopathic care for diabetes mellitus type 2	- Typical Typology (Patient profile - age, gender, physical characteristics) - Non-Typical Typology (Patient characteristics after diagnosis)
Standard protocol for the treatment and management of diabetes mellitus type 2	- Case taking - Modalities - Nutritional recommendations - Referrals
Recommendations to the Homoeopathic Association of South Africa and the Allied Health Professions Council to include homoeopathic management for diabetes type 2 in the future national health plan	

4.2.1 Theme 1 - practitioner perception of the role Homoeopathy plays in diabetes mellitus type 2

Homoeopathy is a form of complementary and alternative medicine that focuses on treatment of the patient by analysing mental, emotional, physical and spiritual symptoms they display. During a consultation, patients are asked broad questions to elicit subjective symptoms and life experiences (Manchanda 2017). This allows the practitioner to understand the totality of symptoms the patient may exhibit and establish a connection between psychological and physiological symptoms.5. A remedy that is based on the patient's entire symptom exhibition is then identified and prescribed 6. Following the main principles of homeopathy, every disease and ailment is treated in this way, with the inclusion of Diabetes mellitus type 2. This forms an integral part of the role that homeopathy plays in the management of diabetes mellitus type 2.

When asked about their perception of the role that homoeopathy plays in diabetes mellitus type 2, all practitioners agreed that the role homoeopathy plays in the management of diabetes mellitus type 2 is of substantial importance. This is shown in the following excerpts taken from the participants interviews.

"Very important because I've seen many people with type 2 diabetes. They do everything right but they still have glucose levels that are very high…"

[RP002]

The statement above reports that homoeopathy is able to help when patients feel they have exhausted all other routes and when instructions for allopathic treatment are correctly followed but patients are still unable to see an improvement in their condition.

"Thus far I am going to give you my perception in practice with the patients that I have treated. Once you start them on homoeopathic remedies, just purely a homoeopathic remedy and you follow up with the blood tests - that's where I have seen the results and it shows because it's results from the lab - it's the patient's blood and you can see the result of it. So yeah it is definitely a positive impact."

[RP003]

This interviewee reports the positive impact in the role homeopathy plays in the treatment of their patient based on the tests conducted after homoeopathic treatment. This interviewee presents their evidence to successful treatment.

“I think it's got a huge role to play. I think we can probably treat most of it - not only with dietary advice but also homoeopathically. I think that it definitely makes a big impact on patients when their health is better and their state of mind is better and then comfort food doesn't become as big an issue that is the biggest role that we can play.”

[RP001]

“I think homoeopathy plays a very important role. With the approach, it’s not just about diabetes, it’s about the patient with diabetes. Their lives are never the same with the diagnosis. And to some, to accept the changes that they have to make, it is not something that you can just pop a pill that can make you to accept the condition and that’s why some patients because of the failure to attend maybe support group or something like that, they don’t comply.”

[RP007]

“I think major because the majority of our patients do not seek the specialist help when it comes to their diabetes and they will see their family doctor or their general practitioner for it, and unfortunately the time that is given and that is offered to the patient is very limited and so they do not have a good understanding of the disease, of the disease process and benefits of having a healthy diet, the benefits of even understanding what the sugar levels mean.”

[RP008]

The above responses speak to the wholistic therapeutic management that homoeopathy provides.

“Based on what I've seen I think it's huge. It's made an impact on the patient's and I think it's because of the training that we get. I think the training puts the patient at ease. Because they see much improvement in the symptoms and in their general well-being so I think it's very positive - the perception is good.”

[RP004]

“My perception is that I think you can manage it completely without even going the allopathic treatment route. I feel I can be the first line of management. it's just that we don't have a lot of information out there that people can use.”

[RP009]

“The role that homoeopathy plays in diabetes is not very different to the role that homoeopathy plays in any disease.”

[RP010]

As seen above, practitioners are of the perception that homoeopathy is crucial for the treatment and management of not only diabetes mellitus type 2 but can be utilised to treat patients with an array of conditions.

4.2.2 Theme 2 – Practitioner perception of the type of patient that seeks homeopathic care for diabetes mellitus type 2

In homoeopathy practitioners are able to prescribe medicine based on a totality of symptoms presented by the patient. Included in this total picture are characteristics which make up the constitutional typology of the patient. The typology of the patient may be broken down into the patient’s personality, mental and emotional states, general physical features and other information that lead to the individualized treatment of the patient. This theme serves to probe into the common characteristic’s practitioners have identified when treating diabetes type 2 patients.

Two sub themes were identified during the data analysis process and will be presented below.

4.2.2.1 Sub theme 1 – Typical Typology (Patient profile - age, gender, physical characteristics)

As seen below, most practitioners have identified typologies of patients, who seek homoeopathic care for diabetes type 2, by describing their age bracket, physical characteristics and comorbidities.

“It's usually the very overweigh and the more elderly patients; the sort of 50-year olds .in the clinic the demographics are 50-year olds usually with hypertension and diabetes it's usually not just diabetes”

[RP001]

“that typical typology of increased weight and insulin resistance…. More common I would say start of 40 and older and probably Indian females in general.”

