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B.Sc.(Hons) Complementary Healthcare

Practitioners’ views about the role of physical massage and reflexology in managing secondary complications of diabetes

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DECLARATION

I hereby declare that this dissertation is the result of my own independent investigation under the supervision of my tutor. The various sources to which I am indebted are clearly indicated. This dissertation has not been accepted in substance for any other degree and is not being submitted concurrently for any other degree.

Candidate's signature: ____________________
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This project is dedicated to my grandmother Isabel d’ Abreu de Paulo who also had diabetes. Love you always.
Abstract

Background:
The increasing prevalence of diabetes is a major cause of morbidity and mortality. Many people with diabetes mellitus (DM) face multiple complications if not well controlled. Pharmacological remedies are not always successful and not without adverse effects (Çakici et al., 2016). The consideration is that complementary therapies such as massage and reflexology could be useful in the management of DM because they are holistic and natural approaches (Moraska et al., 2010). The aim of this study was to get an understanding about the role of physical massage and reflexology in the management of secondary complications of diabetes.

Research question:
What are practitioners’ views about the role of physical massage and reflexology in the management of secondary complications?

Method:
Semi-structured interviews were conducted with massage and reflexology practitioners. The interviews were transcribed verbatim and subjected to interpretative phenomenological analysis (IPA).

Results:
The findings indicate that physical massage and reflexology are viable therapies to complement allopathic medicine in the management of diabetes.
Conclusion:
This study promotes the various benefits of massage and reflexology for people with DM from the practitioners’ perspective. Further research is warranted to explore the client’s understanding about health and wellbeing and efficacy of physical massage and reflexology.
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1. Introduction

Diabetes is a growing public health concern, nationally and internationally. Its cost is a great expense for the national healthcare services and the community (Diabetes UK, 2016). More than £25,000 is being spent on patients with diabetes every minute (Diabetes.co.uk, 2017). The prevalence of people with Diabetes in the UK was nearly 3.5 million people (Diabetes UK, 2017; Lee et al., 2015). Globally, it was estimated that in 2015, 415 million people were suffering from diabetes (Diabetes, 2016; International Diabetes Federation, 2015). The proposal is that the expectancy of cases of diabetes mellitus will increase. Around 2040, in every 10 adults one individual will get diabetes. As the population ages the higher the occurrences.

Diabetes mellitus (DM) is a multidimensional disease that is categorised by insulin resistance and insulin deficiency that leads to atypical homeostasis of glucose, lipid and protein (Pandey et al., 2011). DM is considered a chronic condition because of the long-term effects and progressive effect.

The current study focused on two main common forms of diabetes: diabetes mellitus type 1 (DMT1) and DMT2 (Holt and Hanley, 2012). There are other types of DM like gestational diabetes, diabetes insipidus, and maturity onset diabetes of the young, neonatal diabetes (Diabetes UK, 2016). These types of DM are excluded from the present study. Hereditary and environment are among the most important factors for causing the disease (Holt and Hanley, 2012).
There are various health complications associated with the disease related to physiological and psychological health and wellbeing. Health complications include; fatigue, numbness, pruritus, depression, cardiovascular malfunction, nephropathy, retinopathy, peripheral neuropathy and even erectile dysfunction (Diabetes UK, 2015; Holt and Hanley, 2012). Pharmacological remedies used to manage the disease may also have adverse side effects, which need to be addressed and may contribute to the complications (Yang et al., 2015). Lee et al (2004) suggested that people with diabetes use complementary and alternative medicine (CAM) as a replacement to orthodox medicine. This is related to the adverse side effects of these medicines therefore they stagnate its use.

Stress also appears to cause DM and further health complications such as depression (Wändell et al., 2012). Fitzgerald (2009) also found that perceived stress is a major cause of DM because of elevated an elevated level of the stress hormone noradrenaline. The stress originated in the constant demand for intensive self-care, dedication and patience (NICE, 2009). When the person is in a stressful situation the body releases stress hormones like cortisol, norepinephrine and epinephrine. These hormones activate the sympathetic nervous system causing a disturbance in the regulation of blood glucose (Sajedi et al., 2011). In contrast to the findings of Yang et al (2015), who suggested that the complications of DM predominantly correlate with aging, lifestyle as well as stress. Studies by Pumthong et al (2015) and Wändell et al (2012) also advocated that stress can cause DM. Therefore, treatments such as massage and reflexology should be considered to reduce stress (Wändell et al., 2012).
Massage and reflexology are treatments that are helpful in managing the disease to improve wellbeing of people with DM. These treatments tend to be useful for the most common complication of DM, which is peripheral neuropathy (Dalal et al., 2014; Magalhães-da Silva et al., 2015; Castro-Sánchez, et al., 2011; Chatchawan et al., 2015).

Despite the challenges that people with DM has been facing when managing their condition, and the growing popularity of CAM, few research has considered the value that it adds to the integration of conventional medicine to help them improve their health and wellbeing. Research into the benefits of massage and reflexology when treating this group of clients has focused primarily on the patient’s perspective. There is little research where the practitioner’s point of view is considered. This is needed in order to gain an in-depth insight of the phenomena.

The purpose of this study was to explore the practitioners’ experiences and views about the beneficial effects of reflexology and massage in the treatment of secondary complications of DM, and the factors that can have an impact on the therapies, as well as cautions that need to be taken into considerations. It will be a good way of signposting patients and guiding therapists. Likewise, it could help to build on a plausible future research project in therapeutic massage and DM.
2. Review of the Literature

This review examined previous studies on the practitioners’ views about the role of massage and reflexology in the management of secondary complications of diabetes. A wide range of electronic databases was used to initiate a literature search for previous studies associated with the project. Searches accessed across Cardiff Metropolitan University (Met Search) included books and journals such as Complementary Therapies in Medicine, Evidence-Based Complementary and Alternative Medicine, Medical Science Monitor Basic Resource, DIABETIC Medicine, Diabetes Spectrum, Pharmacoepidemiology and Drug Safety, BioMed Central Family Practice, Revista Latino-Americana de Enfermagem, Journal of Bodywork and Movement Therapies and Diabetes & Metabolism. Further, relevant databases such as Science Direct, PubMed and NHS Evidence were searched. The timeline for the journal publications that were included in the literature search was between 2010 and 2017. The keywords used in the literature search were diabetes, complications, massage, reflexology, complementary therapies and alternative medicine, CAM, experiences, therapists and interpretative phenomenological analysis.

