



**Knowledge, attitudes and perceptions of registered
Master's Degree homoeopathy students of the role of
nutrition in homoeopathic management**

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Dissertation submitted in fulfillment of the requirements for the degree of Master of
Technology in Homoeopathy in the Faculty of Health Sciences at the Durban University
of Technology

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Date: August 2019

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is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources).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.

Signature of student

Date

Approved for final submission

Dr M Maharaj

Date

M Tech: Homoeopathy

Abstract

Background: Nutrition is a vital component of health promotion and disease prevention. Homoeopathic practitioners are in a good position to offer nutritional advice to patients. However, M. Tech: Hom students at DUT find their nutrition education to be inadequate. Therefore, this research is aimed at understanding knowledge, attitudes and perceptions of students registered at the master's level of their M. Tech: Hom degrees, regarding the role of nutrition in homoeopathic management of patients.

Method: Following a qualitative exploratory descriptive design, semi-structured interviews were conducted with 13 M. Tech: Hom students to determine their levels of knowledge, attitudes and perceptions of nutrition education at the Homoeopathic Day Clinic (HDC) at the Durban University of Technology (DUT), in a quiet, private and comfortable consultation room. The interview data was transcribed into Microsoft word document. Transcripts were analysed using Tesch's thematic eight-step procedure of data analysis. Subsequently, categories, codes and themes were formed.

Results: From 13 semi-structured interviews with M. Tech: Hom students, three themes emerged. Those three themes were knowledge of nutrition, perception of nutrition and attitude towards nutrition. All participants considered nutrition applicable to homoeopathic management. However, the majority of participants were dissatisfied with the amount of time allocated for nutrition education in the homoeopathic curriculum. Furthermore, they felt unprepared to provide nutrition care to patients.

Conclusion: Participants in this study recognised the importance of nutrition training in homoeopathic management. However, they felt dissatisfied with the quality and quantity of the nutrition training offered in the current homoeopathy syllabus and inadequately equipped to offer nutrition care.

Key words: Nutrition, perceptions, attitudes, knowledge, homoeopathy

Dedications

This thesis is dedicated to my mother, Nomvana Sotondoshe. She always believes in me. Her support and constant love have sustained me throughout my life.

Ndiyabulela mama kakhulu ngentliziyo yakho enemfudumalo nothando.

“I believe in you.” Words that water flowers.

---Michael Faudet

Acknowledgements

After an intensive period of six years, today is the day: writing this note of thanks is the final touch on my dissertation. It has been a time of extraordinary learning for me, not only in the scientific arena, but also on a personal level. Writing this dissertation has had a big impact on me. I would like to reflect on the people who have supported and helped me so much throughout this period.

I am most grateful to all the participants who willingly gave up their time to be interviewed.

To my supervisor Dr Madhueshwaree Maharaj for your mentorship and guidance. Thank you so much, may God bless you.

To my friends Muphulusi Nengovhela, Lungelo Gwala, Sinegugu Wayne Cele, Lunga Dlamini, Lizwi Buthelezi, Vuyo Maqungo, Xololwenkosi Sithole, Sizwe Ntshangase, Bongumusa Goodman Mtambo, and Fortune Gumede – thank you so much for all the happy moments we had throughout my varsity life.

To my best friend Busisiwe Nkomo – thank you so much. Meeting you after moving to Johannesburg was a blessing.

To my Wellness Warehouse team – thank you so much for always pushing me to work on my study.

To my mentor and friend Londiwe Mapingire – thank you so much for proofreading and for your mentorship as well.

To my confidant Dr Mufudzi Chihambwe – I cannot find the words to express my gratitude, thank you so much for your support from the beginning to the end of my study. Indeed, you are a true friend.

To my uncle Chuma Sotondoshe – enkosi malume ngobubele bakho.

To my dad Lulama Mvo – enkosi ngentsikelelo zakho xhego!

To my grandma Nophumzile Sotondoshe and my family (Qama, Qiqa, Snalo, Kungawo) at large – thank you so much for your prayers.

Lastly, I would love to thank Lord Jesus Christ for His unconditional love and gracious favour.

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Glossary of Terms

Attitude: A settled way of thinking or feeling about something (Robbins and Judge 2014:60).

Homoeopath: A homoeopath is a practitioner of homoeopathy (the term comes from the Greek words *homeo*, meaning similar, and *pathos*, meaning suffering or disease), who looks at a human holistically (body, mind soul), and plays an essential role in patients' health and welfare by not only focusing on the medical aspects, but also offering nutrition education to their patients (Vandenbroucke 1997).

Knowledge: Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (Argote and Guo 2016).

Nutrition: Nutrition is the process of providing or obtaining the food necessary for health, growth, energy production, and repair of tissues (Webster-Gandy, How and Harrold 2007).

Perception: Perception is an essential strategy in which individuals can reorganize and interpret sensory stimuli (Milton 1981).

List of Acronyms

Acronym	Full term
BHSc	Bachelor of Health Science
BMI	Body Mass Index
DASH	Dietary Approaches to Stop Hypertension
DUT	Durban University of Technology
EVOO	Extra virgin olive oil
HDC	Homeopathic Day Clinic
IREC	Institutional Research Ethics Committee
MHSc	Master of Health Sciences
M. Tech: Hom	Master of Technology: Homoeopathy
P1, P2	Participant 1, 2
TCM	Traditional Chinese Medicine

CHAPTER 1: INTRODUCTION

1.1 Introduction

Nutrition is an essential aspect of health promotion and ailment prevention (Ondieki 2011). Yet, a high prevalence of malnutrition and inadequate dietary support is common among South Africans (Oldewage-Theron and Kruger 2008). Diseases that may improve or be managed through appropriate dietary intervention include coronary artery diseases, cancer, stroke, diabetes and atherosclerosis (O'Dea and Abraham 2001). Bacon 2010 reported that the body has an in-built mechanism that controls the quantity and the quality of nutrients it requires.

Back in the early 1700s, Hahnemann formulated techniques of ensuring adequate nutrition in maintaining health and prevention of diseases. In Aphorism 263, in the Organon of Medicine, Samuel Hahnemann advocates the use of diet in specific ways to suit both acutely ill patient and chronically ill patient. Aphorism 260, states that any obstacles to cure must be removed especially in cases of chronic diseases. A recent study conducted by Roger *et al.* (2012), which investigated the impact of nutrition supported findings by Hahnemann and found these methods to be effective in patients with diabetes and cardiovascular diseases. Due to the various references and instructions by Hahnemann about diet and nutrition, the training of homoeopaths needs to include an understanding of diet and nutrition (Hahnemann 1999).

Most people generally regard their healthcare providers as the primary source of diet and nutritional information (Parker *et al.* 2011). Therefore understanding and ascertaining the level of nutrition-related knowledge of M. Tech: Hom students (healthcare providers can be beneficial for patients (Parker *et al.* 2011). M. Tech: Hom students with their nutrition knowledge have the potential to decrease morbidity and mortality if they provide effective nutrition counselling and advice among their patients (Robert and Kushner 1995). Rogers (1983) named different types of nutrition knowledge: awareness (for example, the relationship between diet and diseases),

knowledge of principles (for example, human body does not produce omega 3 fatty acids), and how-to knowledge (for example how to make healthy dietary choices, including reading food labels correctly). All of the above-mentioned types of knowledge were investigated in this study.

A homoeopath is a practitioner of homoeopathy. The term 'homoeopathy' is derived from the Greek words *homoe* and *pathos*, meaning 'similar' and 'disease' respectively, which looks at a human holistically (body, mind, soul). Homoeopaths play an essential role in patients' health and welfare by not only focusing on the medical aspects but also offering nutrition education to their patients (Vandenbroucke 1997). Homoeopaths are often approached to manage lifestyle diseases through the use of nutrition, yet this is not a major aspect of the curriculum in most formal homoeopathic education programmes. Optimal nutrition is essential for prevention and management of various conditions and homoeopaths need the latest nutritional knowledge to be able to provide healthcare to their patients (Lindseth 1997; Williams *et al.* 1998). It is vital that health care professionals such as homoeopaths are able to demonstrate a healthy lifestyle among the patients. (Staib, Fusner and Consolo 2006). Thus, it can be concluded that the patient's ability to prevent or manage malnutrition-related diseases is directly proportional to the nutritional knowledge of their homoeopaths (Holman and Lorig 2000).

The rises in chronic diseases such as heart diseases, cancer, diabetes and obesity have resulted in an importance of healthy lifestyle through nutrition. This research, therefore, aimed to determine the knowledge, attitudes and perceptions among M. Tech: Hom students in their fifth year of study at DUT on the role of nutrition in homoeopathic management of diseases. The findings can be used to improve the homoeopathy syllabus as appropriate, thus positively influencing both public health and clinical outcomes of the patients that consult with homoeopaths. Descriptive qualitative design methodology with purposive sampling was used in the study (Johnson and Christensen and 2012). Data saturation (Fusch and Ness 2015) was achieved at 13 registered master's degree homoeopathy students.

The results indicated that participants do give nutritional advice to patients, and they understood the importance of nutrition, but responded that their knowledge of nutrition was not as good. Additionally, they expressed that the module on nutrition was inadequate because they could not apply their knowledge practically. The additional knowledge they had was because of self-study. Their perception was that one module on nutrition at the third-year level of study was not sufficient to obtain adequate nutrition knowledge, particularly regarding knowledge about new trends in diets. Most of the participants in the current study recommended that nutrition should not only be taught in third year, but should rather be taught from first year to fifth year. Wirth (2014), conducted a similar study to this one on nursing students at the KwaZulu-Natal College of Nursing and found that the nutrition knowledge of the students was not sufficient. According to that study, nursing students had adequate nutrition knowledge to make dietary recommendations to patients and they were knowledgeable about different food sources of nutrients. However, they failed to make correct food choices and they did not have enough diet-disease knowledge and overall nutritional knowledge score was low (Wirth 2014).

1.2 Problem statement

In South Africa, a registered homoeopath is legally defined as a primary contact health care practitioner. Homoeopaths are often approached to manage the diseases of lifestyle and poor nutrition, yet this is not a major aspect of the curriculum in most formal homoeopathic education programmes. Many diseases and conditions have poor nutrition as a contributing factor. So, ascertaining the knowledge and awareness of senior M. Tech: Hom students contributed to the existing field of knowledge and can be the basis for formal recommendations regarding the refinement of the homoeopathy curriculum.

Hahnemann (1843) said in Aphorism 3, if a physician understands the underlying cause of the disease, and if he perceives the curative properties of the medicine and how to remove an obstacle to the healing then he is a true and rational practitioner of healing art. Therefore, it is imperative that homoeopaths have sound knowledge of nutrition for prevention and management of various types of diseases. If M. Tech: Hom students

have sufficient nutrition knowledge they can directly influence patients that they consult with, by advising patients to manage and prevent diseases by eating healthily. Conversely, if M. Tech: Hom students have insufficient knowledge this can result in poor management and insufficient prevention of lifestyle and poor nutrition related conditions (Mowe *et al.* 2008).

1.3 The aim

The aim of this study was to determine knowledge, attitudes and perceptions of the role of nutrition, in homoeopathic management, in M. Tech: Hom students registered at the DUT.

1.4 The research questions

Grand tour question:

What is the role of nutrition in the homoeopathic management of patients?

The following sub-questions were framed around the following areas:

- Identification of nutritional and lifestyle disease and their management.
- Education.
- Dietary and supplementation advice to patients.

1.5 Assumptions

- Participants answered honestly and factually.
- Interviews were open to any form of questions and were guided by the researcher in real time.
- Inner worlds (perceptions) of individuals were studied.
- The researcher followed certain agreed-on norms and practices.

1.6 Delimitations

In the process of data collection of qualitative research, the presence of the researcher had an impact on the feedback provided by certain participants as they were not confident enough to express their nutrition knowledge, but they were encouraged to feel

comfortable because whatever response they gave would be confidential. The study was limited to registered DUT homoeopathy students.

1.7 Conclusion

The links between nutrition and chronic diseases of lifestyle are well documented. Foods that people eat can have an impact on their well-being and M. Tech: Hom students who have good knowledge of nutrition can share such information with patients to promote, prevent and treat nutrition-related conditions.

1.8 Structure of dissertation

- Chapter 1 covers the research study, purpose and rationale as well as study aims and objectives.
- Chapter 2 is a review of the literature related to perception, knowledge and attitude towards nutrition.
- Chapter 3 presents the methodologies used in the study.
- Chapter 4 presents the results of the study and analysis of the data.
- Chapter 5 discusses the results with relevance to the literature reviewed.
- Chapter 6 presents the conclusion and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Good nutrition plays an important role in leading a healthy lifestyle. Combined with physical activity, nutrition can maintain a healthy weight, reduce the risk of chronic diseases and promote the general health (Klug *et al.* 2015). South Africa has a high prevalence of malnutrition conditions ranging from minor to chronic, including scurvy, iron deficiency anaemia, Vitamin A deficiency, beriberi, goitre, diabetes mellitus, obesity, stroke, hypertension, osteoporosis, kwashiorkor, marasmus, growth retardation, and rickets (Klug *et al.* 2015). Cardiovascular diseases including heart diseases and stroke are the major killers in South Africa after Human Immunodeficiency Virus (HIV)/ Acquired Immune Deficiency Syndrome (AIDS), followed by diabetes mellitus (Byrne, Eksteen and Crickmore 2016). The probability of death from cardiovascular disease in South Africa is 17,3% which is almost 1 in 6 deaths. Almost one in 10 adults (10%) are diagnosed with diabetes (Byrne, Eksteen and Crickmore 2016). The conditions listed above are caused by poorly balanced meals, mostly lacking in vitamins B, C and iron, and can be prevented through good nutrition (Whitney and Rolfes 2018).

This chapter surveys the literature that describes the link between homoeopathy, and other forms of therapies, with nutrition.

2.2 Introduction to homoeopathy

2.2.1 History of homoeopathy

Homoeopathy is a holistic form of treatment that cures an individual on mental, emotional as well as physical levels. According to Vithoukas (1998), the science of homoeopathy is built on four principles; the first one being the 'law of similars'; the second principle is Hering's law which describes the direction of cure; the third principle is the 'law of the infinitesimal', which strongly encourages the use of the most minute dose of a substance possible to produce a stimulatory effect; and the fourth principle is

the use of a single remedy, which is the most similar remedy that can be matched up to that patient at that time. Homoeopathic remedies are sourced from the zoological, botanical and mineral kingdoms (Nanda 2018).

Ghosh (2018) spoke about the history of homoeopathy, the principle of like cures like was not going to be established until a German physician, Samuel Hahnemann (1755-1843) discovered the system of medication that we know as homoeopathy. Hahnemann had qualifications in medicine and chemistry. Working as a doctor in the eighteenth century, he was dissatisfied with the conventional medicine of his day. According to Twentyman (1982), phlebotomy, purging and giving patients large dosages of harmful substances, for example, lead and mercury were typical at the time. Hahnemann opposed these cruel practices. He investigated the influences of different medicinal substances on himself and healthy volunteers, while he observed that a sickness was cured with a small amount of a substance that, in bigger quantities, may be the reason for that sickness. Thus, to avoid negative effects from standard dosages of the materials, he diluted each material until he got the correct dilution that could still produce a reaction. These experiments were known as provings and encouraged him to examine and describe the essential standards of homoeopathic medicine (Walach *et al.* 2004).

2.2.2 Laws of homoeopathy

2.2.2.1 Law of the similars: like cures like

This implies that a substance, which in a healthy individual causes certain symptoms, can be utilised to treat an individual who at a given moment has similar symptoms (Teixeria 2016).

2.2.2.2 Hering's law of the direction of cure

According to Saha *et al.* (2014), Hering's law of the direction of cure states that the healing process occurs according to the following pattern:

- From within outwards – symptoms move from deeper organs to the skin;

- From a most vital organ to a less vital organ – for example, symptoms move from the heart to the joints;
- From above downwards – for example, the patient has skin issues on the face and after a remedy has been taken symptoms descend to the skin around the waist then to the hip and end at the feet;
- In the backward order of their coming – from new symptoms to oldest.

2.2.2.3 The law of single remedy

Homoeopaths who practice classical homoeopathy will only prescribe one remedy for the patient based on a remedy picture that matches the symptoms of the individual's disease (Vickers and Zollman 1999: 1115).

2.2.2.4 The law of minimum dose

According to Thomas (2012), Hahnemann found that when preparations were diluted and shaken they retained their potency regardless of the resulting reduced concentration. He named this procedure potentisation, and progressively decreased concentrations came to be known as potencies. Unlike conventional medicine which operates according to the principle of higher dosages = more potent, homoeopathic cures show that:

- Low potencies have a transient and superficial effect;
- Medium-potencies act longer, and the range of the symptoms on which they act, are more extensive and of deeper proportions;
- High potencies are deep acting, and their impact continues long after cessation of use.