[RP002]

“In terms of fitness - because most of my patients are quite fit- it is the elderly mainly middle-aged and older people. They are quite obese but also you will see that it is from a messed-up diet it is also that kind of patient.”
[RP006]

Well mainly it’s the elderly patients. Patients that are 50 years and above. We do have younger patients now but like more 50s and 60s and others like few in their 70s but 50s and 60s. but others now are round about the ages of 40 but I would say round about 50 average. [RP007]

Common characteristics identified by the participants when describing the typology of patients with diabetes type 2, that they have treated, included patients aged 40, 50, 60 and older. As described above, diabetes type 2 is a disease severely affecting older patients. Numerous studies have been conducted on the effects of diabetes type 2 in the elderly. In a study conducted by Chentli *et al* (2015), it is suggested that the higher prevalence of diabetes among older people is due to increasing life expectancy combined with the escalating rate of obesity and sedentary lifestyle. In addition, diabetes mellitus often goes unnoticed or undiagnosed in older patients as the disease may be asymptomatic or symptoms are nonspecific to diabetes mellitus. The above-mentioned study concludes by recommending that treatment in elderly patients should be based on classification and individualization of the patient to avoid the development iatrogenic complications.

Obesity and co-morbidities have also been described as present in the diabetes mellitus type 2 patient typology. Obesity represents the strongest modifiable risk factor for type 2 diabetes (Blüher and Stumvoll 2018), obesity has been documented as a risk factor in the criteria to detect diabetes in a patient. This can be explained by the understanding that an increase in fatty tissue composition adversely affects the efficacy of insulin. In turn the cells become insulin resistant leading to pre-diabetes in patients. Increasing the risk of being diagnosed with diabetes is a body mass index greater than or equal to 25% (Nagle *et al* 2018).

4.2.2.2 Sub theme 2 – Non-Typical Typology (Patient characteristics after diagnosis)

The below responses were based on the practitioner's interpretation of the question, describe the type of patient that seeks homoeopathic management for diabetes type 2. In the practice of homoeopathy, the typical perception of the term typology refers to the 'type of patient' being described according to their physical, mental and emotional presentation of the disease process. This typical interpretation may be seen in the excerpts recorded in 4.2.2.1 sub theme 1. The excerpts recorded below, speak to the non-typical interpretation of the typology of the patient by stating the less obvious types of a patient seeking homoeopathic management for diabetes mellitus type 2.

"Patients that have had allopathic treatment and are tired of the side effects. They want a way out or I have heard of homoeopathy and let me try that because I have been through all the signs and symptoms and I need to alleviate that."
[RP003]

"I think it's generally those who get scared and the doctor tells them or you have to be on this medication for the rest of your life kind of thing and then they panic and then they want to make drastic changes in a very short amount of time and generally we've got to unpack this whole process and see where did they start why did it start what was going on in the last few years to build up to the point where is it just needing a quick fix."
[RP005]

"So even though it's not specifically, that a patient comes to you to treat their diabetes you can help them when you do find out that they do have diabetes, you can help them down that road."
[RP008]

"I have very few patients that come to see me because they wanted to be treated as type 2 patients mostly, they come to me for other things. Sometimes they come quite late so I have a number of patients, there's one I'm thinking of - she is starting to feel the beginning of peripheral neuropathy hasn't been managed well because she sort of lives at fasting glucose levels of 11 sometimes goes up to 13, so she's coming because of the Beginnings of peripheral neuropathy and numbness in her feet. And so that patient you obviously have to acknowledge her diabetes

but that's not why she's coming so there are many patients who come in with other thing as the main complaint and I still manage that constitutionally."
[RP010]

"Generally, it will be people that have problems with your nerves maybe with the blood flow or maybe they will have diabetic sores but sometimes just a combination of other illnesses like your other diseases - hypertension and a combination of such…"
[RP004]

From the statements made above, it can be deduced that the typology of patients seeking homoeopathic management of diabetes mellitus type 2 can be divided into a typical typology and a non-typical typology.

4.2.3 Theme 3 – Standard protocol for the treatment and management of diabetes mellitus type 2

At present an official standard protocol for the homoeopathic treatment and management for diabetes mellitus type 2 does not exist. This may largely be due to the principle of individualized patient treatment making it difficult to specify a controlled and structured system of management.

"I don't really have a standard protocol because it (treatment) is really individualised"

[RP002]

"I don't have a standard protocol because each patient is so different."

[RP009]

"For me It's very tailored because I just feel it's not really possible to have just a protocol that you can use on just anybody."

[RP009]

However, through the data analysis process, sub-themes were identified and outlined below.

4.2.3.1 Sub-Theme 1 – Case taking

Case taking plays a vital role in the homoeopathic treatment and management of diseases. It is through the case taking process that the practitioner is able to gain the necessary information required to prescribe a homoeopathic remedy. The statements below confirm the role of case

taking in practitioners own standard protocol for the treatment and management of diabetes type 2.

"…you take a complete homeopathic case and in-depth - maybe try and focus on what are the factors either responsible etiologically or is it more a genetic thing, is its other things like diet."

[RP002]

"As I initially said we need to do a full case history and we go constitutional and if need be, I would come in with a complex remedy."

[RP003]

"…you take a full case history but besides the full Case History a full clinical examination where you look at vital signs how have they been affected you look at the weight and body fat distribution"

[RP006]

"As much as we give a clinically indicated remedy, we also treat the patient constitutionally. (to find the cause) With almost every homoeopathic case we ask what was happening, what were the symptoms that made the individual to want to come to your practice or when they were diagnosed what were the symptoms that they were presenting with, and the circumstances surrounding the time they were diagnosed."

[RP007]

4.2.3.2 Sub-Theme 2 – Modalities

This theme explores the various treatment options employed to assist in the homoeopathic management of diabetes mellitus type 2. In this context a modality refers to a method of treatment other than a homeopathic remedy.