The electronic search of the literature found 18 research papers from journals of which 5 were directly relevant for the current study. The sources were Acta Medica Iranica, Medical Science Monitor Basic Research, Complementary Therapies in Medicine, Evidence-Based Complementary and Alternative Medicine and Latino-Americana de Enfermagem. Two books relating to qualitative research and another book on Interpretative Phenomenological Analysis were included in the search for their relevance to the study project. Three other relevant books about massage were
used, one about reflexology and the other concerning endocrinology in diabetes. All the books that were found to be useful in this study were included in the literature search.

2.1 Diabetes and secondary complications

Diabetes mellitus (DM) is a complex metabolic, chronic condition that can affect people of all ages depending on its type (Dalal et al., 2013; Holt and Hanley, 2012). It is categorized by insistent hyperglycaemia because of atypical insulin secretion, insulin activities or both. There are two main types of diabetes: type 1 and type 2 diabetes. A fasting plasma glucose test is required to diagnose DM (Diabetes UK, 2016). Type 1 diabetes is mainly because of the autoimmune destruction of the beta cells produced by the pancreatic islets. Common symptoms of diabetes type 1 are weight loss, polydipsia and polyuria, but also infection. Type1 diabetes is managed by intermittent or continuous subcutaneous insulin administration. Healthy diet and exercise are also part of the medicine regimen (Holt and Hanley, 2012).

The key components of the pathogenesis of type 2 DM are genetic tendency and environmental features. These creates the dysfunction of insulin resistance as well as insulin secretion to the insulin activities (Holt and Hanley, 2012). People with a family history (first-degree relative) of DM, who are obese or have an inactive physical lifestyle, are more likely to be at risk of DMT2. Typical symptoms of DMT2 are polyuria, nocturia, fatigue, blurred vision and polydipsia (Holt and Hanley, 2012). To date there is no cure for DM. DMT2 can be treated with a healthy diet and physical activity. If these methods failed to maintain a normal glycaemia, oral antidiabetic agents are necessary (National Institute for Health and Care Excellence
Complications linked to uncontrolled glycaemia include primarily hypoglycaemia and hyperglycaemia (Holt and Hanley, 2012). After being hyperglycaemic for a prolonged period, several secondary complications will be developed on microvascular level and macrovascular level. Microvascular conditions are those affecting the vision (retinopathy), the kidney (nephropathy), the nerves (numbness, peripheral neuropathy) (Pumthong, et al., 2015; Holt and Hanley, 2012; Dalal, et al, 2015) and pruritus (Pumthong, et al 2015). Macrovascular issues are referred to peripheral arterial disease, myocardial infarction and stroke (Holt and Hanley, 2012). Psychological complications such as stress (Harris, et al 2017) and depression as well as erectile dysfunction in men (Holt and Hanley, 2012; Chaudhary, 2016) and severe tiredness (Pandey, et al., 2011) may be apparent.

The most common secondary complication of diabetes (on a microvascular level) is peripheral neuropathy (PN). PN causes imbalance, loss of sense and the loss of movement perception (Chatchawan et al., 2015). A randomized parallel-controlled trial was conducted using a physical therapist and a traditional Thai massage therapist. In this study, Chatchawan and colleagues (2015) used primary outcome measures like time up and go test (TUG). The secondary outcome measures were one-leg standing test (OLS), range of motion (ROM) of first metatarsophalangeal, ankle and knee joints, and sensation of the foot using the Semmes-Weinstein Monofilament Test. The data were collected before the intervention, after and at follow-up period of two weeks. It was analysed statistically.

Sixty patients with DMT2 between the ages of 40 and 70 were recruited from the hospital. The participants were randomly assigned to an intervention group and a
control group. The massage protocol was performed 3 times a week and each session lasted 30 minutes for two weeks. The sessions took place in the hospital parallel to the control group but in a different treatment cubicle. The control group received health education containing 10 guidelines for foot self-care and to practice daily active foot exercise movements towards the ankle dorsiflexion/plantarflexion at home for 5 to 10 minutes. The health education took place at the hospital and lasted 30 minutes.

The strength of this paper is that all the participants that were recruited completed the interventions and all collated data were analysed. The protocol for the Thai foot massage was described in detail according to the pattern of the Royal Thai Massage. A key limitation of the study was that the control group was doing their exercises at home as well as at the hospital. This shows that their control method was weak. The researchers did identify their own limitations, which makes it a robust study. The researchers suggested that the limitation of their study was that the improvement of the timed up and go (TUG) in an active control group was related to the lack of inter-reliability and intra-reliability of TUG in the patients with diabetes. Another limitation was that the duration of the interventions was questionable. The researchers could not identify an exact duration of an intervention to be considered as suitable. The exact long-term duration of the improvement of mobility and balance in the patients with diabetes with PN was also unidentifiable. Therefore, the findings of this study were inconclusive. Further study was needed to consider the long-term effect of these improvements.
2.2 Stress as a major cause of DM

As stress is strongly associated with the development of DMT2, it should be treated to promote health (Wändell et al., 2011). The consideration is that stress is directly connected with endocrine effects and indirect effects exacerbated by risk factors like diet, obesity and lifestyle. For instance, stress can impede the possibility of being active. When the body is in a stressed state, stress hormones like cortisol and adrenaline are released and have a counter-regularity effect on insulin (Harris et al., 2017). A person that is exposed to long-term stress will make the body more susceptible to DM. A 12-year longitudinal Australian study (n=12,844) by Harris et al., (2017) found a strong association between psychological stress and DMT2. They reported that perceived stress by middle-aged women is a stronger risk factor for the onset of DM than the known risk factors like hypertension, physical activity, and body mass index.