2.2.3 Nutrition in homoeopathy

Samuel Hahnemann recognised the importance of nutrition in disease prevention and treatment a few centuries ago and devised techniques of ensuring enough nutrient intakes in health and in sickness. Similarly, according to Yousafzai *et al.* (2016), good nutrition can improve child development and modulate the immune system. In Aphorism 263, in the *Organon of Medicine*, Samuel Hahnemann advocates the use of diet in

specific ways to suit the acutely ill patient and advocates certain limitations in chronically ill patients. Aphorism 260 states in the case of the patient that is suffering from chronic conditions, the obstacle to the cure needs to be carefully investigated because their diseases are usually exacerbated by harmful influences and various disease-causing errors in the diet which normally pass unnoticed (Hahnemann 1983). Because of various references and instructions by Hahnemann with regard to diet and nutrition, the training of homoeopaths should include an understanding of diet and nutrition.

Homoeopathy and nutrition work hand in hand as cooperative healing modalities to achieve full health and balanced health. Hahnemann knew the importance of the nutrients even before specific nutrients were discovered and vitamins were named. Furthermore, he was aware that when a body is given essential nutrients, the vital force is tuned. The impact of nutrition in health is explained further in Aphorisms 76, 77 and 78 in Organon of Medicine.

2.2.3.1 Aphorism 76

Only for natural occurring sicknesses have the beneficial Deity granted us. Homoeopathy brings relief in human beings from diseases that have been caused by the use of harmful conventional drugs repeatedly over years. These diseases must be cured by vital force if it is still strong however; this process requires many years of uninterrupted homoeopathic practices. It is a human art to return health from abnormal to normal after the damage caused by allopathic medications (Hahnemann and O'Reilly 2001).

Hahnemann described how medical treatment used in his time, for example fasting and other methods, compromised nutrition and resulted in emaciation, as we know even today. These approaches weaken the vital force and cause an imbalance in health. Hahnemann says that the vital force has to balance health, which it cannot do if it is too exhausted (Hahnemann and O'Reilly 2001). Thus, human beings need nutritious foods to maintain a healthy balance and to maintain a healthy vital force. Good nutrition is important in homoeopathy to bring about cure in homoeopathic management

(Hahnemann and O'Reilly 2001). Furthermore, a combination of homoeopathy and nutrition maintains a suitable homeostasis.

2.2.3.2 Aphorism 77

Aphorism 77 states the following:

“Pseudo chronic diseases are dishonorably called constant that are endured by individuals who:

1. Frequently expose themselves to preventable harmful malignities,
2. Regularly share of hurtful nourishment or drink,
3. Deprive themselves from essentials which compromise,
4. Experience delayed hardship of things that are fundamental forever,
5. Dwell in undesirable spots (particularly boggy territories),
6. Reside just in basements, clammy working environments,
7. Sedentary lifestyle,
8. Compromise their well-being due to unnecessary mental efforts,
9. Always worried and so on.

These sorts of sick well-being that individuals bring upon themselves vanish unexpectedly under an enhanced way of life, gave no ceaseless miasm lies in the body. These cannot be called interminable ailments.” (Hahnemann 1810).

Along these lines, harmful things that individuals expose themselves to, can cause diseases. Furthermore, when individuals do not take adequate diet and get essential nutrients, these diseases cannot be cured but are suppressed (Malhotra *et al.* 2015). The conditions that are caused by poor diet include diabetes and obesity. Hahnemann used the term ‘suppressed’ when he dealt with miasmatic diseases because such diseases could not be completely cured (Hahnemann 1810). In homoeopathy, a healing should be fast, harmless and permanent (Gray 2017). For example, by giving vitamin C in the case of scurvy, it makes the scurvy to disappear immediately. However, if the correct dose of vitamin C is not administered routinely, deficiency of vitamin C will reoccur and the scurvy will not be resolved (Speth 2019). Nutrition is important because

adequate nutrition deprivation leads to the development of diseases (Malhotra *et al.* 2015). Established homoeopathy and good nutrition work together. Established homoeopathy enables sustenance to work better. Great sustenance enables homoeopathy to work better (Hahnemann 1810).

2.2.3.3 Aphorism 78

According to Aphorism 78 as discussed by (Hahnemann 1999), the natural and real diseases arise from the underlying chronic miasm and not from the use of conventional medicine. When these diseases are left untreated without the use of any similimum, they become worse. Even with the use of the best diet, they worsen and torment the individual until life ends. The true natural chronic diseases are those diseases that arise from an underlying chronic miasm, which when left untreated without the use of the remedies that are specific for those diseases, they become worse and severe. If the correct remedy is not administered to the patients who suffer from chronic diseases, they can suffer to death. There is also a lack of robust constitution and healthy lifestyle, which may compromise the vital force (Hahnemann 1999).

Besides those diseases that are caused by the use of conventional medication, diseases from the underlying chronic miasm are common and very detrimental to the human race. Furthermore, even the best lifestyle and most vibrant vital force cannot remove such diseases (Hahnemann 1999).

The most natural and chronic conditions stem from the chronic inherited miasm and they become worse and complicated if the appropriate homoeopathic remedies are not used. This implies that even with the best nutrition and best lifestyle, these diseases will remain unless the underlying chronic miasm is eradicated. Furthermore, this means that regardless of whether a person who required homoeopathic *Magnesium carbonicum*, for instance, as a remedy, took tablet after tablet of magnesium from the best dietary supplement accessible, but until the underlying carbonicum remedy is taken in the correct potency, the body cannot utilise the supplemental magnesium (Hahnemann 1999). In the opinion of the researcher, classical homoeopathy and nutrition should be combined for more complete healing.

2.2.4 Scope of homoeopathy in South Africa

In South Africa, formalised homoeopathic educational standards are closely aligned with medical educational standards, and homeopathic education in SA is internationally recognised as an education of excellence. Homoeopathy is a legally recognised profession and is becoming an increasingly important part of South African healthcare provision. Homoeopathic physicians are registered with a statutory body, the Allied Health Professions Council, and a professional board (Homoeopathic Association of South Africa) which closely monitors their activities.

According to the Allied Health Professions Act 63 of 1982, the regulations relating to the profession of homoeopathy, the scope of practice of homoeopaths is as follows:

- The treatment or prevention of any defect, illness, disease or deficiency in any person by means of:
 - (i) any remedies in accordance with and based on homoeopathic principles, substances or procedures;
 - (ii) dietary advice; or
 - (iii) dietary supplementation.

Because of the above, the two educational institutions which offer homoeopathic education in South Africa, namely the Durban University of Technology and the University of Johannesburg, have embedded in their respective curricula, modules on nutrition and diet. Students are expected to advise patients on diet as it relates to their health.

For homoeopathy to be well known among South Africans, excellent disease management must be produced through a homoeopathic holistic approach. Nutrition is the most important tool that can be used to prevent and manage diseases. In addition, good nutrition and healthy lifestyle, for example exercising, can promote health. Most patients prefer to be involved in promoting their well-being; therefore, good nutrition advice can help patients lead a healthy life. If nutrition is included more obviously in homoeopathic practice, homoeopathy will be well known among South Africans and most people will have an interest in using homoeopathy (Majola 2015).

2.2.5 Homoeopaths and nutrition

According to Ahmad (2013), overnutrition is as much a form of malnutrition as under-nutrition is, therefore a balanced diet is vital to keep the body functioning optimally. Poor nourishment is a deterrent to well-being, and the wise utilisation of nutritious supplements, foods and detoxification techniques can help all the healthcare providers to improve the health of the patients (Elia 2016).

Life can be good or bad and unfortunately poor diet and food that contains harmful chemicals can contribute to the development of health issues. Most health issues are caused by a sedentary lifestyle; poor eating habits and negative pressure made by the way people live and work today. It is practically impossible to treat basic health issues such as diabetes mellitus with pharmaceutical drugs or medical procedures alone (Elia 2016).

As described by Kent (1912), cure of pathology does not only depend on accuracy of prescription but also on dietary interventions to bring about complete and permanent healing. When arguing the point for homoeopathy and nutrition, Pitcairn (1982) highlighted that nutrition has an effect on immunity and makes the body resistant to diseases.

2.3 Nutrition and diseases

Nutrition is the process of providing or obtaining the food necessary for health, growth, energy production, and repair of tissues (Webster-Gandy, How and Harrold 2007). The body fails to function properly if it does not get adequate nutrients which can lead to compromised immunity (Keller 2004). Nutrition knowledge helps health care providers to be well equipped with enough knowledge to educate their patients because health care providers play a vital role in delivering nutrition-based preventative services to patients or community and they also promote health. Through promoting health and preventing disease, morbidity and mortality can be reduced and the quality of life can be improved. Prevention is better than cure and it is cost effective. Poor diet has been linked to many diseases; unquestioningly diet modification can prevent and improve many diseases (Keller 2004).

According to Manjelievskaia *et al.* 2016, deadly diseases in South Africa such as coronary artery disease, cancer, stroke, diabetes and atherosclerosis are strongly linked with unhealthy dietary habits. In addition, diet contributes profoundly to the risk for osteoporosis, obesity, hypertension and neural tube defects; therefore it is vital for professional health care providers to have sufficient nutrition knowledge on management of diseases (Pelto *et al.* 2004).

Recent evidence reveals that there is insufficient nutritional knowledge among health care providers, which could lead to poor management and poor patient education of the diseases caused by poor diet, including type-2 diabetes, osteoporosis, heart diseases, stroke, and other diseases. Preliminary research in this field focused primarily on knowledge, attitude and perception of nutrition in clinical practice and the results have shown insufficient knowledge of nutrition among nurses, physicians and other health care workers in Denmark, Sweden and Norway (Mowe *et al.* 2008; Bozzetti and Forbes 2009).

There has been enough evidence for decades that many chronic diseases can be prevented through lifestyle changes (James 1988). Disease and diet have a strong inverse relationship; nutrition plays a huge role in both returning to health and causing disease. If an individual does not eat properly then they are more likely to be affected by disease and more prone to it but if they eat well, most diseases can improve and be prevented. Studies on nutrition and health that have been conducted provide more than enough evidence to show the significance of nutrition in management and prevention of various health conditions (James 1988). Devries *et al.* (2014) state that nutrition receives little attention in medical practice, even though diet has been shown to reduce cardiovascular diseases by 72%, which is approximately twice the rate of most statin trials. Additionally, Devries *et al.* (2014) found in their survey of medical schools in America that only 20 hours over 4 years are devoted to nutrition training, most of which occurs in the early years of study when basic sciences courses are taught, typically with little apparent connection to human diets or common diseases. This may be the case in homoeopathy education as well (Marian *et al.* 2008).

One study has demonstrated that not keeping a healthy eating routine and not having adequate nutritional knowledge can lead to health issues such as being overweight and obese (Harvey-Berino *et al.*, 1997). The main goal of healthy eating is to obtain the appropriate and necessary nutrition to remain healthy physically and to lead a healthy life (Parmenter, Waller and Wardle 2000). Therefore, to promote health, the attitudes of people must be taken into account to make it easy for them to adopt a healthy lifestyle (Ruel 2003). Given that one of the main goals of homoeopathy training is to broaden the knowledge of the people in a society, the enhancement of the nutrition attitudes, knowledge and practices of homoeopathy students is of high importance, as this will subsequently lead to a more food-conscious society and more healthy people (Cotugna, Vickery and McBee, 2005; Faber and Wenhold, 2007).

Another study demonstrated that most medical students are not familiar with the diets required for the management of various conditions (Cotugna, Vickery and McBee, 2005). It was also reported that medical students do not have the necessary information and training regarding weight control, nutrition needs and diets (O'Dea and Abraham, 2001). In the United Kingdom, attempts to improve the nation's health through dietary change focus on education based on the assumption that providing people with the information necessary to choose healthy foods, will ultimately lead to an improvement in diet (Parmenter and Wardle 1999).

In general, medical doctors perceive the quality of their nutrition training during medical school, to be of poor quality. Literature concurs that this perception has been the case since the 1950s. In many medical schools worldwide, clinical nutrition curricula have been developed. Recent data support the importance of targeted nutritional therapy to reduce morbidity and mortality, yet the number of physicians interested in nutrition appears to be declining, and fewer hours of nutrition training are being provided in medical school. One possible solution is to improve both training and awareness of nutrition in medical school (Shah *et al.* 2010).

Robert and Kushner (1995) conducted a study to assess the attitudes, practice behaviour, and barriers to the delivery of nutrition counselling by primary care physicians. The study showed that nearly three-quarters of physicians felt that dietary

counselling was important and was the responsibility of the physician. However, the perceived barriers to delivery of dietary counselling were lack of time, patient noncompliance, inadequate teaching materials, lack of counselling training, lack of knowledge and low physician confidence.

Considering the importance of nutrition training, it is necessary to determine how M. Tech: Hom students perceive nutrition, as they are in the process of becoming professionals in the health field and may be required to provide nutritional advice. As mentioned previously, poor nutrition results in various conditions. Therefore the impact of certain vital nutrients and minerals on various conditions as validated by scientific studies is discussed next.

2.3.1 Obesity in relation to diet

Shah *et al.* (2010) reported that in the 21st century, there has been an exponential increase in the prevalence of obesity. Considering the diminished energy expenditure because of sedentary lifestyles, there is a disjunction between energy intake and energy expenditure (Kohl *et al.* 2012). Increasing physical activity, in addition to a reduced intake of foods high in fat, foods, and drinks with high sugars, can counteract undesirable weight gain. Achieving a healthy lifestyle requires personal willingness and lifestyle changes (Kohl *et al.* 2012).

Approximately one-third of the world population is obese, including 27.5% of adults and 47.1% of children (Icks *et al.* 2009). The aetiology of obesity is multi-factorial including genetic, psychosocial, behavioural and environmental factors (Resnikoff *et al.* 2004). Obesity is a chronic disease requiring a lifetime of prevention, treatment and maintenance. According to the World Health Report 2002 (World Health Organization 2002), obese or overweight people are at risk of cardiovascular diseases (including hypertension, coronary heart disease, stroke and heart failure), metabolic disease (for example insulin resistance and type 2 diabetes), some cancers, obstructive sleep apnoea, gastrointestinal disease (for example gallbladder and liver disease), degenerative diseases (for example arthritis) and asthma. It is imperative for every

healthcare provider to have enough knowledge on nutrition because nutrition-related conditions have increased drastically in the 21st century (Kohl *et al.* 2012).

A study conducted by Janssen *et al.* (2003) on Canadian youth between the ages of 11 and 16-years old, examined associations between obesity and dietary habits and leisure-time physical activities. It was found that 15% of this group was overweight (pre-obese) and 4.6% were obese. Furthermore, it was concluded that physical inactivity and poor dietary habits were strongly related to obesity.

Changes to food structures and diets, along with a sedentary lifestyle, have led to a global growth in the prevalence of obese and overweight people, and in non-communicable diseases (NCDs), including diabetes, cardiovascular conditions and most cancers. Globally, the prevalence of obese and overweight individuals (BMI \geq 25 kg/m²) has accelerated among adults from 27.5% in 1980, to 47.1% in 2013 (Stevens *et al.* 2012). Increases have been seen in developed and developing countries, and among adults and children (Janssen *et al.* 2003). Furthermore, it is evident that between 1980 and 2008, the global prevalence of obesity (BMI \geq 30 kg/m²) nearly doubled, with the quickest rate of growth found between 1992 and 2002 (Stevens *et al.* 2012). Zaal, Musaiger, and D'Souza (2009) studied the association between dietary habits and behavioural factors and increased risk of obesity among adolescents in Dubai, United Arab Emirates and found that there was a significant association between poor dietary habits, for example, eating fast foods, and obesity.

Lastly, Khalil, Johnson-Down and Egeland (2010) conducted a study among the Cree in Canada to describe dietary habits and the extent of overweight and obesity. It was found that overall 67.6% of the study population was either at risk of overweight or overweight due to high saturated fat dietary intake. Health promotion must be implemented at the earliest stage possible through changes in lifestyles, food habits and increasing physical activity. This is because overweight and obesity are steadily increasing among adults, children and youth with increased risk for type 2 diabetes mellitus, hypertension, heart disease and all-cause mortality (Saunders, Evans and Joshi 2005).

2.3.2 Diabetes mellitus

Poor eating habits that result in weight gain, obesity and overweight and physical inactivity account for the escalating rates of type 2 diabetes, globally (Salas-Salvadó *et al.* 2014). Weight loss promotion can reduce the incidence of type 2 diabetes. Interventions promoting weight loss can reduce the incidence of type 2 diabetes mellitus and dietary changes with low calorie intake can also prevent diabetes (Salas-Salvadó *et al.* 2014). Diabetes leads to increased risk of heart disease, kidney disease, stroke and infections. Increased physical activity and maintaining a healthy weight play a critical role in the prevention and treatment of diabetes (Salas-Salvadó *et al.* 2014).