"…phytotherapy and my definite first choice will be syzygium gymnema and as far as possible your medi-herb products"

[RP002]

"…phytotherapy is the other that I would employ and utilise herbs - they do work very well that's one of the treatment options. The diet and then supplementation are also very important because we know in type 2 diabetes there are all sorts of mineral deficiencies coming into play

and you've got to look at everything as a whole. I would use gymnema, syzygium, black walnut those are the commonly used ones"

[RP003]

"I think it is just herbal remedies and herbs but I think lately depending on their physical state I have been doing traumeel injectables"

[RP004]

I would generally use phytotherapy syzygium the medi-herb gluco balance that's the most that I would generally use

[RP005]

Herbs the homoeopathic herbs, remedies, nutritional advice - those are the modalities that I used.

[RP006]

"I would consider bio puncture…"
[RP008]

"Herbs, Ayurveda and bio puncture because I use a lot of like traumeel and berberis… I use Chinese medicine, Ayurveda and herbal medicine and I use bio puncture"

[RP009]

The majority of practitioners said they utilise phytotherapy as a modality to manage diabetes type 2 in their patients. Bio puncture was another noted option with one practitioner making mention of Ayurveda.

4.2.3.3 Sub-Theme 3 – Nutritional recommendations

Diabetes mellitus type 2 is a disease that is directly impacted by the food's patients consume, therefore, it is of imperative importance patients are made aware of the impact certain foods and food groups may have on their condition. According to the American Diabetes Association (2018) diabetic patients are challenged the most by attempting to follow a meal plan and determining what types of foods they may consume. It is for these reasons that the association

suggests an individualized eating plan tailored to the patient's disease and lifestyle. The following excerpts reveal the nutritional recommendations made by the practitioners.

"Obviously, fresh food; more dark green leafy vegetables but that's often very hard to do. Obviously cut back on the easy carbohydrates and go for more complex carbohydrates like legumes - that kind of thing but it's not always easy to implement especially because of the price of food."
[RP001]

"Because we live in the farm, I try to encourage patients to go as green as they can with your veggies, your cabbages and so on and to try and reduce sugar and starch. These cooking oils - reduce them try and boil the food but I am trying to be as realistic as possible because I also understand the backgrounds of patients."
[RP004]

"Well firstly to reduce anything with sugar and your carbs. I always tell my patients whether it's weight loss or diabetes or cancer - anything that is not in the form that God made it is not good for you - that's generally my baseline. I don't give patients a very regimented diet or tell them to stop eating things because I know they are not going to do it so I generally just give them guidelines to increase their fruit and veg. Keep away from our carbs – which convert into sugar anyway - it's more the box and processed GMO stuff - all those things bring up the inflammation in the body and everything has an effect on each other."
[RP005]

"Breakfast - I generally recommend a low glycaemic index meal, lunch again I said a home-cooked meal with a salad and then the same in the evening again. Try to have lunch as a bigger portion and supper as a small portion and we try to keep meals at five times a day as opposed to eating three times a day so we are having smaller portions and we are not playing around with the blood sugar levels. The other thing is eating on time, your fruits your vegetables and fibre, reducing and removing the cold drink and juices as far as possible but not even having sugar free drinks. We educate them to start reading labels because that is where you can see what you have been eating."
[RP003]

The practitioners above place high emphasis on the value of fresh fruit and vegetables and the limiting or cutting out of carbohydrates from the patient's diet. Home cooked meals are recommended to allow the patient to be aware of the ingredients going into their bodies. One practitioner suggests small meals eaten often to prevent a yo-yo effect on the blood glycaemic levels. They also make mention of the need to consider the backgrounds of patients with regard to the affordability of fresh food versus the easy and cheaper alternative of processed food.

On the other hand, the response below shows the practitioner advocates the use of the ketogenic diet in the management of diabetes type 2. The ketogenic diet has been shown to reduce blood glucose levels by avoiding the consumption of sugar and carbs which negates the need for excessive insulin secretion. However, the ketogenic diet is expensive and may not be cost effective for all patients.

"For me the ketogenic diet is excellent and has been shown to work, I think it's the best, and I think it's important for people to understand. Is it possible to achieve that diet in every patient, no, because we've got people who have from different cultural backgrounds and sometimes might be a bit more difficult to achieve it but I do try to put it out there that it's the best? If we cannot achieve a ketogenic diet then, I do move more towards the Mediterranean diet and see if that is more attainable. Sometimes the ketogenic diet might be drastic and it might not fit into everyone's daily life."
[RP008]

To further buttress, the response below makes mention of the ketogenic diet whereas this practitioner suggests the importance of carbohydrate consumption for the body but prescribes a diet free from gluten.

"*The nutritional recommendations again are individualised but definitely low sugar diet, I do tell them about the higher fat, good fats but mine tends to be gluten free but not completely grain free because I don't like cutting out carbs in a patient and I know a lot of people do that particularly with the ketogenic diet - it's really high fat and no carb, I don't necessarily do that because you do need your carbs. There's a reason why we do eat all those food groups. I adjust the quantities to put into the patients diet according to their lifestyle because remember not everyone coming to you can afford going in for a diet where they have to buy all these things"*

[RP009]

From the responses above we see that the practitioners are able to assist in the nutritional recommendations for their patients with diabetes type 2, however, one practitioner did state the additional time required to administer nutritional advice. It is important to note that nutritional recommendations form part of patient education and patient education assists with patient compliance.