Since the evidence suggests that massage can promotes relaxation it should therefore be included in a stress management regimen for people with DM (Wandell et al., 2012; Pumthong et al., 2015). Having a good stress management strategy reduces the risk of developing DM but simultaneously decrease blood glucose level (Pumthong et al., 2015). Unfortunately, most studies that have demonstrate the efficacy of massage on stress were small-scale studies that have little or no statistical power to detect treatment efficacy (Moraska et al., 2010). Thus, further research such as randomised controlled trials are warranted to determine the effectiveness of massage on stress management that could be relevant to the treatment of DM (Moraska et al., 2010).
2.3 The use of massage

According to studies, massage is a viable treatment for people with secondary complications of DM. Lund (2000) defined massage as:

*A mode of sensory stimulation consisting of systematic touch applied to soft tissues without causing movement of a joint*. (pg. 638)

However, with the years and development of the modality of massage other definitions have been proffered to enhance an understanding of the construct. For example, Kennedy et al, (2016) defined massage as:

*A patterned and purposeful soft-tissue manipulation accomplished use of digits, hands, forearms, elbows, knees and/or feet, with or without the use of emollients, liniments, heat and cold, hand-held tools or other external apparatus, for the intent of therapeutic change*. (pg. 15)

A more general definition with the aim of the treatment is the one by General Council for Massage Therapy (2011):

*Massage Therapy means the systematic use of classical massage and other soft tissue techniques to improve physical health and emotional wellbeing. The Massage Therapist or Massage Practitioner is a person suitably trained and experienced for the purpose of applying such therapy.* (pg.1)
Massage has been recommended to patients with DM for centuries (Pandey et al., 2011). There is evidence that massage plays a crucial physiological role such as regulating blood glucose levels, improving circulation and promoting tissue flexibility (Pandey et al., 2011; Sajedi et al., 2011; Pumthong et al., 2015). Edwards and Palmer (2010) found that blood flow increased immediately after and before the massage therapy sessions, suggesting improved blood circulation. An enhanced blood circulation facilitates optimal metabolism of glucose. Glucose travelled effectively through the bloodstream to the brain. The brain is constantly in need of glucose because it is not able to store the glucose itself (Mergenthaler et al., 2013). This, in turn, will ultimately prevent neurological dysfunction (problems with the nervous system) (Holt and Hanley, 2012).

One study reported that among the CAM users (diabetes patients in outpatient care) in a hospital in Singapore, massage was one of the three most commonly used CAM-therapies (Fan et al., 2013). These findings are in contrast with the findings of the longitudinal study conducted in Australia by Sibbritt et al (2015), which found that women between the ages of 59-64 are less likely to use massage in their self-management regime of DM.

2.4 Physiological effects of massage

Touch is a method of communication and is one of the basic needs of the human body (Braun and Simonson, 2014; Lederman, 2005). Touch occurs through the skin. The skin plays a pivotal role in transmitting information to the nervous system and can be considered as a communication medium of the body. Massage is a form of touch and has different effects on the body such as mechanical, reflex and
metabolic. Mechanical effects refer to applying pressure of manipulation to physically change the tone or condition of the individual’s tissue, while the person’s tissues remain passive (Braun and Simonson, 2014). Strokes directed towards the heart encourage venous blood flow (Lederman, 2005). The reflex effects consist of exciting the sensory neurons, which activate the individual’s nervous system to change shape or condition of the tissues in various areas that can be addressed and other, related areas. For example, applying tapotement on the hamstring will excite the nervous system and the energy system (Weerapong et al., 2005). Metabolic effects are referred to a combination of mechanical effects and reflex responses in which the whole body is affected. The sustained touch of massage activates the parasympathetic nervous response which lowers heart rate and encourages the digestive system (Braun and Simonson, 2014).

The purpose of this study was to investigate if Swedish massage was beneficial on blood glucose level in children with DMT1 (Sajedi et al., 2011). The relevance of this research with the current study is that the researchers demonstrated the effectiveness of massage on blood glucose level in children with diabetes by using only 15-minute Swedish massage. A prospective randomized controlled trial was conducted using a mix of qualitative data and quantitative data collection tools. Participants (n=36) who met the inclusion criteria were recruited and randomly allocated in two groups: an intervention group and control group. The Swedish massage intervention was performed 3 times a week by the parents with the supervision of the nurse. The interventions lasted 3 months. They had to continue their daily routines, such as exercise, diet and medication schedules and blood glucose level measuring in conjunction with the interventions. The blood glucose
levels were taken at base line and after each treatment. The control group was solely assigned to their daily routines without interventions. Their blood glucose levels were measured in the hospital, 3 times a week for 3 months and were compared to the intervention group. The results suggest that Swedish massage lowered blood glucose levels in children with DM.

The strength of this study was that the participants were allocated randomly. The protocol for the interventions was described clearly in the study making it replicable. Even though the sample size was not large, the interventions were over a long period, which could be considered a feature of a robust study. The study used multiple methods to establish the reliability of the measurement tools (glucometer) and the Pearson correlation coefficient for the measurements of blood samples. Validity of questions was established via the content validity method. In addition, the researchers found that the subjects had benefitted from the multiple-dose massage therapy in terms of affective, physiological and behavioural effect. This implies the efficacy of their study in comparison to other studies.

The study was limited by the small sample size, which would make it difficult to generalise the findings to the target population of children with DM type 1 condition. The researchers measured the blood glucose level of the participants 36 times after baseline, but because of the small sample size, they decided to analyse only 12 measurements. This indicates that the researchers may have chosen the measurements that were useful to them and were therefore biased. In addition, there were no follow up sessions to evaluate the effects of the multiple-dose massage
therapy. A further limitation of this study was that the researchers did not mention their limitations, which was a limitation in itself.