Salas-Salvadó *et al.* (2014) conducted a study to assess the efficacy of Mediterranean diets for the primary prevention of diabetes in the Prevención con Dieta Mediterránea trial, from October 2003 to December 2010 (median follow-up, 4.1 years). Men and women without diabetes (3541 patients aged 55 to 80 years) with high cardiovascular disease risk participated. Participants were randomly assigned and stratified by site, sex, and age but not diabetes status to receive 1 of 3 diets: Mediterranean diet supplemented with extra virgin olive oil (EVOO), Mediterranean diet supplemented with nuts, or a control diet (advice on a low-fat diet). No intervention to increase physical activity or lose weight was included. Incidence of new-onset type 2 diabetes mellitus was used as a measurement. During follow-up, 80, 92, and 101 new-onset cases of diabetes occurred in the Mediterranean diet supplemented with EVOO, Mediterranean diet supplemented with mixed nuts, and control diet groups, respectively, corresponding to rates of 16.0, 18.7, and 23.6 cases per 1000 person-years. Multivariate-adjusted hazard ratios were 0.60 (95% CI, 0.43 to 0.85) for the Mediterranean diet supplemented with EVOO and 0.82 (CI, 0.61 to 1.10) for the Mediterranean diet supplemented with nuts, compared with the control diet. Salas-Salvado *et al.* (2014) concluded from results that a Mediterranean diet enriched with EVOO without energy restrictions reduced diabetes risk among persons with high cardiovascular disease risk.

Tay *et al.* (2015) conducted a randomised trial comparing low- and high-carbohydrate diets for type 2 diabetes management at the Commonwealth Scientific and Industrial Research Organisation Clinical Research Unit (Adelaide, Australia) between May 2012

and September 2013, on overweight and obese adults between the ages 35 and 68 years old with type 2 diabetes. There was evidence of weight loss and reduced HbA1c and fasting glucose levels with both diets. The low carbohydrate diet, which was high in unsaturated fat and low in saturated fat, achieved greater improvements in the lipid profile, blood glucose stability, and reductions in diabetes medication requirements, suggesting an effective strategy for the optimisation of type 2 diabetes management.

Fuerst (2016) summarised findings from four recent studies on dietary habits for the improvement of diabetes: diabetes scarcely develops in people who eat full-fat dairy products; sweet-taste receptors in the tongue and other organs may be a target for the treatment of type 2 diabetes; a very low-calorie diet may reverse diabetes; and adopting a healthy diet reduces the risk of hypertension among women with prior gestational diabetes.

2.3.3 Cardiovascular diseases

Cardiovascular diseases, a major killer worldwide, are largely due to imbalanced diets and physical inactivity (Roger *et al.* 2012). The risk of heart disease and stroke can be reduced by eating less saturated and trans-fats, and sufficient amounts of (n-3 and n-6) polyunsaturated fats, fruits and vegetables and less salt, as well as by physical activity and controlling weight. Reduction of salt intake helps reduce blood pressure, a major cause of cardiovascular diseases (Siscovick *et al.* 2017).

The Mediterranean diet is among the well-studied diets for cardiovascular health. This consists of fish, monounsaturated fats from olive oil, fruits, vegetables, whole grains, legumes or nuts, and moderate alcohol consumption. The Mediterranean diet has been shown to lower or even prevent the chances of developing cardiovascular diseases (Widmer *et al.* 2015).

Anand *et al.* (2015) conducted an in-depth review of current knowledge on the role of diet in cardiovascular disease, the changing global food system, and global dietary patterns. Evidence from different countries and age, race, ethnicity and socioeconomic groups, suggests that the health effects studies of foods, macronutrients, and dietary patterns on cardiovascular diseases appear to be far more consistent, though regional

knowledge gaps are highlighted. Large gaps in knowledge about the association of macronutrients to cardiovascular diseases in low and middle-income countries particularly linked with dietary patterns were reviewed. The understanding of foods and macronutrients in relationship to cardiovascular diseases is broadly clear; however, major gaps exist both in dietary pattern research and in ways to change diets and food systems. Anand *et al.* (2015) concluded that, based on the current evidence, the traditional Mediterranean-type diet, including plant foods and with an emphasis on plant protein sources, provides a well-tested healthy dietary pattern to reduce cardiovascular diseases.

2.3.4 Cancer

Cancer incidence rates have drastically decreased from 2000-2010 across all racial and ethnic groups (Jemal *et al.* 2010). Although death rates from cancer have also decreased, cancer claims more lives than cardiovascular disease among individuals younger than 85 years of age (Jemal *et al.* 2010). Tobacco is the number one cause of cancer, but dietary factors contribute significantly to some types of cancer. Maintaining a healthy weight can reduce the risk for cancers of the oesophagus, colorectum, breast, endometrium and kidney. Limiting alcohol intake can reduce risk for cancers of the mouth, throat, oesophagus, liver and breast (Jemal *et al.* 2010). Ensuring an adequate intake of fruit and vegetables can further reduce risk of oral cavity, oesophagus, stomach and colorectal cancer (Prentice *et al.* 2007).

Carter *et al.* (1993) conducted a survey of case studies related to diet and certain nutritionally linked cancers. A retrospective study of pancreatic cancer patients found that the 1-year survival rate was higher among those who modified their diets, compared to those for whom there was no evidence of dietary modification. A case controlled study of patients with metastatic prostate cancer demonstrated a statistical association of dietary modification with longer survival and improved quality of life (Carter *et al.* 1993). A retrospective study utilising questionnaires supported dietary modifications as a useful tool in the management of nutritionally-linked cancers (Carter *et al.* 1993).

2.3.5 Osteoporosis and bone fractures

Fragility fractures are a problem for older people. Strength and density of the bone depends on the amount of calcium, phosphorus and other minerals that bone contains (Lim *et al.* 2015). Prevention of fractures has been found to be strongly related to calcium and vitamin D intake as well as to regular weight-bearing physical activity (Rizzoli *et al.* 2010). Adequate intakes of calcium (500 mg per day or more) and vitamin D in populations with high osteoporosis rates helps to reduce fracture risk, as does sun exposure and physical activity to strengthen bones and muscles (Lim *et al.* 2015).

Larsen, Mosekilde and Foldspang (2009) conducted a study on 9605 community-dwelling residents using vitamin D and calcium supplementation as a preventative method to osteoporotic fractures in the elderly in a northern European region known to be deficient in vitamin D, especially during winter periods. A 16% reduction in fracture incidence rate among male and female residents was noted in those offered the calcium and vitamin D supplementation programme. This study substantiates that vitamin D and calcium supplementation can act as a preventative measure for osteoporotic fractures.

2.3.6 Dental disease

Decreasing the frequency and consumption of sugars and appropriate exposure to fluoride may prevent dental caries. Dietary acids found in beverages and other acidic foods can cause teeth erosion and subsequently damage the teeth (Selwitz *et al.* 2007). Hujoel and Lingström (2017) conducted a systematic review to evaluate the function of macro- and micronutrients in relation to dental caries, gingival bleeding and periodontal conditions. Dental caries commonly develop in the presence of dietary fermentable carbohydrates, more especially refined sugars. Furthermore, gingival bleeding and destructive periodontal disease are associated with excessive carbohydrates or polyunsaturated fat intake, deficient protein intake and micronutrient intake, for example, vitamins C and B12.

2.4 Nutrition in complementary medicine

2.4.1 Ayurveda and diet

As described by Chandola, Gurdip and Gopal (2007), Ayurveda is a characteristic medicinal service framework that began in India over 5000 years ago. Its principle objective is to accomplish ideal well-being and optimal health through a far-reaching approach that addresses mind, body, behaviour, and environment. Ayurveda accentuates prevention and well-being advancement and gives treatment to malady. It views the advancement of awareness as basic for ideal well-being and reflection as the fundamental strategy for accomplishing this. Treatment of sickness is individualised and it depends upon the psychophysiological constitution of the patient. There are diverse dietary and lifestyle suggestions for each period of the year. Basic spices are used in treatment, and additionally herbs and homegrown mixtures, and unique arrangements known as Rasayanas are utilised for revival, advancement of life span, and amelioration of the ageing process (Chandola, Gurdip and Gopal 2007). Purging systems known as Panchakarma expel poisons from the physiology. Though allopathic medicine is good in managing emergency medical cases, Ayurveda can manage the conditions that even allopathic medicine is unable to manage. Ayurveda is a deep approach and it can manage common chronic conditions (Chandola, Gurdip and Gopal 2007).

According to Banerjee, Debnath and Debnath (2015), Ayurveda believes that food and medication are both fundamental for people for management and prevention of diseases. Banerjee *et al.* (2015), additionally stated that Ayurveda influences the atomic mechanisms of the human being's "physiome". Food is consumed in large amounts as compared to any other medication. Therefore, food being examined on its impact on genome is very important towards understanding the ailments and their management (Banerjee, Debnath and Debnath 2015).

In Ayurveda, it is believed that every individual is composed of five fundamental components found in the universe: space, air, fire, water, and earth and these consolidate in the human body to shape three life powers or energies, called *doshas* (Ahmad *et al.* 2018). They control how the body functions. They are *Vata dosha* (space

and air); *Pitta dosha* (fire and water); and *Kapha dosha* (water and earth). Everybody acquires a one-of-a-kind blend of the three *doshas*. However, one is typically more central than the other. Each one controls a different body function. It is believed that individual's chances of becoming ill – and the medical problems they create – are connected to the balance of their *doshas*. *Vata dosha* is the most powerful of all three *doshas* because it controls fundamental body functions such as how cells replicate. It also controls the brain, breathing, blood stream, heart function and the ability to dispose of waste through digestive organs. Things that can upset it include eating again too early after supper, dread, anguish, and remaining up until very late. If *vata dosha* is disrupted, one is most likely to develop conditions like anxiety, asthma, heart disease, skin problems, and rheumatoid arthritis (Ahmad *et al.* 2018).

Pitta dosha controls assimilation, digestion and certain hormones that are connected to craving. Eating sour or spicy foods and being exposed to the sun for a prolonged time can disrupt *pitta dosha* and result in conditions like Crohn's disease, heart disease, high blood pressure, and infections. *Kapha dosha* controls muscle development, body quality and soundness, weight, and the immune system. Excessive daytime sleep, eating a large amount of sweet foods, and eating or drinking things that contain excessive amounts of salt, can upset this *dosha*.

2.4.2 Chinese medicine and diet

According to The National Center for Complementary and Integrative Health (2013), Traditional Chinese Medicine (TCM) began in ancient China and has advanced over thousands of years since then. TCM practitioners utilise herbal medicines and different mind and body practices, for example, needle therapy and tai chi, to treat or prevent medical issues (Chan *et al.* 2014).

In TCM, a proper eating routine is an essential part of well-being. All foods are ordered in terms of temperature, from hot to cool, and flavour, pungent, spicy, sweet, sour and salty. Diverse temperatures and kinds of food affect the body in particular ways. One should endeavour to incorporate all flavours and a balance of temperatures in every meal. If a lot of one sort of food is consumed it can create an imbalance within the body.

TCM believes that how an individual eats their food is important. It is extremely common nowadays to eat while travelling in the car or taxi in transit to work, eat while working or have the TV on while eating, all of which debilitates the digestive system (Chan *et al.* 2014).

Furthermore, the spleen, stomach and digestive organs constitute the principle organs of the digestive system. They are interrelated by the major and unique meridians. Both excessive eating and lack of eating are associated with the heart and lung meridians. Moreover, lung and heart can change the essence of food and separate the disease causing food from healthy food (The National Center for Complementary and Integrative Health 2013). Impairment of the movement by the spleen can prompt stomach related aggravations and how particular types of food and supplements can nourish the organs and keep up the free flow of *chi* (Chan *et al.* 2014).

A second significant guideline of nourishment in TCM involves the three major dietary abnormalities, namely:

- I. Ingestion of raw, chilly or unclean food;
- II. Overindulgence in fatty and sweet foods and excessive eating; and
- III. Constant utilisation of alcohol and hot foods.

These elements are thought to prompt a variety of pathologies as indicated by TCM zang-fu pathology. Additionally, normal organs and meridians that are influenced include the digestive tract, spleen, stomach and gallbladder. Additionally, a significant number of the modalities and TCM diseases, for example, cool, warmth, and dampness, add to different TCM pathologies (Hao *et al.* 2017).

There is a lot of epidemiological information exists concerning the frequencies of certain types of cancers and the regional eating regimen and lifestyle, for example, colorectal cancer which is caused by low-fiber and high-fat diet (O'Keefe 2016). This incorporates information on utilisation of particular dietary products, for example, soy or tea and a diet high in soy (from adolescence) may affect the occurrence of certain cancers including breast and prostate (Hao *et al.* 2017).

As nations adopt more foods from the advanced western eating regimen there seems to be an increase in the occurrence of the diseases previously mentioned, including diabetes and cardiovascular ailments. A study regarding the TCM diet and clinical conditions has been conducted. Law *et al.* (2010) conducted a cross-sectional study that looked at the clinical severity of acne using the Global Acne Grading System and yin-yang body arrangement scores to decide if certain foods or compositions influenced the prevalence of acne. The yin and yang score data was related to the standards of TCM including yin/yang, inside/outside, chilly/hot, and deficiency/excess. The researchers gathered yin attributes, for example, hypo activity, dim colour, cold, pale tongue and slow, profound and weak heartbeat. The yang attributes they gathered included outside, hyperactivity, bright colour, hot, red tongue and superficial, rapid and forceful pulse (Law *et al.* 2010).

The outcomes showed that there were no foods that were significantly related to the occurrence of skin breakout, overall. However, there was a relationship with consumption between the groups, for example, the consumption of "street food" (e.g. dim sum, fish balls) was significantly connected with the occurrence of acne in the yin versus yang group. Furthermore, the consumption of fresh-fruit juices was related with exponentially increased acne in the yang group (Law *et al.* 2010).

This study demonstrated that the application of a TCM pattern approach on diet led to the detection of potential associations between diet and the incidence of acne, but the limitations do not suggest the likelihood of a causal relationship. In addition, prospective studies need to be conducted in order to determine and fine-tune the TCM pattern approach when assessing disease incidence (Law *et al.* 2010).

A study by Ni, Lin and Rao (2007) looked at a mathematical model to determine the nature of different herbal tonics, sorted as yin and yang in nature. These investigators divided 120 rats into five eating regimen groups including, saline, hot TCM tonic, cold TCM tonic, hot (Yang) mineral solution, and cold (Yin) mineral solution, respectively. The investigators continued to feed the rats the respective formulas day-by-day for 21 days. On the last day of the trial, the investigators evaluated the tongues of rats and in

addition gathered blood to find out levels of thrombocytin, thyrotrophic hormone and noradrenaline (Ni, Lin and Rao *et al.* 2007).

These outcomes showed that the yang groups trended together and that there were distinctive proportions of minerals in the serum, following administration of TCM tonics and mineral solutions. However, the outcomes at these points seem quite preliminary and the mathematical model used to evaluate these parameters was not obviously understood.

Finally, a study by Lee *et al.* (2008) examined the dietary patterns within the context of TCM and existing epidemiologic data to acquire data to outline an interventional dietary technique for different populations. Again, basic principles of TCM were used including yin/yang, hot/cold and more modern principles including acid/alkaline on dietary habits in women. The results showed an increased risk of breast cancer linked to dietary fats in Taiwanese women.

2.4.3 African tradition and diet

Africa, the second largest continent, is rich in geographic and cultural diversity. It is populated with people with histories from historic times and cultures fashioned by innumerable tribes, languages, and traditions. Because Africa is where *Homo sapiens* originated, information on the type of food and eating in the various regions of Africa is vital for people throughout the world and African nutrition is low in fats. According to Brennan *et al.* 2017, an increased risk of breast cancer is associated with high dietary fats.

Over the last decades, there has been significant dietary changes in developing countries at an accelerated pace. The common pattern of the transition is from traditional diets to a more 'Westernised' diet. The changes involve an increased consumption of trans fat, refined sugars, and a decrease in the consumption of traditional cereals, complex carbohydrates, vegetables, fruits and fibre (Uusitalo *et al.*, 2005; Stamoulis, Pingali and Shetty 2004).

The traditional African diet was largely plant-based, comprising various small grain cereals, mainly millet and sorghum, dark green leafy vegetables, tropical fruits, legumes, starchy stems and root tubers (Uusitalo *et al.* 2005). Animal products that dominated African diets included fish, fermented milk, and to a small extent game meat, poultry, beef and mutton. One of the most evident dietary shifts has been the significant increase in maize, rice and wheat consumption, replacing the traditional staple cereals and roots and tubers (Uusitalo *et al.*, 2005). Introduced vegetables and fruits, e.g. cabbage and oranges, have largely replaced traditional ones and general consumption of fruits and vegetables seem to be on the decline. A number of contributing factors that have played a part in such dietary shifts include higher levels of income, demographic changes, urbanisation and an increase in the spread of supermarkets, and thereby an increase in the availability of convenient and affordable prepared or semi-prepared foods (Stamoulis, Pingali and Shetty 2004). Consequently, there is a decrease in the consumption of traditional foods, which mostly require time- and labour-intensive home-based preparation. Such changes in diets can give rise to an increased incidence of diet-related non-communicable diseases resulting from a high intake of fats, sugars and salt, and a sedentary lifestyle. Some developing countries are already experiencing a rise in these chronic diet-related diseases associated with dietary changes (Stamoulis, Pingali and Shetty 2004). Such diseases include cardiovascular disorders, various forms of cancer, diabetes, hypertension, obesity and osteoporosis (Uusitalo *et al.*, 2005). This places a double burden on the African healthcare system, therefore under-nutrition and micronutrient deficiencies, as well as problems related to obesity and overnutrition, need to be addressed

2.5 Nutrition in the homoeopathic programme at the Durban University of Technology

The South African government set up an enrollment register in 1974 for homoeopaths who were already practising at that time (approximately 350 homoeopaths), and allowed no further registration of new practitioners. Advancement and further formal training of homoeopaths was halted due to the fact that the registers were closed. In 1989 the formal training of homoeopaths at Technikon Natal in Durban, presently known as DUT,

began, with the first cohort being recruited and registered for the exit level qualification of a Master's Diploma in Technology: Homoeopathy. In 1992 a similar formal homoeopathy programme was started at the Witwatersrand Technikon, which is currently known as the University of Johannesburg (UJ). The two new schools (DUT and UJ) had entry pre-requisites like those of medical schools – an exponential improvement and advancement in standards of training compared to the previous informal homoeopathic schools. The Master's Degree in Technology in Homoeopathy, M. Tech: Hom, as offered by the Durban University of Technology, is approved by the Department of Education and the Council for Higher Education Quality Committee. The qualification is enrolled with the South African Qualifications Authority at level 9 on the National Qualifications Framework (van den Berg 2007).