"I usually look into cutting out the high GI stuff - which is a challenge because that often plays a major role. A number of patients, I do actually refer out to the dietitian for proper nutritional advice. For me that's more of a time constraint to physically sit with the patient and do another hour consultation as far as eating advice is concerned. Compliance - I think that the bad habit is there and that's for me as a practitioner actually the biggest problem and it's aggravating."
[RP002]

4.2.3.4 Sub-Theme 4 – Reasons for referrals

From the data collected the researcher identified trends in the practitioner's reasons for referral. These included referrals for the general monitoring of allopathic medication prescribed, slow progress in decreasing the patient's glucose levels and complications experienced by the patient as a result of the disease. These are further explained in the following excepts.

"People that are already on allopathic treatment coming to you and it looks like that (glucose levels of 20 and 30) I usually refer it back just to make sure everything is ok on that side because I find sometimes, patients just become a routine prescription and no one really checks. Then they have those very high levels and doctors just keep on adjusting drugs and not looking for anything. And then usually most of those patients you will ask them to come back in with the other results from the specialists just to make sure everything is checked."
[RP002]

"*With my patients I think the practitioners that I would refer to and I work with is endocrinologists and their prescribing doctor. I'm always in touch with them especially if we are changing the diet; if I'm adding another product and if I'm seeing that glucose levels start to shift, I personally do not change their medication I speak to their prescribing doctor and make the recommendation of changing the dosage."*

[RP008]

From the responses above, specialist treatment and referrals are intended to monitor the allopathic prescriptions provided by the respective doctors once homoeopathic treatment has shown positive results. The practitioners referred their patients to endocrinologists and general practitioners to assess dosages and strengths of medicine prescribed.

"I realise that what is at my disposal is not working or progress is slow I try to refer and maybe when I think that I've done everything that's when I refer or sometimes when the patient asks for it sometimes they do ask for it those who read a lot on the internet but mainly it is if I realised that I have given everything I have got for the condition they are in"

[RP004]

"Nothing's working and the patient's blood sugar is not decreasing then we've got to look for other measures because you're dealing with the patient's life of course. Referral would generally be if there's nothing going on that is if the case is not moving then I would definitely refer. There's a specialist endocrinologist that I would refer to for further investigation and to check on the allopathic meds. Sometimes dosages are incorrect or they just haven't found the actual root of the problem and they're guessing because the sugar is high.
[RP005]

" If it's poorly managed, like our scope of practice does not allow us to make somebody stop taking whatever medication that was not prescribed by us, so if it is not properly managed and they are on diabetic medication but the glucose levels are still high, you will refer back to the practitioner or to the provincial hospital where they get their chronic medication to maybe consider changing the dosage or changing the brand and all those kinds of things"
[RP007]

The reasons for referral in the above responses are due to an underlying condition affecting the progress of treatment. These practitioners refer in order for specialists to assess the possibility of an underlying condition and for patients to receive the most appropriate treatment required.

"Referrals for lots of diabetic foot, for dressings, and for ulcers. It might not be a gangrenous one but if I see it starting then I refer."

[RP005]

"Also, if I believe that I need to look at other issues that we've picked up along the way, issues with kidneys, then I would refer, I respect my colleagues in the field and I try to work with the ones that are really acceptant of my work."

[RP008]

"…Admissions are because of the complications of diabetes that's the major thing. The complications of diabetes when you are suspecting that something will happen especially with the kidneys and the heart those are like the major times I refer. Complications occur mainly with the kidneys. Testing for renal function, to see the capacity of the kidneys, you worry about the accumulation of urea and creatinine in the system so I will send for those blood works."

[RP007]

The practitioners above also identified the need to refer when patients experience complications related to diabetes.

4.2.4 Theme 4 – Recommendations to the Homoeopathic Association of South Africa and the Allied Health Professions council to include homoeopathic management for diabetes type 2 in the future national health plan

The Allied Health Professions Council and the Homoeopathic Association of South Africa are the governing entities that implement new laws and changes with regard to homoeopathy. The addition of this probing question sought to explore the possible ways of improving the integration of homoeopathy into the south African health care system. The fundamental points that were identified in the practitioner's responses were improving the education and awareness of homeopathic management, integrating homoeopathy into the primary health care system, recognition and acceptance by the conventional medical system and working together with allopath's to provide complementary medicine.

These responses are shown below.

The recommendations made by the following practitioners revolved around increasing education and awareness on the possibilities of homoeopathic management of their illness.

They believe that people should be well educated on the choices they have available for disease control and management and should be free to select their form of treatment. As expressed below:

"I think for HSA it is education because patients receive homoeopathic treatment and they accept it but I think education to the powers that be is needed. You only realise that they have no idea what we know and what we could do so I think once we make sure that these people who make the laws are exposed to it and they know and understand what homeopathy is I think they will be more willing to integrate into the National Health system so that at least patients have a choice. Not necessarily a choice but patients can make an informed decision of how they wish it could be managed or how it will be Incorporated into the management of their disease but I *just think that they are just clueless about homoeopathy"*

[RP004]

"…but not only that but just education nationwide like from if people are taught about different professions from as early as grade 1 like why don't you include all professions like homoeopathy so that people are aware of it and its more in line with especially in South Africa like with the African people they will more relate to homoeopathy than any other thing because of our philosophy and our principles. So, for me just to have the accessibility and the choice given to the people it's not forced nut an option and its validated by clinical studies that have proven the efficacy of homoeopathy in the management of diabetes."

[RP007]

"They need to allow for funding and they need to educate patients that there are different treatments and that allopathic medicine is not the only route. I think that's the first and foremost thing that the patient should know. What they have in this country. Because we have such a beautiful degree that is well taught and preparing health care professionals."

[RP009]

In addition, other practitioners stated that homoeopathy should be made available at the primary health care level. In doing so, homoeopathic practitioners could work together with allopathic doctors to create integrative and complementary medicine.