The study by Chatchawan et al (2015) investigated whether Thai foot massage was effective on the balance performance of people who have diabetes-related PN. A recent study by Joseph and colleagues (2016) took their study a bit further and wanted to investigate if massage was effective in the further complications of PN like foot ulcerations. Albeit the study included both DMT1 and DMT2, all the participants were DMT2 therefore, the results could solely be interpreted for this population. They suggested that connective tissue manipulation has a positive therapeutic effect in conjunction with the use of allopathic treatment. Castro-Sánchez and colleagues (2011) on the other hand, have considered the benefits of massage but on a macro-vascular level. They found that 1 hour connective tissue reflex massage in a prone position was beneficial to DMT2 patients with phase 1-2 peripheral arterial disease. This form of massage decelerates the advancement of the condition. Moreover, they also suggested that it improves blood circulation in the lower limbs. Another study by Wändell et al (2013) has also showed the effectiveness of massage in people with DMT2. They found that 1 hour tactile massage has affected metabolic markers. However, there were no significant effects on glycated haemoglobin (HbA1c) marker.

These studies have great relevance to the present study, as they were all addressing secondary complications in people with DMT2 on different levels using different models of massage, approaches and duration.
2.5 The use of reflexology

Reflexology is used for management of various conditions such as asthma, anxiety, cancer, musculoskeletal problems, migraine and headaches, multiple sclerosis (MS), stress, stroke, pain management, and peripheral neuropathy in patients with DM. The evidence suggested that bronchial sensitivity to histamine as well as quality of life in patients with asthma has improved (Brygge et al., 2001). A study by Hudson and colleagues (2015) has shown that hand reflexology was helpful in reducing anxiety and pain in patients having a varicose vein surgery. Another study also suggested that reflexology is beneficial for anxiety in women following elective caesarean section (Razmjoo et al., 2012). According to Launsø and colleagues (1999) reflexology is effective in general well-being and increases energy level when suffering from headaches. In addition, patients seem to understand their own body signals better and the motives for their headaches. In people with MS reflexology appear to help with motor, sensory and urinary symptoms (Siev-Ner and colleagues, 2003). In concordance with the study by Siev-Ner et al (2003), Esmonde and Long (2008) shared the same findings. However, they further suggested specific benefits like amelioration of bowel movements, improve sleep and walking as well as reduced pain. Embong, et al (2015) said that reflexology improves recovery in patients who had a stroke. Hodgson and Lafferty (2012) have shown that reflexology reduces physiological stress and pain in cancer survivals, and improves mood. Kim and Kim (2012) found that reflexology helps with psychological stress. Whatley and colleagues (2016) suggest that it was effective in breast cancer patients’ related lymphoedema. They found that the lymph flow in these patients was diminished. Another study found that this therapy was beneficial for chronic low back pain,
therefore it was highly recommended as a complementary therapy by nurses in hospitals (Eghbali et al., 2012; Babadi et al., 2016).

Reflexology is used to control foot complications in people with DM or as prevention for further foot problems by encouraging the balance of the systems of the body (Magalhães da Silva et al., 2015; Embong, et al., 2015). It is also used for blood and energy circulation improvement, it relaxes the body and has a homeostatic effect (Embong, et al., 2015). This treatment adds a dimension to emotional, physiological, and spiritual health and intensifies the quality of life. It is even suggested that some people may reduce their use of pharmacological medications (Kunz and Kunz, 2003).

Dalal and colleagues (2014) defined reflexology as;

‘The science of studying the human health through certain specific reflex/reflexology areas quantized on feet, hands, and ears.’ (pg. 2)

A more analytical definition was the one by Kunz and Kunz (2003)

‘Reflexology is the practice of applying pressure to specific points in the feet and hands to influence the health of corresponding parts of the body.’ (pg. 9)

2.6 Physiological effects of reflexology

Reflexology can be applied on the feet, hands, face and ears (Magalhães da Silva, et al., 2015; AoR, 2011). The consideration is that the application is preferably performed on the feet. This is because the feet are much more protected than the hands. Therefore, the feet are more sensitive to the touch of reflexology (Magalhães
The concept of how reflexology works is that all the organs, muscles, glands and tissues are portrayed in the feet and will be stimulated by pressing the reflexes concerned (Hull, 2011). Those impulses that are being created to target certain parts of the body will reach them through neural passageways or by means of hormonal interactions. The purpose of stimulating those reflexes is to repair the possible corresponding dysfunctional tissue (Dalal et al., 2014). Thus, if the reflex area is overactive, the therapist sedates, and when underactive it will be stimulated. It is considered a stress reliever because it facilitates the process of coping with diseases and/or injuries. It has an analgesic effect on the body. It influences the body on physical, psychological and spiritual level. It can also be a preventative to a disease (Embong et al., 2015; Magalhães da Silva et al., 2015). Reflexology is a safe way to treat people with diabetes because it enhances all the body systems and promotes homeostasis of the body functions naturally (Embong, et al., 2015).

The purpose of this study was to establish that reflexology was beneficial for diabetic neuropathy (Dalal et al., 2014). The rationale behind this study was that diabetes affects all the organs of the body and reflexology aims to restore the homeostasis of all the body’s systems. The methodology consisted of a randomized controlled trial design at the outpatients Department of Neurology. Participants (n=58) who met the inclusion criteria were recruited. They were randomly allocated to a reflexology group with traditional reflexology and a control group receiving only conventional treatment. The reflexology therapy took place at the Department of Biophysics of the same institute. A VAS-score was utilized to measure the neuropathic pain as the primary outcome measure. The secondary outcome measures were the biomedical
parameters of haemoglobin, blood glucose, nerve conductivity thermal and vibration sensitivities and quality of life (NeuroQoL). All collected data were analysed statistically. The study found that the reflexology group has made significant improvement in comparison to the control group. The researchers have succeeded in reaching an improvement in neuropathic pain rate above the expected rate of 40% (52.4% with a $P$ value < 0.001). Following this, all the recruited participants took part in the study and there were no withdrawals. However, this study was limited by the inconsistency of the interventions. The caregiver of the patients was providing the treatments at a place of the clients’ choice, and because of its manual and subjective origin it could be lacking in quantification. Finally, the small scale of the study warrants further investigations on the benefit of reflexology to use in conjunction with pharmacological drugs to reduce neuropathic pain in people with DM. The findings of this study were relevant to the current research in terms of addressing complication of DM using reflexology.