The homoeopathy training programme was structured and stratified over a five-year period, starting with a National Diploma in Homoeopathy (initial 3-year period of study), then a Bachelor's Degree in Technology (the fourth year of study) and the exiting with Master's Degree in Technology qualification (fifth year of study). In the National Diploma in Homoeopathy, nutrition was incorporated in a third year subject, Auxiliary Therapy III, and then subsequently in the fifth year subject called, Clinical Homoeopathy V. The subject explored clinically based nutrition as adjuncts to homoeopathic patient management. Auxiliary therapeutics offered nutrition knowledge in managing obesity, osteoporosis, osteoarthritis, irritable bowel syndrome, hypertension, depression and lower back pain as well as detoxification (DUT Faculty of Health Sciences 2018). For example it was recommended that, in the case of hypertension, a combination of supplementation of magnesium, potassium and water can lower blood pressure (Silagy and Neil 1994). Legislation requires a master's degree in homoeopathy for registration as a homoeopathic practitioner with the Allied Health Professions Council of South Africa. In 2015 DUT launched the new Bachelor of Health Sciences in Homoeopathy (BHSc Hom) programme which is four years of study and the Masters of Health Sciences in Homoeopathy (MHSc Hom), which is a further two years of study. In the new programme, nutrition is offered as a separate module in the third year level of study. The first cohort of the MHSc: Homoeopathy is not yet complete so future studies are required to compare and contrast the impact of the separate Nutrition module (DUT

Faculty of Health Sciences 2018). Table 2. 1 presents the learning programme structure of the old program of Homoeopathy.

Table 2.1: Learning programme structure of the old program

National Homoeopathy Diploma:	BACHELOR DEGREE IN TECHNOLOGY: HOMOEOPATHY (BTHOM1)	MASTER'S DEGREE IN TECHNOLOGY: HOMOEOPATHY
<ul style="list-style-type: none"> ➤ 1st year ➤ Anatomy 1 (Module 1) Gross Anatomy ➤ Anatomy 1 (Module 2) Histology ➤ Anatomy 1 (Module 3) Topography & Radiographic ➤ Physiology 1 ➤ Philosophy, Principles & History (Module 1) ➤ Philosophy, Principles & History (Module 2) ➤ Biology 1 ➤ Chemistry 1 ➤ Physics I ➤ Professional Development I 	<p style="text-align: center;">4th year</p> <ul style="list-style-type: none"> ➤ Diagnostics IV ➤ Clinical Homoeopathy IV ➤ Homoeopharmaceutics IV ➤ Materia Medica IV ➤ Research Methods and Techniques IV ➤ Clinical Practice IV 	<p style="text-align: center;">5th year</p> <ul style="list-style-type: none"> ➤ Clinical Homoeopathy V ➤ Materia Medica V ➤ Practice Management and Jurisprudence ➤ Research Project and Dissertation V ➤ Clinical Practice V
<p style="text-align: center;">2nd year</p> <ul style="list-style-type: none"> ➤ Anatomy II (Module 1) Gross Anatomy ➤ Anatomy II (Module 2) Clinical anatomy ➤ Biochemistry II ➤ Epidemiology II ➤ General Pathology ➤ Medical Microbiology ➤ Physiology II ➤ Professional Development II ➤ Social Studies I 		
<p style="text-align: center;">3rd year</p> <ul style="list-style-type: none"> ➤ Diagnostics III ➤ Psychopathology II ➤ Materia Medica III ➤ Systemic Pathology III (Module 1) ➤ Systemic Pathology III (Module II) Pharmacology ➤ Clinical Practice III ➤ Auxiliary Therapeutics III 		

2.6 Nutrition in medical education

No study assessing nutrition education in the homoeopathic field has been conducted yet at DUT, but similar studies conducted on medical students have clearly indicated a lack of confidence regarding nutrition knowledge among medical students and physicians. Adams, Kohlmeie and Zeisel (2010) conducted a study in medical schools in the United States and found inadequate nutrition training and concluded that the amount of nutrition training that medical students received was not enough to manage patients. Various calls have been made over the past few decades to advance the nutrition training and skills of medical students and physicians. Nevertheless, most graduating medical students still rate their nutrition knowledge and preparation as insufficient (Adams *et al.* 2006).

Wirth (2014) conducted research at the University of KwaZulu-Natal College of Nursing, regarding the nutrition knowledge of students at a nursing college and their dietary diversity. The researcher used a quantitative study, with random sampling being used to choose the campuses and convenience sampling being used for student group selection. Participants were invited to complete a general nutrition knowledge questionnaire. In addition, a food frequency questionnaire was completed to assess dietary diversity, and respondents' anthropometric measurements were taken to assess body mass index (BMI) and waist to hip ratio. The results showed that 59.8% of participants were overweight or obese. The researcher also noticed that even though students had a satisfactory knowledge of dietary recommendations and sources of different nutrients, their ability to make their own correct food choices, as well as their knowledge of diet-disease relationships was poor. According to Wirth (2014), students demonstrated excellent dietary diversity in their food choices. There were no statistically significant correlations between the participants' BMI and their knowledge, which implies that their knowledge of nutrition did not directly influence their food consumption. The researcher recommended that aspects of the content material within the nutrition curriculum be emphasised at some stage in the training of nurses, with the intention to increase nutrition awareness in areas where nutrition knowledge was found to be insufficient, such as diet-disease relationship knowledge (Wirth 2014).

2.7 Conclusion

Adams *et al.* 2006 reported that physicians had good nutrition knowledge, but they rated their nutrition training poorly, this could relate to homoeopathy in terms of nutrition training. Hence it would be important to explore this in the South African context and inadequate exposure to practically applying theoretical knowledge of nutrition among M. Tech: Hom students at DUT.

2.8 Chapter summary

Many studies worldwide have reported inadequate nutrition training among healthcare providers. However, in the Department of Homoeopathy at DUT no studies have investigated how students perceive nutrition in homoeopathic management of disease. Therefore, it was imperative to investigate the knowledge, attitudes and perceptions of registered Master's Degree homoeopathy students on the role of nutrition in homoeopathy management.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Background

Previous studies have demonstrated that nutrition is a critical issue in primary health care practices (Babu, Gajanan and Hallam 2017), however, the role of nutrition is still poorly understood in the homoeopathic ambit. Therefore this research was aimed at determining knowledge, attitudes and perceptions of registered M. Tech: Hom students regarding the role of nutrition in homoeopathic management of patients. The grand tour question was: 'What is the role of nutrition in the homoeopathic management of patients?' The individual questions were framed around the identification of nutritional and lifestyle diseases and their management and nutrition education given to patients by registered M.Tech: Hom students.

This chapter includes perception, setting description, study design, sample size and target population, ethical considerations, recruitment and interview procedure as well data analysis.

3.2 Perception

Milton (1981) defined perception as being the ability to see, hear or become aware of something through the sense. The perceptual process enables a person to translate and offer significance to stimuli (Given 2008).

Pickens (2005) describes four perceptual processes: sensation (a person's capacity to sense the environment through touch, taste, sight, smell and sound), selection (the procedure a person uses to select a portion of the stimuli that have been detected and to hold others for additional handling), organisation (the way in which chosen perceptual stimuli are placed into a system for "storage") and translation (the stage of perceptual process at which stimuli are interpreted and given meaning). Stimuli are received from external or internal sources, then organised based on similarities to previous

experiences, interpreted and lastly responded to through attitude and behaviour in relation to those experiences (Pickens 2005).

3.2.1 Factors influencing perception

Perception is moulded and shaped by a few factors and these factors dwell in perceiver, in the protest or target being seen or concerning the circumstance in which the observation is made (Bergh *et al.* 1999). The following is a classification of perceptions according to (Russell 1972: 219-227), as applied to the current study:

1. **Factors in the perceiver:** M. Tech: Hom students: Attitudes, interests, motives, experiences and expectations.
2. **Factors in the situation:** South Africa: Socioeconomic conditions: for example, a homoeopathic student could be restricted in giving optimal nutritional advice due to the financial status of the patient.
3. **Factors in the target:** The role of nutrition in homoeopathic management: homoeopathy in South Africa, background, patients' awareness of homoeopathy, reliability to homoeopathic management.

Perception is strongly influenced by attitude (Bergh *et al.* 1999). An attitude is a mental predisposition to act that is expressed by evaluating a particular entity with some degree of favour or disfavour. Attitudes are of two types, namely positive and negative attitudes. Positive attitude is the predisposition that results in desirable outcomes for individuals or organisations. Positive attitudes include: more participation in the conversation, more likely to listen, helps maximise strengths and minimise weaknesses, and lastly increases interaction among members. On the other hand, a negative attitude is the tendency of a person that results in an undesirable outcome for individuals or organisations. Negative attitudes include: inability to accurately judge, incomplete communication, inability to see problems and, lastly, conflict (Robbins and Judge 2014).

There are three types of attitude namely, cognitive, affective and behavioural attitudes. Cognitive attitudes are beliefs about attitude object; they can be either positive or negative. Affective attitudes are positive or negative emotions and feelings that the

object triggers. Lastly, behavioural attitude is a positive or negative reaction towards the object (Kruger *et al.*, 2015).

Although behaviour is a component of attitude, it can differ from cognitions and emotions and this is called cognitive dissonance theory. There are two main theories regarding attitude change, namely, cognitive dissonance and self-perception theories. The cognitive dissonance theory states that there is an inconsistency between the two attitudes or between attitudes and behaviour and people seek to make them consistent to achieve a stable state with minimum dissonance (Festinger 1957 cited by Harmon-Jones and Harmon-Jones 2012). Festinger (1957) described a few ways to reduce dissonance; individuals can add consonant cognitions, subtract dissonant cognitions, increase the importance of consonant cognitions, or decrease the importance of dissonant cognitions.

Self-perception theory claims that attitudes do not cause behaviours, but behaviours cause attitudes. Attitudes can be influenced by several factors including knowledge, mass communication, economic status, neighbourhood, and experience with object, family and peer group. Lehrke *et al.* (2001) conducted a study determining the attitudes of homoeopathic physicians towards vaccination. The study was conducted with 219 medically qualified homoeopathic and 281 non-homoeopathic physicians in Germany in the form of a questionnaire. The answers showed that the responding homoeopathic physicians did not generally refuse vaccines, but rather viewed them within specific hierarchy and this indicated that homoeopathic physicians' attitudes towards vaccinations were strongly influenced by their knowledge of diseases (Lehrke *et al.* 2001).

The behavioural component of attitude occurs when a person tends to behave in a particular manner towards an object. It refers to that part of an attitude which reflects the intention of a person in the short-term or long-term. Attitudes can guide a person's behaviour even when the person does not actively reflect and deliberate on the attitude (Fazio, Powell and Williams 1989). Knowledge is a necessary component of behaviour change, but on its own, it is not sufficient to bring about behaviour change (Kruger *et al.*, 2015).

Hseiki *et al.* (2017) conducted a study to assess the knowledge, attitude and practice of primary care physicians in Lebanon regarding nutrition counselling and to investigate possible related barriers. It was found that physicians had good to very good nutritional knowledge. Although they rated their formal nutrition training poorly, they had a positive attitude towards nutritional counselling and reported practicing general nutritional counselling with their patients. Attitudes can be influenced by the knowledge health professionals have and further attitudes can be learned within a profession (Tervo and Palmer 2004). Therefore, either negative or positive attitudes can be expected among homoeopathic professionals which may influence their homoeopathic management of nutrition-related diseases.

3.3 Setting description

The DUT has a Faculty of Health Sciences which offers a wide range of programmes for health professionals, including homoeopathy. It enables professionals to be able to use their skills and knowledge that they have acquired to improve the health of the community. This study was carried out at the Homoeopathic Day Clinic (HDC), in a quiet, private and comfortable consultation room at DUT. The HDC is situated on the first floor of the health sciences day clinic block and it has 13 soundproof consultation rooms. The significance of this is that the participants are able to speak freely without intimidation of other individual being around.

3.4 Study design

A qualitative, explorative and descriptive research design approach was used. The purpose of choosing this research design was to obtain a view into research participants' life-worlds and to understand their personal meanings constructed from their "lived experiences" (Denzin and Lincoln 2008) and to describe their experiences of the role that nutrition plays in homoeopathic management. This approach enabled the researcher to investigate individuals' experiences and perceptions (Yin 2003), and supported the deconstruction and the subsequent reconstruction of various phenomena. This approach is valuable for health science research to develop theory, evaluate

programmes, and develop interventions because of its flexibility and rigour (Johnson and Christensen 2012).

Any preconceptions or learned feelings that the researcher had about the role that nutrition plays in homoeopathic management were bracketed (the researcher conducted the research without adding any of his nutrition knowledge input) Bracketing is a method used in qualitative research to mitigate the potentially deleterious effects of preconceptions that may taint the research process (Tufford and Newman 2010). A qualitative descriptive design was used to determine nutritional knowledge in this study. To determine nutritional knowledge, a descriptive design was used as described by Yin (2003), the real-life context in which it occurred.

Qualitative interviews involve open-ended questions and provide qualitative data (Mathison, 2005). Qualitative interviews are also called in-depth interviews because they can be used to obtain detailed information about a participant's thoughts, beliefs, knowledge, reasoning, motivations, and feelings about a topic. Qualitative interviewing allows a researcher to enter into the inner world of participants and to gain an understanding of those participants' perspectives (Patton 1987).

3.5 Sampling

A purposive sampling method was used in the study, until data saturation was achieved. At the time of the study there were more than 20 registered M, Tech: Hom students at DUT, however the study sample consisted of 13 registered M. Tech: Hom students The purposive sampling technique, also called judgement sampling, is a purposive choice of an informant due to the qualities the informant holds. A non-random technique does not need underlying theories or a set number of informants. Simply put, the researcher chooses what needs to be known and sets out to find individuals who can and are willing to provide the information by virtue of knowledge or experience (Lewis and Sheppard 2006). The researcher approached person by person and conducted interviews until a point of data saturation was reached. This is the point at which no new information or ideas emerge from the interviews, at which point the researcher will stop conducting interviews (Fusch and Ness 2015). The recruited students were interviewed

to gather information about knowledge, attitude and perceptions of nutrition and nutritional education; however, participants were allowed the freedom to talk about their experiences in a way in which they were comfortable.

Qualitative studies generally have a sample size that is smaller than quantitative studies (Ritchie and Lewis 2003). Qualitative research is challenging as analysing a big sample is time consuming and often unfeasible. Within any research area, participants have diverse views. Qualitative samples must be big enough to guarantee that most or all of the perceptions that might be important are uncovered, but at the same time if the sample is too large, data becomes repetitive and, eventually, superfluous (Glaser and Strauss 1967). According to Bertaux (1981), twelve is the smallest acceptable sample for a qualitative study (adapted from Guest, Bunce and Johnson 2006).

The inclusion criteria for the study were as follows:

- All students in the master's level of their M. Tech: Hom degree officially registered at DUT, both males and females, who were willing to participate.
- Students had to be at least 18 years to give informed consent for the study.

The exclusion criteria for the study were:

- Students who did not give consent for study.
- Students who were under 18 years old.
- Unregistered students and students registered for other courses

3.6 Data collection procedure

In February 2018 M. Tech: Hom students were recruited into this research using a direct approach for recruitment. The researcher gave clear information of the study being conducted and the students were given an opportunity to freely participate in the research being conducted. The interview questions were framed around the following areas: Identification of nutritional and lifestyle disease and their management, education, and dietary and supplementation advice to patients. A questionnaire (Appendix F) was used to conduct the interviews. A pilot study was conducted on three participants to examine the feasibility of an approach that was intended to ultimately be used in a larger scale study by the researcher. Interviews took place at the convenience

of the participant at the HDC. The interviews took place in a silent and isolated space where participants were comfortable to discuss relevant topics without disturbance.