"Well I think they should work at making homoeopathy available at a primary level so that we can get in before type 2 diabetes actually sets in if we can get in before then we can prevent a lot of the diabetes from actually developing into full-blown diving and that is with the mental health of our patients if we could actually have a healthier public then we wouldn't have to deal with it once it has established. But also, that there is communication between the two major councils and a higher level of understanding to make it actually complementary and integrative to integrated with each other rather than being two separate councils that run opposed to each other."

[RP001]

"Actually, get recognition because at the moment the profession itself all complementary and alternative medicine is not really written into the future plan. So, I think that will be a first step to actually see what level and then they can start looking at specifics the protocols for diabetes or something like that. But I think we can't even look at that until we actually get some recognition as professionals and we are nowhere there."

[RP002]

"I think we need to start with bringing homoeopathy into the primary health care system that is the only place we can start. I would say the starting point is primary health care and Allied Health and HSA are we only ones that can implement that and once we get into the primary health care system it is easier for us to start treating these for chronic sort of problems and once you are in the primary health care system you are at the Urban clinics at the government clinic. Going to be available you will get more patients that are coming to you and it is not only diabetes that is going to be helped it's all your other conditions that are going to get help it so the starting point for me is there.

[RP003]

"I think in all provincial clinics and hospitals there needs to be access to homeopathy management care because there's so much that we can do. We've seen the results and the

patients are being treated and it is integrative medicine. I think it's the way to go and also, I know like we always boast about this it's cost-effective and if it can be made available to the masses because there's a shortage of drugs and sometimes of doctors sometimes of many things but if the system can just allow for homeopaths to also be accessible in provincial hospitals and clinics that will be great because even if somebody wants to choose, there is a choice and option even if it's not subsidized but to be there and be visible that you've got a choice you've got an option."

[RP0009]

CHAPTER 5- DISCUSSION

This study sought to investigate the homoeopathic management of diabetes mellitus type 2 in KwaZulu-Natal. Semi-structured interviews were conducted with 10 homoeopathic practitioners who were practicing in KwaZulu-Natal. The data collected during the interviews was then transcribed and analysed. During the data analysis process, themes and trends in the homoeopathic management of diabetes mellitus type 2 were identified and reported in the previous chapter. In this chapter these themes and trends were expanded on and discussed. The discussion was guided by the research question outlined in Chapter one, section 1.3.1 that is, what is the homoeopathic management of diabetes type 2 in your practice?

Identified themes to be discussed are as follows

- Practitioner perception of the role homoeopathy plays in the management of diabetes mellitus type 2.
- Practitioner perception of the type of patient that seeks homeopathic care for diabetes mellitus type 2.
- Standard protocol for the treatment and management of diabetes mellitus type 2.
- Recommendations to the Homoeopathic Association of South Africa and the Allied Health Professions Council to include homoeopathic management for diabetes type 2 in the future national health plan.

5.1 Theme one practitioner perception of the role homoeopathy plays in diabetes mellitus type 2.

All practitioners agreed that the role that homeopathy plays in the management of diabetes mellitus type 2 is one of substantial importance. According to Sharma (2012), Homoeopathy has a measureless role in the treatment of diabetes mellitus type 2. The homoeopathic system of medicine views the treatment of the patient as a whole. The treatment prescribed derives from the evaluation of the patient with the problem rather than just evaluating the problem separately from the patient. This means that should there be two patients with diabetes mellitus type 2, they may receive different homoeopathic prescriptions based on the individualization of

their symptoms. This is important as each treatment is tailored to the particular patient. This process of patient care is one of the reasons homoeopathy has a huge role to play in the management of diabetes mellitus type 2.

5.2 Theme two – Practitioner perception of the type of patient that seeks homeopathic care for diabetes mellitus type 2

For the purposes of this discussion, patient typology may be divided into two categories that are not necessarily mutually exclusive. These categories were created from the practitioner's differences in interpretation of the probing question – Describe the Type of patient that seeks Homoeopathic Management for Diabetes mellitus Type 2? The first part of patient typology that practitioners identified referred to the characteristics of a patient that that may lead the patient to a particular illness, like, physical make-up; genetics; age; race; gender; habits and so forth. The second part of patient typology that a practitioner identified were characteristics of the patient that they developed after being diagnosed with the disease; adverse side effects of chronic allopathic medication, co-morbidities that exacerbate after being diagnosed, insufficient knowledge of homoeopathy and the diagnosed disease to seek homoeopathic management for the disease.

According to Chentli *et al* (2015), the growing prevalence of diabetes mellitus is becoming an endemic and epidemic problem that poses a social and economic burden worldwide (Lam and Leroith 2012). It is further reported that the prevalence, co-morbidities and mortality rate of diabetes mellitus type 2 are higher in the elderly than in younger people (Sloan *et al* 2008). Caspersen *et al* (2012) reports that Diabetes mellitus, diagnosed or undiagnosed, affects 10.9 million adults in the United States aged 65 years and older. By 2050, this number is projected to more than double to 26.7 million. These statistics will represent 55% of all diabetes cases. Furthermore, Caspersen *et al* (2012) goes on to say that almost 8 out of 10 elderly people have some form of dysglycaemia according to different tests conducted. Epidemiologists have therefore classified diabetes mellitus and its complications as the most alarming health problem of the century in middle aged people and the elderly. The above reporting's are consistent with responses obtained from the participating practitioners as recorded in chapter four.