In another study, Magalhães da Silva and colleagues (2015) investigated the efficacy of reflexology on feet damage in people with DMT2. A randomized control trial was conducted. The participants (n=53) were people diagnosed with DMT2. They were allocated randomly into two groups. A pilot study was conducted to calculate the sample size. One group (n= 21) received reflexology and the other group followed guidelines for foot care. The control group (n=24) who were assessed at their homes initially, received feet self-care advice disclosed in the Primary Care Notebook: Diabetes Mellitus. The intervention took place at the participant's home on a bed lying in a supine position. It consisted of 12 sessions over a period of 30 days. The
interventionist followed the Ingham (first reflexologist to map the body on the feet) method of reflexology.

In this study foot impairment was evaluated on indicators related to skin and hair, as well as blood circulation, tissue sensitivity and temperature. They found that there were few improvements in some indicators of skin and hair. No significant changes were found in indicators of blood circulation and other indicators of skin and hair among the groups. Blinding was ensured by recruiting a different person for data analysis than the interventionist. The data analyser did not know the participants. Another strength of this study was a pilot study was conducted to estimate the sample size. This is a form of good practice in research and therefore considered a sound methodology.

There were several limitations in this study, one of them was the small size of the study, yielding for a low statistical power. Not all the data of the recruited participants were analysed because of 8 dropouts. Another limitation was that it was not indicated if the interventionist was a qualified reflexologist or a researcher. It was a small-scale study, therefore the findings could not be generalised. The duration of the study was not long enough to get information about air and skin indicators. Systemic circulation was not affected by the sessions and therefore influence the indicators of feet impairment such the ones for colour, pigmentation, blood circulation and cutaneous temperature of feet. The indicator for sensitivity was not benefited by the therapy. This is related to the fact the participants having had DMT2 for more than 5 years. It is thought that after suffering from the condition for such a long time, the probability of having nerve damage of the feet plantar was increased. Although
the researchers took into consideration the risk of dropouts, they failed in accounting for it. The relevance of this research paper was that the researchers were using reflexology to treat the most common complication of DM as well as prevention of further complications and to promote health and wellbeing in this population.

Pumthong and colleagues (2015) suggested that patients with DM in the Association of Southeast Asian Nations community (ASEAN) have used pharmacological medicine to treat DM for very long time without succeeding in having a vigorous life or suspending the secondary complications. In contrast, they developed further complications. In this respect, the researchers investigated the use of CAM to identify possible treatments to enhance the wellbeing and health of patients with DM in accordance with their lifestyle and finances. A qualitative interpretative study was conducted and phenomenological analysis was used to analyse the interview data of the participants’ experiences in the use of CAM. Participants were recruited purposefully. The sample consisted of practitioners (n=15) working in the hospital and patients (n=15) who had DM. In total 30 participants met the inclusion criteria. Their participation in the study was voluntary. Interviews were conducted to collect data. The interviewees were asked about their experiences of Thai massage, acupuncture, herbalism or exercise to manage DM. The findings suggest that the health of all the patients improved. In addition, the demographics of the participants suggest that the patients (n=5) are more likely to use massage than it is given by practitioners (n=2). Five patients received massage and only two practitioners provided a massage intervention. The limitations of the study were that the collected data from the participants’ experiences were lacking scientific evidence therefore more research is needed such as trials to examine the benefits of different CAM
modalities and the numerous symptoms of DM. In relation to the scientific lack of evidence they could have asked the subjects about their readings before and after CAM-use. Another limitation was that in this study the data was collected from individuals and cannot be used for generalisation in larger samples (Anderson, 2010; Hymel, 2011). Even though the researchers had sufficient participants to meet data saturation no strategy like constant comparison have been used to confer rigorousness of the study (Anderson, 2010). A strength of the study was that it succeeded in demonstrating the benefits of all the different modalities by meeting the stated effectiveness criteria, whereas in conventional medicine it is not possible. Finally, the causal similarity to the type of DM made uniformity of data possible. The relevance of this research to the present study is the similarity of the research design, as well as the population (consisting of practitioners). However, Pumthong and colleagues (2015) also incorporated the point of views of the DM patients, which have been done by only few studies.

2.7 Summary of the literature review
The literature review has indicated the use of massage and reflexology, and the beneficial effects of the therapies within the regime of managing the secondary complications of diabetes. It also highlighted the views of healthcare professionals in hospital settings versus complementary healthcare practitioners towards these two modalities. However, gaps were identified in the reviewed studies which were addressed in the current study.

The purpose of this study was to examine the efficacy and methods employed in massage and reflexology based on the perspectives of the practitioners. It also
aimed to explore the different types of approaches massage practitioners and reflexologists have utilised. This information could be useful to provide insights for practice, policy and research. It could also inform service users about the effectiveness of the treatments for the management of complications in DM.
3. Method

3.1 Introduction
This study employed Interpretative Phenomenological Analysis (IPA) (Smith et al., 1997), a qualitative approach that aims to capture the quality of an individual’s experience and to gain an understanding of the meanings held by the individual. This analytical method was used because it was hoped that it would lead to an exploration of the practitioners’ views about the role of physical massage and reflexology in managing secondary complications of diabetes. IPA allows the researcher to analyse the verbal report of the participants and then elicit the meanings of the report (Smith et al., 1997). This qualitative method of analysis is also essential for analysing individual cases. Its use is appropriate when seeking to answer research questions relating to ‘what’. It entails collating data, analysing it, and clarifying data that are not merely transformed into numbers (Anderson, 2010). It gives a deeper meaning of the social phenomena (Silverman, 2016). There are no mandatory number of samples required. Usually, the sample size required may be small to allow for a deeper exploration of the views of the participants (Pumthong et al., 2015).