Before the interview, the potential candidates received a Letter of Information (Appendix A). The next stage of informed consent was detailed written consent which was obtained from each prospective participant at the first formal meeting (Appendix B) At the meeting all the requirements of the research participants were disclosed. Furthermore, the research process was explained in detail, the participants were given details of the study and benefits of participation and given the opportunity to ask questions. Once fully informed of the research process and if the participant was willing to participate, they signed an informed consent (Appendix B) form and were formally recruited into the study. Each individual interview took approximately 30-45 minutes. The interviews were conducted by the researcher and they were captured on audio recordings (tape recorder) for accuracy of the participant's words.

The researcher made use of the grand tour question, which was 'what is the role of nutrition in the homoeopathic management of patients?', as well as probing questions. Data collection continued until data saturation was achieved and data saturation was achieved with 13 participants.

3.7 Data analysis

To identify the emerging themes, the researcher personally analysed data under the guidance of the supervisor. Thematic and Tesch's eight-step procedure of data analysis were applied (Creswell 2009) as follows:

- **Step one:** Interviews were transcribed verbatim and analysed by the researcher.
- **Step two:** The researcher read the transcripts and compared them with the audio-taped interviews.
- **Step three:** The researcher read the transcripts for the second time to identify the underlying meaning.
- **Step four:** The researcher then selected the most interesting and informative interviews based on their significance to the study and notes were made in the

margins of the transcribed interview. The process was repeated for the rest of the interviews.

- **Step five:** Similar topics were then clustered together under topics.
- **Step six:** From these topics, the researcher then formed themes and subthemes.
- **Step seven:** An experienced person in the field of qualitative research analysed the data separately and the identified themes were discussed with the researcher
- **Step eight:** Literature was reviewed to verify the findings.

3.8 Data management and storage

The manner in which the data was collected ensured that the confidentiality of the participants was maintained from the beginning of the study until the end. The personal details of the participants were not recorded during the interviews, as well as during audio recordings. In the beginning of the study, numbers were given to the participants for confidentiality to protect their identity. Only the researcher knew the names of the participants and assigned codes.

The data collected was secured by the researcher for the duration of the research and was stored in a locked office of research study personnel at the DUT Department of Homoeopathy. It will be destroyed after five years (audio recordings and 'storage devices' shall be physically destroyed). Access to the stored data was given only to the researcher and supervisors. Subsequent reports/articles/publications will maintain participant confidentiality; in no situation will the identity information of the participant be disclosed.

3.9 Ethical considerations

Research ethics is a set of principles to guide and assist researchers in conducting ethical studies. The Institutional Research Ethics Committee (IREC) at DUT provided approval (Appendix E). The Head of Department of Homoeopathy at DUT (Appendices C and D) and the Post-Graduate research office (Appendix E) granted permission to conduct the study. The study was explained in an information letter (Appendices B and C). Each participant gave written consent (Appendix B).

Participant anonymity was maintained as there was no requirement for names or any other personal information to be supplied by the participant during audio recordings. All information collected in the study was, and will be, kept strictly confidential. There was no coercion or pressure to participate and participants were free to withdraw at any stage with no explanation necessary.

The audio and written data was confidential and only available to the researcher and supervisor and was password protected. The interview data was transcribed into a Microsoft word document. Thereafter the collective documents of each participant were analysed for common themes and trends. Furthermore, the demographic data of the participants was documented.

3.10 Research validity

Research validity or trustworthiness is whether the qualitative research is trustworthy, feasible, and consequently justifiable. The methods used by the researcher were important to ensure trustworthiness of the collected data and subsequent theories generated. Trustworthiness was ensured using the following criteria:

Credibility

Credibility is the focal point of the research to ensure that the data and data analysis processes address the anticipated focus (Polit and Hungler 1999). The researcher discussed the research procedure and the results with the supervisor, who was qualified and had adequate knowledge in homoeopathy and nutrition. The supervisor could provide understanding into factors that the researcher should focus on, to guarantee credibility of the study. A tape recorder was used to collect data which was transcribed. Furthermore, the researcher ensured that the transcribed data was an authentic reflection of the experiences the participants. This was done by ensuring transparency where the researcher documents decisions made in the data collection and analysis process in the researcher's reflections at the end of the study.

Dependability

Dependability 'searches for ways to consider both instability and phenomenal factors or changes that are induced by design', that is, the point where data collected can change

due to changes made by researcher during the process of data analysis (Lincoln and Guba 1985). Each interview's raw data was kept safe for future reference to maintain an audit trail.

Conformability

After the voice-recorded interviews were transcribed, each participant had an opportunity to examine the data to confirm if it was a true reflection of their views with regards to their experiences.

Transferability

Transferability is the extent to which research results can be used in other settings (Polit and Hungler 1999). The researcher facilitated transferability by giving vivid and clear descriptions of the context, sampling, data collection and the procedure of analysing the data.

3.11 Chapter summary

This chapter clarified the research methodology utilised in this study and explained how data was acquired and analysed. The following chapter presents the results of the study.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the data of the study collected during the interviews.

4.1.1 Tesch's eight-step procedure of data analysis

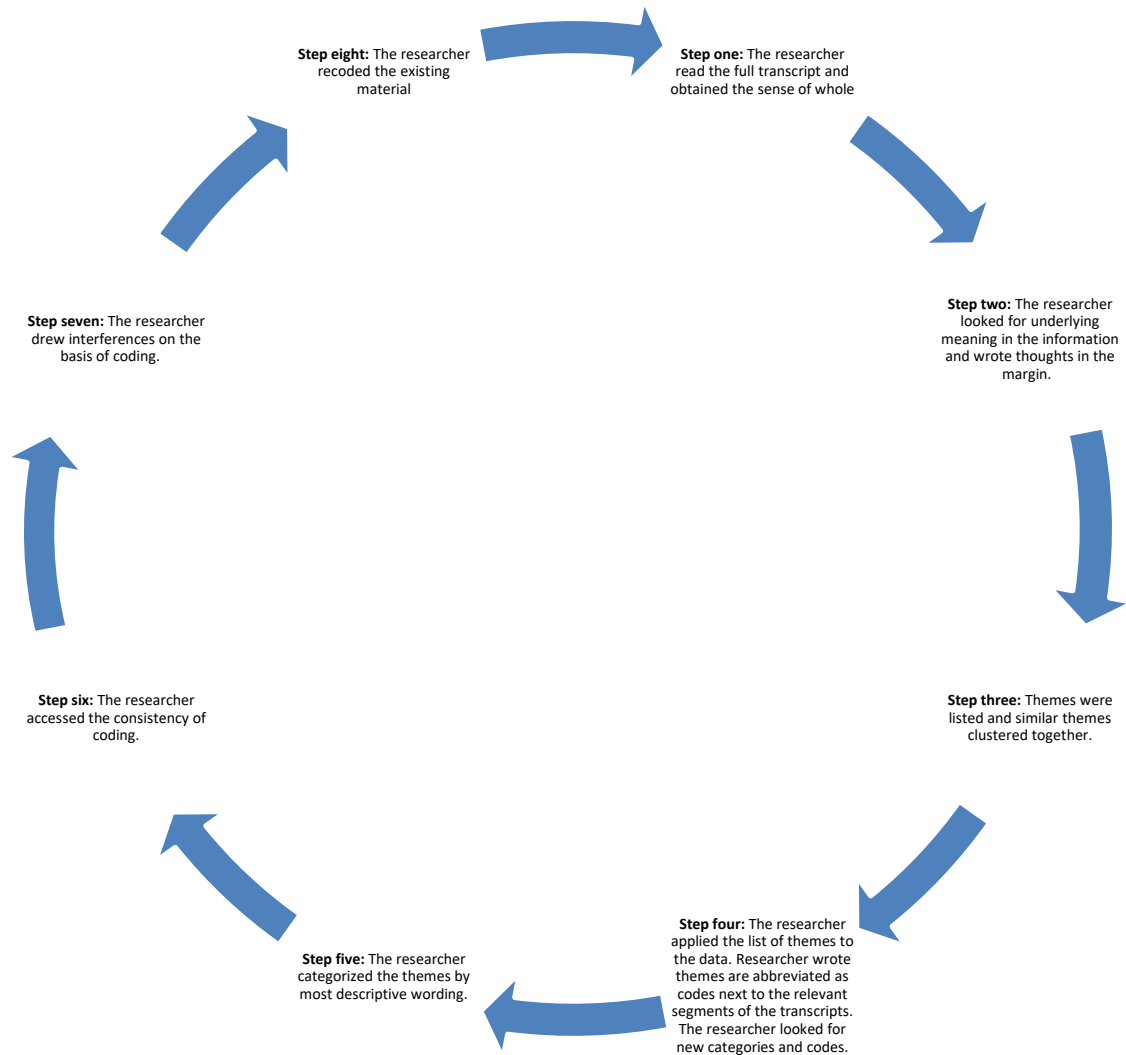



Figure 4.1: Tesch's eight-steps of data analysis (Tesch 1990, cited in Creswell 2009).

4.2 Sample characteristics

Thirteen interviews were conducted with participants over a period of a week and each interview took approximately 45 minutes. All 13 participants were M. Tech: Hon students at DUT and they came from a variety of races, genders and ages. The participants' ages ranged between 23-29 years and the mean age was 25.2 years (Table 4.1). All interviews were conducted face-to-face in a private and quiet place until data saturation was reached. Data saturation was reached after ten interviews and the researcher went on to do four more interviews. 4.2.1 shows demographic details of the participants.

Table 4.1: Demographic details of the participants (n=13)

Participant Number	Gender	Age in years	Race
1.	Male	29	Black
2.	Female	25	Black
3.	Male	29	Black
4.	Female	23	Black
5.	Female	24	Black
6.	Female	23	Black
7.	Female	24	Black
8.	Male	24	Black
9.	Female	25	Black
10.	Male	28	Black
11.	Male	27	Black
12.	Female	23	Black
13.	Male	24	White

Key:  Data saturation point

4.3 Thematic data analysis

The data was analysed through a thematic analysis process and three themes emerged from the data. Each theme comprised different subthemes that represented different

concepts that emerged during each interview. Themes and subthemes are presented in Table 4.2 can be found in thematic tables in Appendix F.

Table 4.2: Identified themes and subthemes

Themes	Subthemes
1. Knowledge of nutrition	a) Identification of nutritional and lifestyle disease and their management
	b) Education
	c) Dietary and supplementation advice to patients
2. Perception of nutrition	a) Identification of nutritional and lifestyle disease and their management
	b) General perception of the role of nutrition
3. Attitude towards nutrition	a) Awareness of nutrition
	b) Lack of awareness of nutrition
	c) Education

Pseudonyms were used in the presentation, for example participate one is indicated as P1 and participant two is indicated as P2 and so forth.

4.4 Theme One: Knowledge of nutrition

Knowledge of nutrition is important when managing various conditions because most often chronic and autoimmune conditions are nutrition-related. Therefore, enough nutrition knowledge in healthcare professionals can result in prevention and positive clinical outcomes in disease management (Wardle *et al.* 2000). This theme contained three subthemes, namely: identification of nutritional and lifestyle disease and their management, nutrition education, and dietary and supplementation advice to patients.

4.4.1 Identification of nutritional and lifestyle disease and the management

Most chronic conditions are not caused by pathogens but are caused by poor nutrition. Therefore, they can be improved by modifying the diet. Most participants had satisfactory knowledge about nutritional and lifestyle diseases and how they can be

managed through nutrition. However, some of the participants identified nutritional and lifestyle diseases without mentioning their management:

I'd say the knowledge base of master's degree homoeopathy students is very solid because we were taught nutrition by a very serious doctor who takes nutrition very seriously because he did not only teach us nutrition but he also showed us by applying to his life and showed us how nutrition helps him from not getting diseases such like diabetes mellitus, hypertension, high cholesterol. -P1

The role of nutrition in the homoeopathic management of patient, number one is to prevent diseases such as obesity, diabetes, and the second thing is to improve the lifestyle hahhahh! of patients and to prolong their lifespan so that they can live long. -P4

The role of nutrition helps with treating the condition. Sometimes the lack or poor nutrition is what causes the condition to be maintained. So, the role of the nutrition helps to eliminate the maintaining cause and sometimes nutrition on its own, if it is addressed it can help actually cure the entire condition when you come to lifestyle diseases, for example diabetes, hypertension nutrition plays a vital role and it goes as far as treating things that the medication cannot also treat because sometimes medication just removes the surface it doesn't go deep. -P8

Auxiliary therapeutics helps me to recommend to those patients who have diabetes, hypertension and anaemia and in pregnancy because a woman has to have those nutrients for the baby that is growing inside them. -P9

One participant spoke about the management of scurvy with vitamin C:

What I've learned is if you have bleeding gums, scurvy, you need to eat your citrus fruits because they are good in strengthening the collagen of the vessels, so they stop the blood loss in vessels. If you got bleeding gums or you've got scurvy problem, if you take any citrus fruit, for example an orange, it is doing good enough and it also contains vitamin C which helps strengthen the collagen to stop the blood loss. -P3

The Dietary Approaches to Stop Hypertension (DASH) diet is a diet that is rich in fruits, vegetables and low-fat dairy products. DASH is very effective in management of

hypertension (Sacks *et al.* 2001: 3-10). One participant spoke about management of hypertension with the DASH diet:

The dash diet assists with bringing down the blood pressure instead of relying on medication. Nutrition ensures that without medication your health is maintained at good optimal level. So, it goes hand in hand with homoeopathy because homoeopathy doesn't believe in a person become fixated and forced to survive on medication. it's basically giving the freedom of living life without having chronic meds. -P8

Furthermore, one participant explained the management of diabetes and hypertension through dietary and lifestyle interventions:

We get increased knowledge on how to manage patients like in hypertension we were taught that patients should reduce salts, exercise, reduce fats and stuff, and for diabetes they should cut or increase glucose. -P5

4.4.2 Nutrition Education

Healthcare professionals need to be adequately trained to address dietary and lifestyle conditions with their patients to ameliorate chronic conditions and improve clinical outcomes in acute diseases (Wardle *et al.* 2000). Most participants mentioned the importance of nutrition education in the management of diseases. They also highlighted the importance of patient education. Some participants spoke about patient education:

Also with education of the patient because if you don't understand nutrition as a practitioner then it becomes difficult to holistically treat the patient because in homoeopathy we don't only give the remedies but it's part and parcel for us to teach or educate our patients eat and with nutrition because we know that nutrition when a patient eats wrong or they don't understand nutrition a remedy alone will not help when the patient keeps on taking the stuff that is making them sick but by understanding nutrition we are able to educate them how to eat and how to live well and while helping them with the condition that we are treating. -P1.

One participant spoke about nutritional knowledge:

We were taught that there is a difference between healthy food and nutritional food. Healthy food is expensive and nutritional food is cheap, but they do the same thing in the body. -P1.

Another participant mentioned educating patients on nutrition:

Nutrition I think it could be the best way of healing the patient as well as educating patients in terms of knowing what is it that they need for themselves and also to actually teach them how to listen to their bodies because if they're craving, automatically the body just says you know what I'm deficient of this so this is what I require right now in order for my body to actually maintain homeostasis. -P3

One participant said nutrition education allows students to make recommendations to patients on nutrition in homoeopathic management:

It helps us to teach our patients on how to eat well and give them good advices on their diet. -P4

One participant mentioned that nutrition education needs to be advanced with research:

I believe that we need more research on the relevance of nutrition and we need to increase our knowledge. After all homoeopathy is based on research at the moment we're wanting to establish the popularity or recognition of homoeopathy. So, each study we would have a good influence towards the cure or managing of diseases through homoeopathy. -P7

Some participants mentioned that only a few diets were done in third year, so more nutrition education is needed:

We studied DASH diet, and Mediterranean diet, I think those were the only two diets we did. But the thing is we aren't quite exposed to the new diet trends because almost every year there's a new diet trend that comes out, right now there is Banting, etc. -P8

I think the emphasis on making students aware that nutrition plays important role is not intense in homoeopathy. We only learn about nutrition in auxiliary therapeutics in 3rd

year and we don't learn nutrition in 4th and 5th year. There should be more emphasis from 1st year to 3rd year. -P11

Another participant stated that nutrition education is useful when managing various conditions:

Auxiliary therapeutics helps me to recommend to those patients who have diabetes, hypertension and anaemia and in pregnancy because a woman has to have those nutrients for the baby that is growing inside them. -P9

Diagnosing and treating patients requires a sufficient nutrition education (Wardle *et al.* 2000); one participant mentioned that nutritional education helps with diagnosis:

The study of nutrition helps first in diagnosing the patient and perhaps helps to preventing certain conditions as a form of management, preventing certain conditions that might carry on if the person's diet poor, it then helps me to find the origin of certain conditions. -P10

4.4.3 Dietary and supplementation advice to patients

Educating patients on nutrition helps patients to comply with the treatment regimen and it also helps patients to prevent conditions through healthy and balanced diet. Most students stated the significance of giving dietary and supplementation advice to patients in order to manage or prevent various conditions:

We know that nutrition when a patient eats wrong or they don't understand nutrition a remedy alone will not help when the patient keeps on taking the stuff that is making them sick but by understanding nutrition we are able to educate them how to eat and how to live well and while helping them with the condition that we are treating. -P1

Two participants said that having adequate nutrition knowledge enables students to be confident when they give nutrition advice to a patient:

The study of nutrition helps it allows us to speak about something that we know, and we are sure that what we are saying concerning nutrition. If we're giving nutritional advice,

we have a sufficient knowledge of giving nutritional advice because of the nutritional study that we did previous year. -P3

It helps us to be able to assist patients, because we had no knowledge of nutrition before we did auxiliary therapeutics, as students we can advise patients in a right way. -P5

One participant mentioned that he gives nutritional advice for all the conditions a patient is consulting for:

I give my patients advices on the food that they are supposed to eat when they have been diagnosed with a particular disease. -P7

Nutrition in auxiliary therapy made us aware of calculating things, for example in diabetes management, you know what food to advise a patient to have. -P12

Most participants mentioned that nutrition knowledge is more beneficial to patients than to themselves, because they advise patients on nutrition more than they personally follow nutrition:

It helps the patients more, by giving advices to them. And telling them what food to eat and what food not to eat, basically it benefits the patients a lot. -P6

It is important to give advices to our patients because some of the diseases or nutrition deficiencies are one of the main contributors to diseases so when we advise our patients on how to eat healthy or live healthier lives it minimises or prevents those nutrition deficiencies. -P9

It plays a role of having ability to manage a patient and then advise the patient accordingly with the knowledge that you have with nutrition and advise according to the condition that they have and what to rule out in their diet, what to take in, in their diet, I think that's a very essential role in the management of the patient. -P12

4.5 Theme two: Perception of nutrition

4.5.1 Identification of nutritional and lifestyle disease and the management

Identification of nutritional and lifestyle diseases can be the first step towards improving a patient's health. Participants identified similar nutritional and lifestyle diseases that they perceived were caused by poor nutrition and poor lifestyle. These were diabetes and deficiencies.