Studies conducted on the perceptions of homoeopathy have highlighted the misinterpretations that South Africans have with regard to this method of disease management. These studies

suggest a degree of ignorance and misunderstanding of homoeopathy and homoeopathic management. It is this general lack of information and education that lead patients to explore homoeopathy as a last resort. It is also this lack of education that inhibits patients from requesting treatment for their diabetes.

Another reason for seeking homoeopathic care is the detrimental side effects patients incur from long term use of chronic allopathic treatment. According to Schmake (2014), one of the key findings was that patients were attracted to homoeopathy by the notion of individualised treatment with zero side effects and the promotion of self-healing forces.

5.3 Theme three – Standard protocol for the treatment and management of diabetes mellitus type 2

A standard protocol may also be classified as a medical guideline in which a set of instructions is defined. The instructions set out the process for investigating a series of findings in a patient or outlines the process to be followed to control a specific disease. As stated in Chapter four, there has been no standard protocol for the homoeopathic management of diabetes type 2. This could largely be due to the principle that no patient will present with an ailment in the exact same manner. However, from the results obtained in this study we can begin to assess the possible criteria and categories that may be included in a standard protocol – with individualised care – in the future.

5.3.1 Case taking

Homoeopathic treatment begins with case taking. In order for patients to receive accurate homeopathic medication, an in-depth case analysis needs to be conducted. Thereafter, the fundamental laws of homoeopathy are applied. This process is dependent on the individualisation and understanding of each patient on a multidimensional level. In order to achieve this individualisation and understanding, the practitioner is reliant on their case taking skills in which they observe, question and document the unique symptoms the patient presents with. According to an article written by Manchanda (2017) the case taking and consultation process empower patients and enable them to learn more about their health.

5.3.2 Modalities

Modalities or adjunctive therapies are clinical interventions that provide support to the main treatment procedure. They assist with strengthening the patient, palliating the patient, and relieving pain in the patient whilst the main treatment method is acting on their system. This form of supportive care has no conflicting or antidoting qualities with the main treatment method.

Phytotherapy was the most common form of modality reported in this study. Phytotherapy is the treatment of ailments through harnessing and administering pharmacological properties of medicinal plants. These properties are extracted, made into a tincture and dispensed to the patient in need.

5.3.3 Nutrition

According to the American diabetes association (2004), medical nutritional therapy forms an integral part of diabetes management and patient education. It is necessary for patients to understand the direct and long-term effects their diet may have on their chronic condition in order to effect successful patient treatment and management. Participants in this study touched on educating their patients on the importance of adding fresh fruit and vegetables to their diet, consuming more dark green leafy vegetables, and most importantly removing sugar and complex carbs. Refined sugars and high processed ingredients in takeout food also play a big role in the unhealthy eating habits of diabetes mellitus type 2 patients. Some practitioners urged their patients to consume home cooked meals, completely removing takeout food from their diet while others suggested patients grow their own fruit and vegetable.

Practitioners also mentioned the recommendation of the ketogenic diet to patients. The ketogenic diet is defined as a high-fat, low carbohydrate diet that allows for adequate protein consumption. The body then utilizes fat instead of carbohydrates as a preferred energy substrate. The absence of carbohydrates in the body causes the activation of ketogenesis in the liver. This process allows for the conversion of fat into fatty acids and ketone bodies. The ketone bodies are able to permeate the blood brain barrier and provide energy to the brain as well as provide an efficient energy source to other organs. Insulin signals the liver, muscle and fat cells to take in glucose once carbohydrates and sugars have been consumed. In a patient who is insulin resistant or has diabetes mellitus type 2, the pancreas cannot produce the sufficient amount of insulin needed for the complete intake of glucose. The glucose is then absorbed into the blood stream causing hyperglycaemia. The ketogenic diet limits the intake of

carbohydrates and sugar decreasing the amount of insulin required combating hyperglycaemia (Kalra *et al* 2018).

5.3.4 Referrals

The process of referrals is one of directing the patient towards a specialist for further review or investigation of a suspected or confirmed ailment. In chapter four it was shown from the participant's responses that reason's for referral are due to general monitoring of allopathic medication prescribed, slow progress in decreasing the patient's glucose levels and complications experienced by the patient as a result of the disease. The most common specialist referral being specialized intervention by an endocrinologist.

5.4 Theme Four– Recommendations to the Homoeopathic Association of South Africa and the Allied Health Professions Council to include homoeopathic management for diabetes type 2 in the future national health plan

The South African department of health is in the process of implementing a national health plan in the form of the National Health Insurance (NHI). The NHI has been proposed as a replacement for the current two-tier system of the public and private health sectors. The system will seek to create opportunities for equality, reduction in medical aid costs and provide medical insurance to all South African citizens (Mkhize 2018).

At present, homoeopathy is not covered by the NHI. In a document titled white paper on national health insurance, dated May 2017, it is stated that the NHI will only cover evidence-based health services. The document lists the Allied Health Professions Council as the affected stakeholder with the risk described as no reference to health care providers and services delivered by AHPCSA. (South African Department of Health. 2017).

We can clearly deduce from the participants responses to the probing question, what recommendations do you feel should be made to the Homoeopathic Association of South Africa and the Allied Health Professions Council to include homoeopathic management for diabetes type 2 in the future national health plan, that homeopaths are seeking recognition for the roles that they play in the medical field. Exclusion from the future national health plan would be

detrimental for homoeopaths and their profession. It was suggested that the AHPCSA and HSA strategize to create awareness around the work that homeopaths do as well as creating channels of learning about homoeopathy to allow patients to choose their choice of medical treatment without costing them more than the tax they are contributing to the NHI. A few practitioners also requested greater efforts be made to include homeopaths in the primary health care system. By allowing homeopathic practitioners to assist in first line management of diabetes and other chronic ailments, the government will be curbing the demand for primary health care providers while assisting patients to receive integrative wholistic care.