3.2 Design
This qualitative study utilized semi-structured interviews to elicit the perspectives of the participants of this study. Semi-structured interviews are more suitable for qualitative studies when exploring views and experiences of individuals (Silverman, 2016). One advantage of using this method is that it gives the researcher the opportunity to use pre-developed, open-ended questions that can create coherent
space to express feelings, attitudes and opinions which demonstrate an element of being in control (Silverman, 2016; Anderson, 2010). On the flip side, this element of qualitative study creates power imbalance between the interviewer and the participant (Silverman, 2016). Moreover, qualitative studies are considered not to have much empirical power, but the collated data is rich and can still be validated in a number of ways. For example, by the participants or by comparing their study with other studies (Anderson, 2010).

3.3 Sample

The researcher used purposive sampling method (Palingkas et al., 2015) and included providers from two commonly used CAM-therapies massage or reflexology to address secondary complications of diabetes. The aim was to recruit between six to eight participants, which was within the scope of the researcher’s study. An advertisement (Appendix 3) was placed on the website of a professional body. The researcher sought authorization from this professional body (Appendix 2). This onsite advertisement was not publicized on the designated area at a university in Wales. The intended request for recruitment on the website of a second professional body was also not placed and thus no authorization was sought. In addition, the researcher met with one of the participants and invited her to participate in the study.

Five participants were assessed for eligibility and one was excluded (Figure 1). The excluded participant suffered from the condition of DM. Eventually four participants met the inclusion criteria (Table 1). The researcher interviewed four massage therapists who have treated clients with secondary complications of diabetes. One of
the participants was also a reflexologist. The researcher explored the role of physical massage and reflexology in managing the complications related to diabetes.

**Figure 1.** Flowchart for study of practitioners of massage and reflexology
Table 1.  Inclusion and Exclusion criteria

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participant must be over the age of 18 years</td>
<td>The participant must not suffer from diabetes</td>
</tr>
<tr>
<td>Holding a minimum Level 3 Massage diploma</td>
<td>The participants must not be related to their client.</td>
</tr>
<tr>
<td>The practitioner should be practicing.</td>
<td>The participant must not apply combination of complementary therapies</td>
</tr>
<tr>
<td>The participants should be registered with one of these professional bodies: Massage Training Institute (MTI), (IFPA), Association of Reflexologist (AoR), Complementary &amp; Natural Healthcare Council (CNHC) for a minimum of 2 years.</td>
<td>The practitioner will be excluded if she/he is a practising nurse or other conventional healthcare professionals.</td>
</tr>
<tr>
<td>The therapist must have treated clients with diabetes.</td>
<td></td>
</tr>
<tr>
<td>A minimum of 4 set of treatments to the same client is required.</td>
<td></td>
</tr>
</tbody>
</table>

3.4 Data collection tools

The materials used to collect the data included a smartphone Huawei 9P for audio recording, laptop computer to transcribe the interviews using a word processor software and a memory-stick to store the recorded interviews. An interview guide was developed based on the literature review in line with the aim of the current study. The interview guide contained five sections (Appendix 7) with a mixture of open-ended questions and closed questions. It covered areas of level of training, knowledge, point of view and perceptions about the benefits of massage and
reflexology, education and further expertise of practitioners and approaches. Issues of integration and research were also explored. Section one of the interview guide consist of prompts to elicit information from participants concerning the breadth of their experiences and knowledge about the research problem. Section two inquired about the approaches adopted by participants concerning symptoms and treatments. Section three entails the clients reported perspectives on the benefits of treatments with regard to psychological, physical, and emotional conditions. Section four probes the research knowledge level of participants and to know if the practitioners incorporate research into their practice when treating clients with secondary complications of DM. Finally, section five explore the obstacles and discrepancies inherent the daily work of practitioners.

3.5 Procedure

After participants read the research information sheet and informed consent was obtained from them, Semi-structured interviews were undertaken with the participants by the researcher. The interviews were recorded and transcribed verbatim. The interviews were conducted either at the participants' premises (n=1) or over the phone (n=2) using an interview schedule (Appendix 7). Each interview lasted between 30 - 45 minutes. No repeat interviews took place. Each participant had to take one interview. Two interviews were held over the phone and one face-to-face interview took place at the home of one of the participants. The project was carried out over a period of two weeks. The interviewer utilized the interview schedule containing the interview questions. The interviewer initiated the session with a greeting and introduction by explaining the procedure. For further learning the interviewer used prompts and probes accordingly during the interview. Few of the
participants tended to answer open-ended questions with long statements. At the end the interview the researcher thanked the interviewees for their participation. Validation of the findings was obtained by respondents’ validation method, i.e. by returning the transcripts to the participants to comment on their statements.

3.6 Ethical consideration
This study received ethical approval from the Cardiff Metropolitan University Healthcare and Psychology Research Ethics Committee on the 6th December 2016 (ethics reference number 8596, see Appendix 1). Inform consent was obtained from the participants after they have read the information sheet about the project and their rights to withdraw from the study without penalty. Two consent forms were sent by email and one was obtained in person. The emails were deleted after printing out the consent forms. The hard copies of the consent forms were all stored in the researcher’s folder held by the project supervisor. Anonymity and confidentiality were taken into consideration throughout this study. The participants were allocated a pseudonym to maintain anonymity (Appendix 8). For confidential purposes, the transcript of the collated data was also stored in the researcher's file at the university after deleting the electronic data.

3.7 Data analysis
The researcher returned the participants’ transcripts to them after transcribing to guarantee the validity of the data. This was to ensure that the participants read the transcripts and to respond to on any inconsistencies therein. Following this, one of them has made amendments that was related to typos that may have changed the meaning of the interview data. They were given a period of 7-days to read the
transcripts and respond accordingly. The qualitative data was subjected to IPA (Silverman, 2016 and Smith et al., 2009).
4. Results

4.1 Characteristics of participants

Four providers of either massage or reflexology volunteered for the interviews. All the practitioners interviewed were females. On average, they had two clients with DM, either DMT1 or DMT2. These practitioners have been in practice for a minimum of 3 years and the most experienced has been practicing for 24 years. Presented below in Table 1 is an overview of the participant’s characteristics.