Stroke, diabetes, obesity, osteoporosis, any of vitamin deficiencies, scurvy, anaemia. - P13

There's various conditions for example type 2 diabetes, serum diseases for example some people have cramps because of electrolytes imbalances, hypertension, yeah those are some of the main chronic diseases that you would find that a lot of the time are nutritional. -P10

Anaemia, diabetes, protein deficiency e.g. Marasmus, kwashiorkor, leaky gut syndrome. -P12

Diabetes mellitus, hypertension, candidiasis, uhm. What else cholesterol. -P8

Anaemia, diabetes, hyperlipidaemia, liver problems. -P4

Automatically diabetes mellitus, cholecystitis because if you eat food that contains high level of fat, cholesterol basically so you then tend to have something which is known as cholecystitis and those are gallstones right? And then also the other things, that are associated with iodine, so your goitre, hyper oh yeah! Which could result into your hyperthyroidism, those are some of the conditions that can be in association with nutrition. -P2

I think the biggest one is diabetes, because it is mostly caused your lifestyle and the food that you eat. And another big one might be hypertension; a lot of hypertensive patients don't eat the correct nutrition because most of them eat food that contains a lot of salts which is not good for them. Diabetes is one of them, heart diseases, and hyperlipidaemia. -P6

Hypertension, diabetes, liver cirrhosis, stroke. -P5

Vitamin B12, Anaemia, diabetes, hypertension... -P7

Iron deficiency, your scurvy, thyroid problems which can decrease or increase your weight depending on whether it's hyper or hypo. -P3

Those conditions would be diabetes mellitus type 2, those would be your lifestyle diseases, hypertension, liver failure, obesity. -P1

One participant identified HIV as a nutritional and lifestyle disease:

Most of the conditions like, HIV, diabetes, anaemia. -P11

Chronic diseases of lifestyle can be managed through dietary modification, but it often seems difficult to manage them. For example, for type 2 diabetes, one has to change the diet and reduce salt, saturated fats and sugar intake (Klein *et al.* 2004). Some participants mentioned how to manage metabolic and cardiovascular conditions:

Knowledge on how to manage patients like in hypertension we were taught that patients should reduce salts, exercise, reduce fats and stuff, and for diabetes they should cut or increase glucose. -P5

Nutrition helps to manage diseases, like with hypertension for example we understand we learned the DASH diet. The dash diet assists with bringing down the blood pressure instead of relying on medication. -P8

In diabetes management, you know what food to advise a patient to have although one has to consider the case of affordability as well, it's not about what is written on books but it's about what is accessible to the patient. So, you will advise the patient accordingly, for example you might want to give a food with low GI, food that will produce energy for a patient for a prolonged time so it may be able to sustain the patient the whole day that's the way to go with diabetic patients and also allergies you have to rule out wheat and for constipation the patient has to add more water and more roughage to bulk up the stool. -P12

One participant mentioned how nutritional deficiency should be managed:

If you have bleeding gums, scurvy, you need to eat your citrus fruits because they are good in strengthening the collagen of the vessels, so they stop the blood loss in vessels, if you take any citrus fruit, for example an orange, it is doing good enough and it also contains vitamin C which helps strengthen the collagen to stop the blood loss. - P3

4.5.2 General perception of the role of nutrition

All participants had positive perceptions about the role of nutrition in the management of various conditions, more especially conditions that are caused by poor lifestyle. Most participants stated that too much of anything can be a problem and too little of anything can be a problem also. Overnutrition and undernutrition can both lead to various conditions:

Nutrition plays a very big role in the disease or in epidemic whatever because too much of everything is bad so if you don't understand nutrition you're going to take something that is advertised as being good for you but you are not educated and that thing will become a problem for example copper we know that we need minerals in our bodies, copper, iron and mag phos, sorry magnesium and other minerals so when you have high intake of iron cause a problem, high intake of copper causes a problem you see a high intake of magnesium causes a problem but if you don't know nutrition because they say that magnesium relaxes the muscle....when a lady who's experiencing period pain overdose magnesium they will end up relaxing even the other muscles which they are not supposed to be relaxed and that will become a problem. -P1

Imbalance of nutrition can lead to many diseases and no matter how much remedies or medication you can give, but if nutrition is not balanced then the disease will not be healed. -P11

If there's deficiency obviously there will be diseases but if our patients become more aware about the importance of nutrition in their lives it will decrease the rate of some diseases that are caused by nutrition deficiencies. -P9

It's a two-way street if you have too much you can actually cause your body to be diseased and also if you have just right amount it can actually heal you in a way without having want to actually take the medication that is required for that time. -P2

It plays a huge role because a deficiency and an excess will definitely cause a condition, for example a deficiency in iron causes a condition which is called iron deficiency, anaemia, a blood condition. -P3

Some participants said a good diet prolongs lifespan and a bad diet causes disease:

It may help reduce the severity of the disease and without the knowledge of nutrition that may also exacerbate the condition. -P12

It depends on one's diet, if they are living a healthy lifestyle and they eat healthy food, I feel like that's a good thing. They will live long, and they will be healthy as well. The problem comes when they are eating junk, when they are eating unhealthy food; they become prone to diseases. -P4

It plays a huge role both in returning to health and also causing diseases, if you are not eating properly then you're more likely to be affected by disease and more prone to it. -P13

One participant noted the importance of nutrition in the management of disease and claimed that nutrition catalyses the healing process. Furthermore it was mentioned that poor diet could be an obstacle to the cure:

If you are having the right nutrition you can easily get cured or managed diseases very well because as I said nutrition or food is supposed to be our medicine, it's supposed to cure us, it's supposed to keep us healthy therefore you know any type of disease has physiological effects and food can enhance or improve your health through eating the right diet for that particular disease. So, it plays a very important role such that it can either cure or worsen the disease through the food that you eat, not only through the medication that we give you would one get cured but also through food and if you are not having a right diet it can be an obstacle to the cure. -P7

Good nutrition can strengthen the immune system, thus preventing disease (Wardle et al. 2000). Another participant said that nutrition could be used as a preventative tool:

Nutrition basically maintains diseases if it's poor and it helps prevent diseases, it's a good preventative measure with couple of exercises and good supplementation. -P8

Another participant perceived that nutrition reinforces patients' vital force and enhances their sensitivity to medication so that medication can have fast therapeutic effects:

It aids in the vitality of the person that we're treating and some of the treatment that we use is actually supplements that can reinforce an organ, so it plays a role in actually reinforcing the patient, so they will have more sensitivity to the medication that we are giving them. -P10

4.6 Theme three: Attitude towards nutrition

4.6.1 Awareness of nutrition

Every participant seemed to have nutrition knowledge whether they followed a strict diet or not, but they were all informed regarding the health benefits of nutrition. Almost all participants had positive attitudes towards nutrition, but most of them stated that following a good diet was expensive, and the popularity and accessibility of junk food made it hard for them to eat healthy foods:

I'm very conscious about nutrition because I don't like junk food, if this was video recording you would see that I'm not fat I'm taking care of my body, but as a student you cannot run away from junk because it is sold in our cafeterias around campus. -P1

I am very conscious but sometimes as a student we eat junk because of financial problems or time.-P4

I'm very conscious of my nutrition status but that does not mean I'm practising it, so I might be conscious but that doesn't mean I follow a strict diet. So, being a student, I eat according to what I afford. -P12

Even though a healthy diet is considered expensive, one participant indicated that he ate healthy food even though he was not financially stable:

I'm more mindful of what I eat, and I try even though with limited funds as a student I try to be more mindful about the things I put in my mouth and I try to make wise decisions because as much as people say eating healthy is expensive, but you can make it work with what you have. -P8

Another participant said healthy food was expensive and it did not taste nice:

In terms of nutrition, as a student, okay I want to live healthy life and I try my best to look at my diet but some of healthy food is very expensive for a student, but I try. I'm conscious but healthy food is not nice as well, for example if I can talk about your plain yoghurts, in fact healthy food is not nice. -P9

One participant was conscious of nutrition because she was influenced by studying homoeopathy:

This is a difficult one but mainly as a homoeopathy student I told myself or I have taught myself to listen to what my body is in need of. -P2

One participant was influenced by family history of diabetes to adopt healthy eating habits:

I'm very cautious such that, normally eat half-cooked or half boiled vegetables and I make sure that I buy good quality of vegetables, so my diet is very important so for me specifically it's because of at home we have a lot of diabetes in the family... -P7

One participant stated that he had taken a personal interest in nutrition to maintain health:

I'm very conscious because of that I make sure that I eat properly to maintain health and when I'm sick to return to health. I've taken a personal interest in it. -P13

Healthy eating habits can positively influence cognitive function, improve alertness, concentration and memory (Parietta, Milte and Meyer 2013). One participant said he ate healthily so that he could do well in his studies and at work:

Because of this trending I'm more aware of what does a proper balanced diet mean so I try as much as I can to eat in a manner that is conducive to health so that I can function properly in my studies and work. -P10

4.6.2 Lack of awareness of nutrition

Only a few participants were not conscious regarding nutrition. One participant mentioned that he was not conscious regarding nutrition because of negligence:

I'm not really, conscious I'd be lying; I think it's just a negligence. -P3

Another participant stated that she ate whatever she desired; it did not matter whether it was junk or healthy:

I'm not conscious; I just eat as I like, whatever I feel like eating. -P5

One participant said she went to the gym to be healthy but when it came to food it was difficult for her to be conscious because of the environment she lived in:

I'm not conscious at all, like although I go to the gym I try to eat healthy but because it's not practical, I mean we are in campus for the whole day, you are probably going to eat R1 chips during breaks, and you're going to go home and you're going to have pasta and mince because it's quick. But you know pasta got a lot of calories so, it's very difficult as a student. -P6

Another participant ate whatever she could afford because of limited finances:

I'm not that conscious because of finances and the living conditions that we are under. You eat what you get, you don't choose like today I'm going to have this and that; you take what you are given. I'm not that cautious, like if I'm taking enough iron. -P11

4.6.3 Education

Recommendations were made regarding the current nutrition training in the homoeopathy syllabus at the DUT in order to advance and improve the quality of nutrition training:

4.6.3.1 Satisfaction with current nutrition education in the homoeopathy syllabus

Only two participants were satisfied with the current nutrition education in homoeopathy syllabus:

I think nutrition education is sufficient. -P5

I think the module that is done in 3rd year covers most things, so I don't think there's something that needs to be added. -P9

4.6.3.2 Dissatisfaction with current nutrition training in the homoeopathy syllabus

The rest of the participants showed dissatisfaction towards the current nutrition training in the homoeopathy syllabus at the DUT; some participants stated that the nutrition syllabus should be more localised and should focus on conditions that are common in South Africa:

I would say we should focus more on things that affect the southern part of Africa rather than us being taught everything that is also occurring in Europe or in the western world. -P1

One participant said there must be a platform for the advancement of nutrition training, for example what could happen to one's health status if there was over-nutrition and what could happen if there was under-nutrition:

I think we need to now create a platform whereby we don't just learn what there is, but we just need to add as to what it could cause if you have too much of it and what it could cause if you have less of it. -P2

Most participants seemed dissatisfied because nutrition in the current syllabus was not taught for long enough and they stated that nutrition was only taught in 3rd year; it should be taught at various levels of study because it plays a vital role in homoeopathic management:

I would suggest that we need to continue with nutrition from 3rd year to 5th year because it's such a very crucial module. It needs to be constantly polished and refreshed. -P12

I can suggest that instead of just doing nutrition in auxiliary therapy 3 only, I think there should be more modules and students should be taught nutrition from first year till they exit and I think more emphasis should be made about nutrition. -P11

I feel like we should have nutrition modules from first year to fifth year. -P4

We need to do more in-depth teaching on the different types of food because nutrition is more important, and it is very broad, it cannot just be a module for one year. We need to be educated about nutrition maybe two years at least. -P7

One participant suggested that nutrition should have its own module whereby it is separated from auxiliary therapeutics and taught alone as a module:

I think that we should have a separate module just on nutrition, helping us both for recovery, maintenance of health and specific to diseases, what sort of diet we should be looking at for different diseases, what we should be cutting out and what should be added. -P13

One participant suggested that nutrition must be made more practical:

I would want it to be practical; I would recommend that we become involved in nutritional activity, in nutritional campaigns with nutritional expert and nutritional organisations. -P3

Furthermore, one participant recommended that more studies be conducted in KwaZulu-Natal to identify common conditions and nutrition training should focus more on those common conditions:

Feasible study to check some of the common ailments that are found within KZN, and adding more diets that are specific for particular condition that we found prevalent in society and also greater emphasis in terms of the students from first year to fifth year having an in-depth knowledge and having questioning on nutrition to make sure that they are actually keeping up with it and improving the knowledge that they have. -P10

One participant identified affordability as a main issue with regards to purchasing healthy foods and she suggested that diets that are learned in nutrition training must accommodate ordinary people who cannot afford expensive foods:

I feel as though there should be more practical things where it's things that patients can afford. -P6

Lastly, one participant suggested that there should be annual debates on diet trends to improve the nutrition knowledge of students and that each student should create a diet plan:

We could have platform from like 3rd year where we discuss current diet trends, something that we could do yearly and have debates where we look at the pros and cons of current diet trends and maybe in 3rd year in auxiliary therapeutics we can put together a diet plan. -P8

4.7 Conclusion

Participants demonstrated sufficient nutrition knowledge; although most of them were not confident enough with their nutrition knowledge to manage lifestyle and nutritional diseases. Many participants stated that nutrition should be taught in all levels of study in the homoeopathy syllabus, not only in the third year of study. Furthermore, nutrition should be a separate module because it plays a vital role in homoeopathic management. The next chapter discusses the three themes that emerged from the study in relation to the relevant literature.

CHAPTER 5: DISCUSSION

5.1 Introduction

This research aimed to determine the knowledge, attitudes and perceptions of registered M. Tech: Homoeopathy students, on the role of nutrition in homoeopathic management of patients. The previous chapter contained thematic analysed knowledge, attitudes and perceptions of M. Tech: Homoeopathy students regarding the role of nutrition in homoeopathic management. This chapter discusses the three themes that emerged from the data in relation to relevant literature. Themes that emerged included knowledge of nutrition, perception of nutrition, and attitude towards nutrition. Topics are discussed as follows:

- Demographic characteristics of participants
- Knowledge of nutrition
- Perception towards nutrition
- Attitude towards nutrition

5.2 Demographic characteristics

5.3 Gender

As shown in Table 4.1, seven participants were females and six participants were males. According to Babaletakis (2006), practitioners and people seeking to study homoeopathy comprise a higher proportion of females than males. This is not only seen in South Africa, but also globally. According to Courage (2006), the number of female students registered for homoeopathic courses is greater than the number of male students. In this research study, it was seen that the number of female and male participants were evenly distributed. The gender balance may be due to the small sample size, which was a total of 13 participants.

5.3.1 Age

As shown in Table 4.1, the age of participants ranged between 23 and 29 years old. Most participants were between ages of 23 and 24 years. The age group with the least

number of participants were between 27 and 29 years old. This may indicate that the oldest age group was doing the second year of study at the Master's level.