The results showed that the homeopathic management of diabetes mellitus type 2 involved in-depth case taking and analysis with individualization of each case. Practitioners were involved in the health and well-being of their patients and put emphasis on patient education. Some of the ways in which practitioners managed diabetes mellitus type 2 in their practices included prescription of a constitutional remedy attained through thorough case taking, phytotherapeutic modalities, nutrition advice and referrals to specialist practitioners when necessary.

CHAPTER 6 CONCLUSION

The aim of this study was to determine the Homoeopathic Management of Diabetes mellitus Type 2 in the KwaZulu-Natal Province. The study focused on the clinical experiences of homoeopathic practitioners in managing patients diagnosed with diabetes mellitus type 2. The objective of the study was to document the homoeopathic management of diabetes mellitus type 2 through the use of a questionnaire with the grand tour question being:

What is the Homoeopathic management of Diabetes mellitus Type 2 in your practice?

Research interviews were conducted with homeopathic practitioners and a qualitative research approach was adopted in the data collection and analysis process. Through one-on-one interviews, the researcher was able to collect rich qualitative data to document the homoeopathic management of diabetes type 2 in KwaZulu-Natal. Chapter 5 explored and discussed the findings from the in-depth interviews conducted and provided supporting literature. Chapter 6 draws on the discussion from the previous chapter and concludes by providing and proposing recommendations and directions for future research.

The probing questions assisted in data saturation by collecting and highlighting knowledge and experience-based data. The data collected can be used to enhance the management protocols for homeopathic practitioners and the healthcare offering overall.

6.1 Conclusions

In light of the results and discussion shared in Chapters 4 and 5, the main aspects of the homoeopathic management of Diabetes mellitus type 2 consisted of full case taking and analysis by the practitioner, leading to a constitutional prescription for the patient. The findings in this study revealed that, unlike in allopathic treatment, there is no one specific remedy or group of remedies that are the first point of treatment for a patient seeking homoeopathic care. The management process is a very tailored and individualized method of treatment that considers the patient in their entirety. A homeopathic practitioner may include the use of a phytotherapeutic modality to assist in the management process but that too is an individualised prescription. Most practitioners were comfortable enough to provide nutritional

recommendations to their patients, educating and involving them in the management process - which in turn could lead to a greater diet and medicine compliance.

Another important tool in the Homoeopathic management was that from the results we can deduce the importance Homoeopathic practitioners place on providing clear and in-depth patient education. According to Creamer *et al*, (2016), patient education remains a cornerstone of effective diabetes type 2 treatment, also suggesting that diabetic patients who possess inadequate diabetes knowledge have poorer glycaemic control and higher diabetes complication rates.

It is important to note that while homeopathy is not included in the national health plan, greater efforts are being called upon by the governing bodies, both homoeopathically and non-homoeopathically, to allow for the integration of homeopathy into the primary health care system. Alternate management protocols are necessary in providing patients with a wider, more holistic approach to overcoming their disease.

6.2 Recommendations

- Further studies on the documentation of common chronic disease affecting south Africans should be conducted to highlight the availability of homeopathic management.
- Due to the epidemic nature of diabetes as a disease, this study should be conducted across all provinces to gain a homoeopathic practitioner's perspective across the country.
- Comparative study of quantitative nature
- Conduct a study on patient's perceptions/experience on being treated homoeopathically for diabetes mellitus type 2.
- An Investigative documentation on the homoeopathic management of diabetes type 1.
- Comparative study on the homoeopathic management of diabetes type 1 and type 2.

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PRACTITIONER CODE:

DATE:

APPENDIX A

QUESTION GUIDE

An Investigative Documentation of the Homoeopathic Management of Diabetes mellitus Type 2 in the KwaZulu-Natal Province

Grand tour question:

- What is the homoeopathic management of Diabetes mellitus Type 2 in your practice?

Sub Questions

9) What is your general perception of the role that Homeopathy plays in Diabetes mellitus Type 2?
10) Describe the type of patient that seeks Homoeopathic Management for Diabetes mellitus Type 2.
11) What are some of the measures you employ to diagnose the patient as having Diabetes mellitus Type 2?
12) As a homoeopathic practitioner what is your standard protocol for the treatment and management of Diabetes mellitus Type 2?
13) What are the other modalities that you may employ to supplement the Homoeopathic Management for Diabetes mellitus Type 2?
14) What are nutritional recommendations that you suggest in your management for Diabetes mellitus Type 2?
15) What are the reasons for referral to other practitioners of patients in your management for Diabetes mellitus Type 2?
16) What recommendations do you feel should be made to the AHPCSA and HSA with regard to including the Homoeopathic management for Diabetes mellitus Type 2 in the future National Health Plan?

APPENDIX B - LETTER OF INFORMATION

LETTER OF INFORMATION

Title of the Research Study: An Investigative Documentation into the Homoeopathic Management of Diabetes mellitus type 2.

Principal Investigator/s/researcher: Nivania Moodley (BTech: Homoeopathy)

Co-Investigator/s/supervisor/s: Dr M. Maharaj (MTech: Hom)

Co-Supervisor: Dr V. Alwar (MTech: Hom)

Brief Introduction and Purpose of the Study: The primary purpose of this research study is to help identify themes and trends of the homoeopathic management of Diabetes mellitus type 2 in KwaZulu-Natal. This will help to make future recommendations towards a standardized homoeopathic protocol for the treatment and management of Diabetes mellitus type 2.