Table 2. Characteristics of participants

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>Time qualified as massage therapist</th>
<th>Time qualified as reflexologist</th>
<th>Level of training</th>
<th>Area of Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaryllis</td>
<td>5 years</td>
<td>Not practicing</td>
<td>4</td>
<td>England</td>
</tr>
<tr>
<td>Begonia</td>
<td>3 years</td>
<td>4 years</td>
<td>6</td>
<td>Wales</td>
</tr>
<tr>
<td>Clover</td>
<td>24 years</td>
<td>Not practicing</td>
<td>4</td>
<td>England</td>
</tr>
<tr>
<td>Daffodil</td>
<td>16 years</td>
<td>Not practicing</td>
<td>4</td>
<td>England</td>
</tr>
</tbody>
</table>

Data was analysed through thematic analysis. The intention was for electronic analysis using NVivo11 data management system but due to the small number of participants, manual analysis was considered (Zamawe, 2015; Ishak and Bakar,
The phenomena of interest were the role of physical massage and reflexology in the management of secondary complications of diabetes drove the analysis. Elements associated with the research question have been addressed in every section of the interview guide.

Each theme is presented with quotations from the participants. Participants are referenced by their pseudonym e.g. ‘Amaryllis’. The quotes are presented verbatim and are referenced by page number of the corresponding transcript, for example, (Begonia, pg. 2).

### 4.2 Themes and subthemes

The IPA was presented through three main themes: “Physiological Complications”, “Psychological Complications”, and “Research”. These themes are divided into subthemes (Figure 2).

### 4.3. Theme 1. Physiological complications

This theme examined the participants’ understanding about the secondary complications of diabetes. They all alluded that it was coincidence that they were treating a client with DM with these complications. Their primary reason for treatment was not DM. Participants talked about internal and external physiological complications (Figure 2 and Table 3). Three of the participants knew what the secondary complications of diabetes entail and one participant reported the primary complications instead. The conclusion is that the participants with most experience knew what was being referred to by secondary complications of DM.
4.3.1 Internal

4.3.1.1 Neuropathy

Generally, the participants believed blood circulation and peripheral neuropathy were the main complications of DM. They talked about nerve damage. This internal physiological complication affects different organs and tissues in the body. They
reported that because of the neuropathy the client could develop visual impairment, loss of sensation and foot damage.

‘…..all of them have some sort of visual impairment because of the um neuropathy um diabetic neuropathy so they have vision impairment.’
(Amaryllis (pg. 2)

‘Yeah the neuropathy? …….Yes, yeah.’ (Begonia, pg. 2)

‘Nerve damage (neuropathy)….., (Clover, pg. 1)

‘Poor um nerve, nerve damage,……, .because of the nerve damage, and visual problems, the sight will deteriorate’. (Daffodil, pg. 2)

‘For the reflexology, she gained more feeling and sensation and warmth to her toes and hands which was a big thing for her. (Begonia, pg. 11)

Although Clover and Daffodil were the most experienced practitioners, there were somewhat nuances in the way they described their understanding of secondary complications. This can be noted in the following quotations:

‘Nerve damage (neuropathy),….. Kidney damage (nephropathy),… Eye damage (retinopathy, ....’ (Clover, pg. 1)

‘Um poor circulation. (Daffodil, pg. 2)
4.3.1.2 **Blood circulation**

Most of the participants reported that blood circulation is also one of the complications that patients with DM encountered. A consequence of poor blood circulation is that the client is always feeling cold and has cold hands and feet.

> ‘Um some of them have reduced circulation so cold hands and feet.’

(Amaryllis, pg. 3)

> ‘Um poor circulation.’ (Daffodil, pg. 2)

Only Begonia did not talk about this specific effect of massage. Her account was about the primary complications of DM in itself. Her response was about hypoglycaemia and hyperglycaemia.

> ‘Um well they can have a drop in their blood sugar levels or an increase in their sugar levels but quite often it will be a drop in their sugar levels because of the relaxation state.’ (Begonia, pg. 2)

All the participants reported that one of the benefits of massage and reflexology is to improve blood circulation. Daffodil’s account was solely about the clients she treated with DM. They did not seem to have these complications (Table 3).

> ‘So, yes and improved circulation…’ (Amaryllis, pg. 16)

> ‘Um well it just promotes circulation, doesn’t it?’ (Begonia, pg. 6)
Nearly all the participants agreed that one of the effects of massage or reflexology could be the risk of the client experiencing a hypoglycaemic attack during or after the treatment. A hypoglycaemic attack can occur due to the relaxation response to the treatment. The blood sugar level will decrease and the individual can become unwell.

‘Um well they can have a drop in their blood sugar levels’…………

(Begonia, pg. 1)

‘It is crucial all massage therapists have a good action plan agreed with client if hypoglycaemic attack takes place.’ (Clover, pg. 1)

‘So, more likely on the table as a practitioner-somebody might potentially have a hypoglycaemic episode where they would become irresponsible and cold and clammy and they may’ve need some sort of glucose to elevate their blood sugar level.’ (Daffodil, pg. 2)

Only two of these three participants took the possible risk of hypoglycaemia into consideration. To safeguard the client Clover has adapted her practice by modifying her bookings system for clients with DM and Daffodil’s approach to this was to equip her first aid kit.