5.3.2 Race

The total number of participants was 13, with only one white participant and the rest being blacks. On the contrary, in a study conducted by Babaletakis (2006), white homoeopathic graduates comprised 87% and Indian homoeopathic graduates comprised 11%. In addition, a study conducted by Courage (2006), had a majority of white homoeopathic graduates comprising 63% and Indians comprising 31%. Increased ethnic diversity may be due to the increased awareness of homoeopathy among the different ethnic groups in South Africa (Courage 2006). Furthermore, there is an increase in the number of black students that apply for the course in DUT; hence the intake now has a majority of black students (Babaletakis 2006).

5.4 Theme One: Knowledge of nutrition

5.4.1 Identification of nutritional and lifestyle disease and the management

Nutrition knowledge plays a significant role in the identification of nutritional and lifestyle diseases as well as their management. Students need to have adequate nutrition knowledge and be well equipped to manage various nutrition-related conditions. Participant 1 said that knowledge of nutrition in M. Tech: Hom students is solid because a lecturer who also practised good nutrition lifestyle taught nutrition, therefore it was easy for students to understand nutrition. Nutrition training is directly linked to nutrition knowledge, for example good nutrition training would result in good nutrition knowledge hence Participant 1 stated that their basic knowledge of nutrition is satisfactory because they received adequate nutrition training. Identification of diseases is one step towards positive clinical outcomes (Willett and Leibel 2002).

Lifestyle and nutritional diseases that were identified by participants included diabetes mellitus, high cholesterol, hypertension and scurvy. Furthermore, one participant explained management of scurvy; he said scurvy could be managed by vitamin C intake because vitamin C strengthens the collagen of blood vessels, and that citrus fruits are

good sources of vitamin C. Nutritional training should be included in the curriculum from first year to fifth year so that homoeopathic students feel more competent to manage diseases through nutrition (World Health Organization 2002). Diabetes mellitus, hypertension, and heart disease have been associated with poor eating habits, due to the lack of nutrition knowledge. Equally important, during the interviews one participant stated that healthy eating habits could prevent diabetes mellitus, hypertension and high cholesterol. Patients need to be educated on nutrition so that they are able to prevent nutrition-related conditions such as obesity and cardiovascular diseases (World Health Organization 2002). An improvement in nutrition knowledge could reduce the incidence of many chronic conditions as healthcare providers would be able to identify diseases and manage them accordingly (Pignone *et al.* 2003). It was noted that all participants mentioned the same nutritional and lifestyle diseases (diabetes, hypertension, anemia, obesity and cancers), which may indicate that they received similar nutrition training during their studies.

The DASH diet was mentioned as being effective in the management of hypertension. The DASH diet is the most effective dietary approach to improve hypertension (Siervo *et al.* 2015); these responses by participants reiterated the importance of knowledge in nutrition. If nutritional and lifestyle diseases are identified in their early stages, they can be more efficiently managed (Siervo *et al.* 2015). In support of Siervo *et al.* (2015), another participant mentioned that the DASH diet can assist with reducing blood pressure, instead of relying on medication. Diet is a tool that can be used to prevent or manage the diseases by any patient instead of using chronic medication to prevent or manage the diseases, which can cause adverse side-effects.

5.4.2 Education

All participants demonstrated a satisfactory knowledge of nutrition even though a few of them were not confident in their nutrition knowledge. One participant said that more research on the relevance of nutrition is needed to increase nutrition knowledge among homoeopathy students. Additionally, another participant mentioned that his nutrition knowledge was not acquired in class, but through self-study. Nutrition training should be adequate to produce competent homoeopathic graduates.

According to Baute *et al.* (2017), without adequate nutrition training, medical school graduates are not well equipped to help patients to adopt healthy lifestyles. In the present study, most participants argued that their nutrition knowledge was not current, because they only received nutrition education in their third year in auxiliary therapeutics. However, new diet trends are introduced regularly, therefore their nutrition knowledge may be inadequate and not current.

Despite nutrition knowledge being rated inadequate by most participants, a few participants rated their nutrition knowledge as adequate. Adequate nutrition knowledge is important in homoeopathic management because nutrition and homoeopathy work hand in hand. Additionally, if the patient is not educated on how to eat or what to eat and what not to eat, poor nutrition can be a maintaining factor hindering the healing process (Hu *et al.* 2001).

Patient education is very important because patients want to be involved when they are being treated for a certain condition, and they want to be educated. Participants stated that they use nutrition knowledge to educate patients. For example, if they suffer from allergic sinusitis and certain flower pollens are the triggers, and they are educated adequately, they will avoid the trigger or anything that exacerbates the allergic sinusitis signs and symptoms. Some participants mentioned that patients should learn to listen to their bodies, because often our bodies usually crave what they lack. For example, in pica (an eating disorder characterised by persistent ingestion of non-food items with no nutritional value), the body may lack iron (Lopez *et al.* 2016).

5.4.3 Dietary and supplementation advice to patients

Nutrition is a foundation for any health science field because it is supportive in different conditions and different stages of life, and can be curative in some conditions. Moreover, nutrition knowledge helps in diagnosing patients. Health promotion from the early stages in life can foster healthy eating practices. This, along with regular physical activity, has the potential for a major impact on health and well-being, during childhood and later stages in life (Caraher *et al.* 2017).

A healthy, balanced diet with adequate and appropriate supplementation can play an important role in homoeopathic management, therefore M. Tech: Hom students should be well equipped to give nutritional advice competently. Participants emphasised that giving dietary and supplementation advice to patients can improve clinical outcomes in patients suffering from various conditions, particularly those related to poor nutrition. One participant said that if the patients continue to eat unhealthy foods while they are being treated for a certain condition, homoeopathic remedies alone would not make any difference. The effects of homoeopathic remedies need to be reinforced by good nutrition. Nordvik *et al.* (2001) conducted a study to investigate whether supplementation with fish oil (omega 3) in patients with newly diagnosed multiple sclerosis influenced the clinical outcome. The results indicated that fish oil supplementation when given together with dietary advice can improve the symptoms of multiple sclerosis, therefore yielding a favourable clinical outcome. Furthermore, Bozonet *et al.* 2015 conducted a study to assess the effect of dietary supplementation with vitamin C-rich SunGold kiwifruit on four important functions of neutrophils: chemotaxis, oxidant generation, extracellular trap formation, and apoptosis. Fourteen young men (aged 18–30 years) with suboptimal plasma vitamin C status (<50 µmol/L) were supplemented for four weeks with two SunGold kiwifruit/day. Data indicated that supplementation with vitamin C-rich kiwifruit was associated with improvement of important neutrophil functions, which would be expected to translate into enhanced immunity

5.5 Theme Two: Perception of nutrition

5.5.1 Identification of nutritional and lifestyle disease and the management

Participants had similar perceptions of nutrition. Similar perceptions could be a result of receiving the same nutrition training. According to Goodwin (2015), the environment can influence perception through hearing, taste, sight, smell and touch. The fact that M. Tech: Hom students received the same nutrition training may have resulted in them having a similar perception of nutrition.

Participants perceived the following diseases as being nutrition-related: type 2 diabetes mellitus, hypertension, liver failure, obesity, hyperthyroidism, cholecystitis, iron deficiency anaemia, hyperlipidemia, stroke, cancer, candidiasis, electrolytes imbalance, HIV, marasmus, kwashiorkor, leaky gut syndrome, osteoporosis, vitamin deficiencies and scurvy. This is consistent with what Wolfram *et al.* (2015) considers as nutrition-related conditions. This includes the major diseases, for example diabetes and cardiovascular diseases. Nutrition can make a positive difference in any condition; therefore, students need to have received adequate training on the nutritional management of nutrition-related diseases (Wolfram *et al.* 2015).

Participants had various perceptions on nutritional conditions. One participant explained that scurvy could be managed by eating citrus fruit to strengthen the collagen of the blood vessels, because citrus fruit contains vitamin C. Vitamin C contains antioxidants which enhance collagen formation and can improve clinical outcomes in patients with scurvy (Scartezzini *et al.* 2006). However, scurvy is most common in developing countries, due to malnutrition (Baradhi, Vallabhaneni and Koya 2018).

Secondly, another student mentioned the management of hypertension and diabetes. In hypertension, salt and fat need to be reduced and the patient must exercise. In diabetes, glucose must either be decreased or increased depending on the current state of diabetes but most commonly glucose needs to be decreased. Compliance with medication by patients has become a common and major problem. This is due to the resistance of polypharmacy by some patients. The resistance stems from multiple doses, quantity and the adverse side-effects associated with the medication (Sueta *et al.* 2015). Patients seek alternative ways to manage their chronic conditions and as a result use of complementary and alternative medicine has exponentially increased over the recent decades (Jacobsen *et al.* 2015). In this present study, one participant mentioned the management of diabetes with low glycemic index foods and management of hypertension with the low salt diet. Nutrition management of patients suffering from various conditions are noninvasive and have less or zero side effects (Opie 2015: 5-7).

Instead of using expensive and invasive conventional methods to treat or prevent constipation (Werth, Williams, and Pont 2015), in this present study one participant explained that constipation could be managed in a noninvasive way through increased water intake and increased intake of fibre-rich foods. High fibre intake has multiple benefits including controlling cholesterol levels and preventing colon cancer (Werth, Williams, and Pont 2015).

5.5.2 General perception of the role of nutrition

In the present study, participants perceived the role of nutrition as both negative and positive. They indicated that undernutrition or overnutrition could lead to diseases, while balanced nutrition could treat or prevent diseases. One participant mentioned an example of vitamins; he said excess vitamins could be toxic to the body, they could cause hypervitaminosis. Nevertheless, in certain cases, additional vitamins could be required to correct a deficiency, thus improving clinical outcomes (Kennel, Drake and Hurley 2010). This concurs with Lee *et al.* (2008), who mentioned that a high dosage of vitamin D is needed to prevent cardiovascular conditions, diabetes, inflammation and hormonal imbalance. Some participants said that nutrition strengthens the vitality of the patient that is being treated, so they will be more sensitive to the medication that is prescribed to them. Quality of food is very important for diseases prevention and treatment, preferably patients should use food that is whole, organic and food that is free from preservatives and synthetic colourants, because food that is of good quality is rich in nutrients (Kennel, Drake and Hurley 2010).

Although nutrition plays an essential role in disease management and nutrition education may be given to patients, there is no guarantee that they will use the advice given to them (Jacquier *et al.* 2012).. This is because individuals' food choices may be affected by learned behaviour acquired and established in day-by-day life encounters attributable to a combination of economic factors, social factors, and consciousness of health risks. Furthermore, advantages of good dieting, personal pleasure, and general choice should be unconstrained with food selections (Jacquier *et al.* 2012). All participants recognised the importance of nutrition in disease and considered nutrition education applicable to their future practice.

5.6 Theme Three: Attitude towards nutrition

5.6.1 Awareness of nutrition

All participants had favourable attitudes towards using nutrition in their homoeopathic management. Attitude towards nutrition was strongly influenced by economic factors. Some participants had positive attitudes towards nutrition but because of the environment they lived in, they could not avoid junk food – shops around them sold only junk food. Affordability was also a major issue because they considered healthy food as expensive, and only afforded by affluent people. This concurs with the study that was conducted by Kettings, Sinclair and Voevodin (2009) on two typical welfare-dependent families, calculating the cost of meal plans and total cost in relation to income. Results showed that healthy food was too expensive for welfare-dependent families. Healthy food is expensive to buy; low-income patients cannot afford to buy it (Voevodin 2009).

Most participants were conscious of their own eating and were influenced by studying homoeopathy. They wanted to lead by example to their patients. Some participants were conscious of their eating habits because of family history of inheritable conditions such as diabetes.

Some participants mentioned that they tried to adopt healthy eating habits with limited funds. One participant said she was conscious of healthy eating, but she did not follow it because healthy food did not taste nice. Verbeke (2006) also agrees that healthy foods do not taste nice and this results in people not adopting healthy eating habits. However, not all healthy foods are unappealing and healthy spices for example Himalayan salt and black pepper could be used to improve the taste of the food (Verbeke 2006).

One participant with a positive attitude towards nutrition said that nutrition helps with optimal brain function and healthy eating habits help to maintain health. Therefore, nutrition can be beneficial to both students and patients (Verbeke 2006).

5.6.2 Lack of awareness of nutrition

A few participants had a negative attitude towards nutrition, and did not take any personal interest in nutrition. They said that they ate whatever they felt like eating and

were not conscious of nutrition. Lack of nutrition knowledge could be the result of not being conscious of own nutritional choices. Due to inability to afford healthy food, which is common with tertiary education students, some participants were not conscious of their own nutritional choices. It is difficult for some students to be health conscious because they can only afford cheap unhealthy food and shops around the university sell cheaper, unhealthy fast foods.

5.6.3 Education

Homoeopathic doctors and homoeopathic students play an integral part in providing dietary and nutritional advice to patients (Kent 1912). Generally, participants had a positive attitude towards nutrition, but were unsure regarding the effectiveness of nutrition education in improving the lifestyle of patients. They were not confident in their self-efficacy to offer nutrition care, therefore it is advised to refer to nutrition professionals such as dieticians and nutritionists who are trained to offer nutritional care.

Only two participants thought that nutrition education in the current homoeopathy syllabus was adequate. They stated that auxiliary therapy, in which nutrition is embedded, covers many important topics. Having adequate nutrition knowledge could boost the confidence of the M. Tech: Hom students when they consult with patients.

Most of the participants were not satisfied with the current nutrition training education in the homoeopathy syllabus. They were dissatisfied with the amount of time dedicated to the nutrition training. They felt inadequately prepared based on their current nutrition training to offer nutrition care to patients. If M. Tech: Hom students feel that their nutrition training is inadequate, it could result in them not giving nutrition advice when they consult with patients. This is consistent with the findings from the study that was conducted by Mogre *et al.* (2017), which investigated Ghanaian undergraduate clinical level medical students' satisfaction with their current nutrition training. It was found that students did not feel confident enough to provide nutrition care to patients and felt that the time dedicated to nutrition education was not enough (Mogre *et al.* 2017).

Participants who were not satisfied with the current nutrition training and recommended that nutrition should be a dedicated subject, and should be taught from first year to the master's degree year of study, and it should be more practical. Furthermore, students should be given substantial nutrition assignments to complete each year, so that there will be increased exposure to practically applying theoretical knowledge.

Some participants recommended a platform whereby students could interact with nutrition experts and nutritional organisations so that they can gain practical nutrition experience. Lastly, it was suggested that nutrition training should be specific to diseases and nutrition for recovery and maintenance of health. Practical nutrition education programmes could improve dietary attitudes and knowledge students (Kyeon, Jang and Kim 2006).

5.7 Conclusion

Participants recognised the importance of nutrition in the management of diseases. They had a positive attitude towards nutrition care, but mentioned important shortcomings in nutrition knowledge and were not confident to provide nutrition care; therefore it is advised to refer to nutrition professionals. However, they demonstrated adequate nutrition knowledge of diseases, where nutrition is central to the treatment and management of clinical conditions. Incorporating the nutritional management of common conditions into the syllabus from first year of study to fifth year of study has the potential to favourably impact on patient clinical outcomes.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This study aimed to determine the knowledge, attitudes and perceptions of the role of nutrition in homoeopathic management in M. Tech: Homoeopathy students registered at the DUT.

This study was purposed to determine knowledge, attitudes and perceptions of the role of nutrition in homoeopathic management in M. Tech: Homoeopathy students using an interview questionnaire with the grand tour question being: What is the role of nutrition in the homoeopathic management of patients?

Thirteen semi-structured interviews were conducted with M. Tech: Homoeopathy students at DUT and a descriptive qualitative design was used. The previous chapter discussed the research findings in relation to the relevant literature. This chapter concludes the discussion by giving recommendations for future research.

The research findings may be used to improve the nutrition training in the homoeopathic course at DUT. The areas investigated were in relation to nutrition knowledge and nutrition-related diseases and the management. The data obtained from this study may help to advance the quality of the nutrition education in the homoeopathic community and to improve the quality of the nutritional advice given to patients to obtain positive clinical outcomes.

6.1 Conclusions

The results showed that M. Tech: Homoeopathy students at the DUT had satisfactory nutrition knowledge in homoeopathic management. However, they felt dissatisfied with the quality and quantity of the nutrition training in the current homoeopathy syllabus at the DUT and felt inadequately equipped to offer nutritional care, therefore it is advised to refer to nutrition professionals such as dieticians and nutritionists who are trained to offer nutritional care. Satisfaction with the quality of nutrition education plays a major role in enabling M. Tech: Homoeopathy students feel adequately equipped to offer nutritional care. Improvement in nutrition training can lead to an improvement in the

nutrition knowledge of M. Tech: Homoeopathy students and the homoeopathic community at large.

Participants perceived the role of nutrition in homoeopathic management as positive and negative. They said that undernutrition or overnutrition may cause diseases, while balanced nutrition can prevent and manage diseases (Kennel, Drake and Hurley 2010). Additionally, they stated that healthy food is rather expensive and could only be afforded by people with higher socioeconomic status. In addition, they perceived nutrition to be working hand in hand with homoeopathic treatment to ensure rapid, positive, clinical outcomes in patients with disease.