Outline of the Procedures: Once you have agreed to participate in the study, an informed consent form will be sent to you. Please read the form and feel free to forward to the researcher, any questions and or reservations you may have about participating in this study. The form should then be signed and sent to the researcher. Thereafter a time to meet face to face will be arranged at your convenience or alternatively making use of a video software application such as Skype to conduct interviews. At this meeting, the researcher will bring along a set of questions to establish your treatment protocol when treating diabetes mellitus type 2 as well as a voice recorder to record all interviews. The interview will be conducted over a period of 60 minutes.

Risks or Discomforts to the Participant: There is no risk to you. All personal information and practitioner demographics will remain anonymous.

Benefits: Once we have established the best practices for the homoeopathic treatment of Diabetes mellitus type 2, this data will be available to you and may help with improving your treatment regime.

Reason/s why the Participant May Be Withdrawn from the Study: The exclusion criteria states that a participant may be excluded from the study should they not sign the letter of information nor the letter of informed consent, are not registered with the Allied Health Professions Council of South Africa and who do not possess a valid practice number, are not practicing in KwaZulu-Natal and have been in a private practice for less than 5 years. Should you agree to participate you are free to withdraw from the study at any time with no judgment or penalties.

Remuneration: Unfortunately, participation is not compensated in any way and is purely voluntary.

Costs of the Study: All costs involved in the study is at the expense of the researcher. As a participant you will not be asked to pay towards any expense.

Confidentiality: All personal information and practitioner demographics will remain anonymous as each practitioner will be assigned a code in place of their name. All voice recordings will remain anonymous, will be stored in a locked cabinet at the Homoeopathy Department and only be accessible by the researcher and the supervisors.

Research-related Injury: In the event of an injury, we are unable to offer any such compensation.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher Nivania (078 800 5002), my supervisor Dr Madhueshwaree Maharaj (083 388 2688) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support: Prof C E Napier. Contact number 031 373 2577 or carinn@dut.ac.za

APPENDIX C - CONSENT

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____

  (Nivania Moodley), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance
  Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**

I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____	_____	_____
Full Name of Researcher	**Date**	**Signature**
_____	_____	_____
Full Name of Witness (If applicable)	**Date**	**Signature**

Full Name of Legal Guardian (If applicable)	**Date**	**Signature**

APPENDIX D -

LETTER OF INFORMATION – PILOT STUDY

Title of the Research Study: An Investigative Documentation into the Homoeopathic Management of Diabetes mellitus type 2.

Principal Investigator/s/researcher: Nivania Moodley (BTech: Homoeopathy)

Co-Investigator/s/supervisor/s: Dr M. Maharaj (MTech: Hom)

CoSupervisor: Dr V. Alwar (MTech: Hom)

Brief Introduction and Purpose of the Study: The primary purpose of this research study is to help identify themes and trends of the homoeopathic management of Diabetes mellitus type 2 in KwaZulu-Natal. This will help to make future recommendations towards a standardized homoeopathic protocol for the treatment and management of Diabetes mellitus type 2.

Outline of the Procedures: Once you have agreed to participate in the pilot study, an informed consent form will be sent to you. Please read the form and feel free to forward to the researcher, any questions and or reservations you may have about participating in this study. The form should then be signed and sent to the researcher. Thereafter a time to meet face to face will be arranged at your convenience or alternatively making use of a video software application such as Skype to conduct interviews. At this meeting, the researcher will bring along a set of questions to establish your treatment protocol when treating diabetes mellitus type 2 as well as a voice recorder to record all interviews. The interview will be conducted over a period of 60 minutes.

Risks or Discomforts to the Participant: There is no risk to you. All personal information and practitioner demographics will remain anonymous.

Benefits: Once we have established the best practices for the homoeopathic treatment of Diabetes mellitus type 2, this data will be available to you and may help with improving your treatment regime.

Reason/s why the Participant May Be Withdrawn from the Study: The exclusion criteria states that a participant may be excluded from the study should they not sign the letter of information nor the letter of informed consent, are not registered with the Allied Health Professions Council of South Africa and who do not possess a valid practice number, are not practicing in KwaZulu-Natal and have been in a private practice for less than 5 years. Should you agree to participate you are free to withdraw from the study at any time with no judgment or penalties.

Remuneration: Unfortunately, participation is not compensated in any way and is purely voluntary.

Costs of the Study: All costs involved in the study is at the expense of the researcher. As a participant you will not be asked to pay towards any expense.

Confidentiality: All personal information and practitioner demographics will remain anonymous as each practitioner will be assigned a code in place of their name. All voice recordings will remain anonymous, will be stored in a locked cabinet at the Homoeopathy Department and only be accessible by the researcher and the supervisors.

Research-related Injury: In the event of an injury, we are unable to offer any such compensation.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher Nivania (078 800 5002), my supervisor Dr Madhueshwaree Maharaj (083 388 2688) or the Institutional Research Ethics Administrator on 031 373 2375.

Complaints can be reported to the Acting Director: Research and Postgraduate Support: Prof C E Napier. Contact number 031 373 2577 or carinn@dut.ac.za

APPENDIX E – CONSENT PILOT STUDY

CONSENT

Statement of Agreement to Participate in the Research Study: Pilot Study

- I hereby confirm that I have been informed by the researcher, _____ (Nivania Moodley), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**

I, _____

(name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____	_____	_____
Full Name of Researcher	**Date**	**Signature**

Full Name of Witness (If applicable)	**Date**	**Signature**
Full Name of Legal Guardian (If applicable)	**Date**	**Signature**