Most participants had a positive attitude towards nutrition. However, they were not satisfied with the nutrition training in the current homoeopathy syllabus at the DUT. In conclusion, participants suggested that there should be a separate nutrition module and nutrition should be more practical because homoeopathic doctors and homoeopathic students play an integral part in providing dietary and nutritional advice to patients. Furthermore, incorporating the nutritional management of a variety of common chronic diseases in the curriculum from the first year level of study to the fifth year level of study, has the potential to positively influence patient clinical outcomes.

6.2 Study limitations

The sample size was small because the department of homoeopathy at the DUT consists of small number of M. Tech: Hom students, therefore the findings cannot be generalised to larger populations with the same degree of certainty that a large quantitative study could. However, considering the fact that this is the first study in the Department of Homoeopathy in DUT to determine the knowledge, attitudes and perceptions of the role of nutrition in homoeopathic management in M. Tech: Homoeopathy students, , the findings lay the foundation for future studies on this subject. There was a lack of prior research studies on knowledge, attitudes and perceptions of homoeopathy students on the role of nutrition in homoeopathic management of the diseases. There was a lack of published studies on this topic, prior

studies could have formed the basis of literature review and assisted in laying the foundation for comprehending the research problem that was being explored.

6.3 Researcher's conclusion

Conducting this research was a useful experience for the researcher because the researcher obtained a view into the research participants' perceptions and in some instances, their tendency towards idealism. The researcher was able to gain insight and understanding of the role of nutrition in the homoeopathic management through participants' diverse responses. All participants willingly agreed to participate in this study. They all arrived on time for scheduled interviews. The researcher also gained some knowledge from participants regarding nutrition and how various diseases can be managed with nutrition.

6.4 Recommendations

Recommendations arising from the study should be considered by the Department of Homoeopathy at DUT and other institutions that offer homoeopathic training programmes, and for future research directions.

6.4.1 Recommendation to the Department of Homoeopathy at the DUT

The Department of Homoeopathy at the DUT should consider making nutrition education more practical and introducing a separate module for nutrition from the first year level of study to the fifth year level. Nutrition training in the M. Tech: Homoeopathy curriculum needs to be enhanced and improved in these areas: common conditions in South African such as diabetes mellitus, hypertension, HIV, thyroid diseases and cardiovascular diseases. Nutritional management of diseases may be incorporated into subjects such as Clinical Homoeopathy IV and Diagnostics IV and other clinical modules in the new BHSC curriculum. This would provide a holistic approach to diagnosis and treatment of diseases and conditions.

6.4.2 Future research directions

- Conduct a future study of the current Master's of Health Sciences in Homoeopathy (MHSc) after the first cohort of MHSc has completed their clinical practice component; this would allow for comparison of clinical application of nutrition in the M. Tech. graduates and MHSc graduates.
- A similar study should be conducted using a larger sample through a quantitative methodology and analyses, so that the findings can be generalised.
- A future study should be conducted with qualified homoeopaths who are practicing to assess their nutritional knowledge and competence to offer nutrition advice to patients in homoeopathic practices.
- A future study should be conducted on participants registered for similar qualifications such as M. Tech: Hom students at the University of Johannesburg and other Allied Health Professions training programmes such as Chiropractic at DUT and at the University of Johannesburg, in order to determine their nutrition knowledge and competence to give nutrition advice to patients.

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Appendices

Appendix A: Letter of Information



APPENDIX A

Title of the Research Study: Knowledge, attitudes and perceptions of registered Master's Degree Homoeopathy students, of the role of nutrition in Homoeopathic management.

Principal Investigator/s/researcher: (Name, qualifications)

Olwethu Sotondoshe- Bachelor's Degree of Technology: Homoeopathy

Co-Investigator/s/supervisor/s: (Name, qualifications)

Dr Madhushwaree Maharaj– Master's Degree in Technology: Homoeopathy

Thank you for showing interest in this study.

Brief Introduction and Purpose of the Study:

The purpose of this study is to determine the knowledge, attitudes and perceptions of registered M.Tech: Hom students, of the role of nutrition in Homoeopathic management of patients. This study is conducted to enhance the homoeopathic management offering to patients with regards to a holistic management of diseases and conditions. If the understanding and education of nutrition among student homoeopaths is well documented and understood, then recommendations will follow in the appropriate manner and context.

Outline of the Procedures:

A direct recruitment approach will be used where by the researcher will recruit M.Tech: Hom students. The researcher will give clear information of the study being conducted and the students will be offered an opportunity to voluntarily participate in the research being conducted. Interviews will take place at the convenience of the participant at the Homoeopathic Day clinic. The interviews will be conducted in a quiet and private space where the participant will feel comfortable and free to discuss relevant topics without distraction. Participation is strictly voluntary and prospective participants will not be coerced to participate, furthermore they will be free to withdraw from the interview at any stage of the interview without giving any reason should they choose to do so.

This letter of information will be given before interview mainly to participants who are willing to be part of the study and who meet the inclusion criteria. The next stage of informed consent will be detailed written consent which will be obtained from each prospective participant at the first formal meeting at this stage all the requirements of research participants will be disclosed, and the research process will be explained in detail, the participants will be given details of the study and benefits of participation and given opportunity to ask questions. Once fully informed of the research process and the participant is willing to participate they will sign an informed consent form and be formally recruited into the study. The researcher will conduct interviews using the interview guide (Appendices). Each interview will take approximately 45 minutes. The inclusion criteria of this study will be all Master's degree Homoeopathy students officially registered at DUT, both males and females who are willing to participate.

The exclusion criteria of the study will be students who did not give consent for study and students that are unregistered students.

The interviews will be facilitated and conducted by the researcher and they will be captured on audio recordings for accuracy of the participant's words. The audio recordings will be safely and securely stored by the researcher. This information will be anonymous, and password protected with access only to the researcher and supervisor.

Risks or Discomforts to the Participant:

Participating should not result in you experiencing any discomfort or any significant risks, there shall be no painful procedures that will be performed in this research.

Benefits:

Participants will benefit knowledge, awareness and knowledge about the importance of nutrition in treating and preventing diseases. The researcher is doing this research to obtain his Master's degree in Homoeopathy from DUT.

Reason/s why the Participant May Be Withdrawn from the Study:

There will be no coercion or pressure to participate and participants are free to withdraw at any stage with no explanation necessary. I may stop you from participating in the study if you don't come for appointments.

Remuneration:

There will not be any payment for your participation in this study.

Costs of the Study:

Participating in the study will not cost you anything.

Confidentiality:

Participant anonymity will be maintained as there will be no requirement for names or any other personal information to be supplied by the participant during voice recording. All information collected in the study will be kept strictly confidential. Your information will not be

available to anyone except the researcher and his supervisor. When I write up the research I will not mention any names and everything you tell me during the interview will remain confidential.

Research-related Injury:

The study shall not cause any injuries to the participants as there will be nothing given or administered to the participants; the study will mainly involve verbal interviewing of participants by the researcher.

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

Research supervisor: Dr Madhueshwaree Maharaj (0833882688) or

Researcher: Olwethu Sotondoshe (078516824) |

Institutional Research Ethics administrator on 031 373 2900.

Complaints can be reported to the DVC: Prof Moyo on 031 373 2576 or dvctip@dut.ac.za.

Appendix B: Letter of Informed Consent



CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Olwethu Sotondoshe, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: REC 126/17,
- 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 computerised 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
Thumbprint**

Date

Time

Signature / Right

I, Olwethu Sotondoshe 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

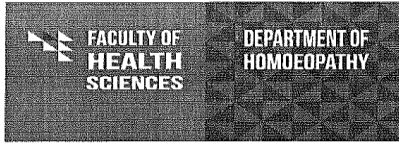
Signature

Full Name of Legal Guardian (If applicable)

Date

Signature

Appendix C: Research coordinator permission



APPENDIX C

17 November 2017

The Research Coordinator
Department of Homoeopathy
Durban University of Technology
Durban
4001

Request for Permission to Conduct Research

Dear Dr Couchman

My name is Olwethu Sotondoshe, a Master Degree student at the Durban University of Technology. The research I wish to conduct for my Masters dissertation involves the Knowledge, attitudes and perceptions of registered Masters Degree Homoeopathy students, of the role of nutrition in Homoeopathic management.

I am hereby seeking your consent to interview students in the consulting rooms of the DUT Homoeopathic Community Health Centre.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me on olwethu64@gmail.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Olwethu Sotondoshe
Durban University of Technology

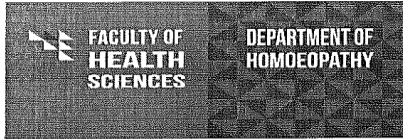
Researcher

17/11/2017
Date

Research coordinator

17/11/2017
Date

Appendix D: Clinic director permission



APPENDIX D

17 November 2017

The Clinic Director
Department of Homoeopathy
Durban University of Technology
Durban
4001

Request for Permission to Conduct Research

Dear Dr Ngobese-Ngubane

My name is Olwethu Sotondoshe, a Master Degree student at the Durban University of Technology. The research I wish to conduct for my Masters dissertation involves the Knowledge, attitudes and perceptions of registered Masters Degree Homoeopathy students, of the role of nutrition in Homoeopathic management.

I am hereby seeking your consent to interview students in the consulting rooms of the DUT Homoeopathic Community Health Centre.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me on olwethu64@gmail.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Olwethu Sotondoshe
Durban University of Technology

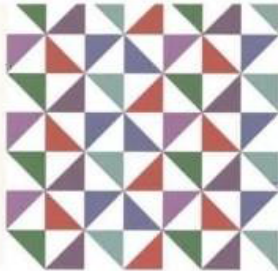
Researcher

17/11/2017
Date

Clinic Director

17/11/2017
Date

Appendix E: IREC approval



Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375

Email: lavishad@dut.ac.za

http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

6 February 2018

IREC Reference Number: **REC 126/17**

Mr O Sotondoshe
17 Mambambo Road
Cato Manor
Durban
4091

Dear Mr Sotondoshe

Knowledge, attitudes and perceptions of registered Master's Degree Homeopathy students, of the role of nutrition in Homeopathic management

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letters.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Professor J K Adam
Chairperson: IREC



Appendix F: Interview questionnaire

Question guide

Knowledge, attitudes and perceptions of registered Master's Degree Homoeopathy students, of the role of nutrition in Homoeopathic management.

Grand tour question:

- What is the role of nutrition in the homoeopathic management of patients?

Sub Questions

- What is your general perception of the role that nutrition plays in diseases?
- Describe some conditions that you feel may have an association with nutrition.
- To what extent are you conscious of your own nutritional choices as a student homoeopath?
- What is the knowledge base of Masters Homoeopathy students of the role that nutrition plays in homeopathic management of disease?
- Describe how the study of nutrition in the current homoeopathy programme allows you to make recommendations on nutrition in your management of a patient.
- What are possible recommendations that you suggest for nutrition education in the Homoeopathy syllabus.

Appendix G: Themes

1. Knowledge of nutrition

Theme	Knowledge of nutrition		
subthemes	Identification of nutritional and lifestyle disease and their management	Education	Dietary and supplementation advice to patients
Codes	<ul style="list-style-type: none"> • Diabetes mellitus, hypertension, high cholesterol, • Scurvy which is a vitamin C deficiency can be managed by eating food rich in vitamin C, for example oranges to help strengthen the collagen to stop the blood loss. • Improvement of lifestyle can result to positive clinical outcome in obesity and diabetes • Exercise and reduction of fats and salt can improve hypertension and diabetes can be improved by glucose increase or reduction. • The dash diet assists with bringing down the blood pressure instead of relying on medication. • Nutrition can manage diabetes and hypertension better than medication • Nutrition provides appropriate nutrient to improve diabetes, hypertension and 	<ul style="list-style-type: none"> • Patient education • Master's students' nutritional knowledge • Nutrition education, to educate patients • Educate patient on healthy diet • Healthy foods that can manage or prevent common conditions, more especially nutrition-related conditions • More research on nutrition to advance nutritional knowledge • Only two diets studied namely dash diet and Mediterranean diet • To give nutrition recommendations to patients with nutrition-related conditions, eg diabetes. • Study of nutrition helps with diagnosing and preventing certain conditions <p>Not enough nutrition education in the homoeopathy programme</p>	<ul style="list-style-type: none"> • Dietary advices to patients • Nutritional study empowers with nutrition knowledge to make nutrition recommendations to patients more especially in vitamin deficiencies • To recommend a healthy diet to the patients • Dietary advices on what food to eat and what to not eat • Nutritional advices appropriate for the diagnosed condition • Giving advices to patients because some of the diseases are caused by nutrition deficiencies • In 5th year level is easier to advise patients on nutrition because of auxiliary therapeutics • Advise patient according to the condition they have and to rule out in their diet what to take in. • Give recommendations to patients with poor lifestyle related conditions, but one has to consider the affordability

	anaemia and also provides nutrients in pregnancy		
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2. Perception towards nutrition

Theme	Perception towards nutrition	
Subthemes	Identification of nutritional and lifestyle disease and their management	General perception of the role of nutrition
Codes	<ul style="list-style-type: none"> • diabetes mellitus type 2, hypertension, liver failure, obesity • Cholecystitis, diabetes mellitus, goitre, hyperthyroidism • Iron deficiency anaemia, obesity and hyper or hypothyroidism • Anaemia, diabetes mellitus, hyperlipidaemia, liver conditions • hypertension, diabetes mellitus, liver cirrhosis, stroke • Diabetes mellitus from bad lifestyle and poor diets, high blood pressure, cardiovascular diseases, hyperlipidaemia • vitamin B12, Anaemia, diabetes, hypertension, cancer • Diabetes mellitus, hypertension, candidiasis, cholesterol • Electrolytes imbalance, hypertension, main chronic diseases, type two diabetes • HIV, diabetes, anaemia • Marasmus, kwashiorkor, leaky gut syndrome, anaemia, diabetes • stroke, diabetes mellitus, obesity, osteoporosis, vitamin deficiencies, scurvy, anaemia • Scurvy can be treated by vitamin C because vitamin C strengthen the collagen and stop the bleeding • Hypertension can be controlled through reducing salts and fats in the diet, and exercising as well and diabetes can be controlled by glucose reduction or increase • The dash diet assists with bringing down the blood pressure <p>In diabetes mellitus management,</p>	<ul style="list-style-type: none"> • nutrition plays a very big role in the disease and too much of everything is a problem – too much nutrition can lead to diseases • Excess nutrition causes diseases and right nutrition is curative without taking any medication • Deficiency or an excess of nutrition causes a condition • Living a healthy lifestyle and eating healthy food increases lifespan and eating junk might lead to diseases • Nutrition prolongs life • Right nutrition promotes health whereas wrong nutrition maintains/ worsens a disease • Good nutrition prevents diseases but bad nutrition maintains diseases • Deficiency causes diseases but right nutrition promotes health • Patient reinforcement • Poor nutrition leads to diseases and maintains the diseases • Reduce disease severity and it can also worsen the condition • Good nutrition is good for recovery but poor nutrition can lead to diseases

	low GI can be helpful and in allergies he roughage might be helpful wheat might have to be ruled out and in constipation, more liquid intake and	
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3. Attitude towards nutrition

Theme	Attitude towards nutrition		
Subthemes	Awareness of nutrition	Unawareness of nutrition	Education
Codes	<ul style="list-style-type: none"> • Aware of nutrition but as a student junk food cannot be avoided since it is sold all over the campus. • It's difficult to be conscious but listening to what body needs is vital • Conscious but restricted by financial problems at time • Very conscious and normally eat half-cooked or half boiled vegetables and buy quality vegetables • Very mindful about nutrition despite being a student with limited funds • Conscious but doesn't follow a strict diet because of financial restrictions • Aware of proper balanced nutrition • Conscious of nutrition status but does not practise it, being a student; only eat whatever is affordable. • Very conscious , eat properly to maintain health and when sick to return to health 	<ul style="list-style-type: none"> • Not conscious of nutrition due to negligence • Not conscious, eating whatever desired • Not conscious due to affordability, and limited time • Not conscious, due to financial restrictions 	<ul style="list-style-type: none"> • Nutrition education is enough nothing has to be added • Attention must be on diseases affecting people living in South Africa rather diseases that a most prevalent in Europe. • Students need to be taught about consequences of overnutrition and undernutrition • Nutrition must be more practical whereby students will be involved in nutrition activities and campaigns with nutrition organisations and experts • There must be nutrition modules from first year to fifth year. • Nutrition must be practical and affordability has to be considered as well • Education on different types of food and extending

			<p>nutrition years of study to two years at least.</p> <ul style="list-style-type: none"> • Students should have a platform where they discuss about current diet trends and also look at pros and cons of those current diet trends, furthermore in 3rd put a diet plan together. • Nothing must be added because auxiliary therapeutics covers everything • Feasible study on common conditions in KZN and diets for specific condition, furthermore a continuous nutrition module from 1st to 5th year. • Nutrition should be taught from first year to fifth year • Nutrition must be taught from 3rd to 5th year because it is crucial in homoeopathic management • A separate module on nutrition for recovery, maintenance of health and specific to diseases
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