‘Yes a longer appointment in case of feeling unwell or may have a hypo – attack and require first aid,’ (Clover, pg. 3)
'So, the diabetes never really played a big part in any, you know, I didn’t give it a lot of thought, but I any of the treatments other than, the only thing that concerned me was if one of them might have a hypo on the table and, So, the only thing I’ve made was to have some glucose in my first aid kit.’ (Daffodil, pg. 17)

Table 3.  
**Most reported secondary complications per practitioner**

<table>
<thead>
<tr>
<th>Secondary Complications</th>
<th>Amaryllis</th>
<th>Begonia</th>
<th>Clover</th>
<th>Daffodil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal complication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced circulation</td>
<td></td>
<td>Blood sugar level drop</td>
<td>Poor circulation</td>
<td>Poor circulation</td>
</tr>
<tr>
<td>Neuropathy (reduced sensation)</td>
<td>Increase blood sugar level</td>
<td>Nerve damage (neuropathy)</td>
<td>Nerve damage</td>
<td></td>
</tr>
<tr>
<td>Vision impairment</td>
<td>Neuropathy</td>
<td>Eye damage retinopathy</td>
<td>Visual problem</td>
<td></td>
</tr>
<tr>
<td><strong>External complications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psoriasis</td>
<td></td>
<td>Foot damage</td>
<td>Fragile skin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin conditions</td>
<td>Oedema</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Various levels of oedema</td>
<td>Swollen feet</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weeping wounds</td>
<td></td>
</tr>
</tbody>
</table>
4.3.2. External

This subtheme addressed the external physiological complications related to secondary complications. These complications were referred to those that are noticeable to the sight thus are in contact with the environment. The participants’ account shows that skin and oedema are the most common ones.

4.3.2.1 Skin conditions

‘And one lady I have treated had very bad psoriasis and she had to have a pressure bandage on her leg.’ (Amaryllis, pg. 2)

‘……with skin conditions eczema skin growth and chilblain in feet…..’ (Clover, pg. 1)

4.3.2.2 Oedema

‘Various levels Oedema.’ (Clover, pg. 1)

‘I would be assessing, no it would not be anything in particular I would do, unless I thought their skin was very fragile and they had oedema like you’ve mentioned, then I would be holding, I’ll be holding just those fragile bits. I would be holding of course lower legs, I wouldn’t be applying any deep work there.’ (Daffodil, pg. 12)
4.4 Theme 2: Psychological complications

The theme “psychological complications” examined the impact of the condition on the patient’s life and wellbeing from the practitioners’ perspective. The participants reported issues about stress, anxiety and depression.

4.4.1 Stress

The subtheme “Stress” was mentioned during the interviews. This subtheme was linked across other subthemes.

‘So, there was a lot of physical and .......... psychological tension and I think that was the main reason she came to see me really.’ (Amaryllis, pg. 7)

‘Um initially it was um she was referred to me through occupational health, because she was suffering with stress and it was affecting her um sugar level.’ (Begonia, pg. 3)

‘Yes they are usually stressed stiff and achy with poor sleep and generally unwell’ (Clover, pg. 3)

4.4.2 Anxiety

Two of the participants stated that anxiety is in some way an effect of DM.

‘The anxiety you just picked up from the way they are, and things they talk about, .....’ (Amaryllis, pg. 9)
‘Um well I would say the, it wasn’t diagnosed but she was being referred by occupational health due to stress and anxiety, so yes it’s, but it wasn’t, she didn’t have diabetes for that reason. Her referral to me was stress and anxiety, not her condition.’ (Begonia, pg. 5)

Two other participants indicated that their clients had decreased energy levels.

‘She had to look after the whole family and had quite low energy levels.’ (Amaryllis, pg. 8)

‘That is a difficult question As clients can be unrealistic. I do note profess a cure and assure clients to be reflective on how they feel, little improvements such as more energy or improved sleep is beneficial long term.’ (Clover, pg. 4)

One participant even articulated that there could be an association between depression and diabetes.

‘I think there is a link to depression with Diabetes.’ (Clover, pg. 4)

4.5 Theme 3: Research

The final theme ‘Research’ examined the participants’ opinions and feelings about research as well as how research would influence their practice with the available evidence.
4.5.1 Lack of research

Most the participants agreed that there are not enough studies in massage and secondary complications of diabetes as well as in other conditions.

‘So, um there is not enough research…….’ (Amaryllis, pg. 20)

‘No, there is never enough research.’ (Begonia, pg. 13)

Clover’s respond on the question if there was enough research, was ‘NO’ (Appendix 7, Interview schedule, Section 4, question 4) (Clover, pg. 4).

Daffodil’s respond was different from the other three participants. She suggested that there was enough research available.

‘So, and that required me to look a lot at research and wright at it. So, there was lot, quite a lot out there and I expect there is quite a lot more there now. I haven’t done anything like that for a long time.’ (Daffodil, pg. 24)

Here, it could be noticed how Daffodil, who was one of the most experienced practitioner, thought about the lack of research in comparison with the less experienced therapist as Begonia.

The interviewees’ feelings about the use, implementation and production of research seemed to be mixed. They reported that they only implement research into their practice when having a new client with an unknown condition. Here one can notice that one of the most experienced practitioner’s attitude towards incorporation of
research into practice. She does not seem to use research as much as when first qualified.

‘Honestly? ….. hardly never’ (Daffodil, pg. 23)

All the participants agreed that they use research when they treat a new client with a condition they have not treated before.

‘I will absolutely spend quite considerable time, before I see that person, researching all that different levels researching the condition and the symptoms um so I feel, I feel ready to work with them when they come in. I will do that for anybody that have something that I wasn’t familiar with.’ (Amaryllis, pg. 18).

‘Um well we cover it within our course, but because whenever you treat somebody, well I personally, I treat somebody with a specific condition I will research what there is to know about it, I don’t like going into treating people without finding exactly what um their condition entails. (Begonia, pg. 2)

4.5.2 Lack of understanding

The accounts of the participants illustrated that there is a gap in the knowledge of research and training. Particularly novice practitioners are left on the back foot because their training does not include research.
‘And massage therapists don’t know much about how to do research or how to read research either. So, not all massage therapists are educated to the same level. We are quite a diverse population.’ (Amaryllis, pg. 19)

‘The main obstacle is level of training and inconsistent support to student after qualifying.’ (Clover, pg. 6)

One participant talked about credibility of the massage practitioner due to lack of research in massage and reflexology.

‘…………..because actually um we need, we need to show what we’re made of um scientifically in order to get that credibility…’ (Amaryllis, pg. 23)

Another participant spoke about not being able to talk with her clients about their condition because of the lack of evidence.

‘Um again because it gives you strength behind the rationale what you’re um suggesting to people. And also you know how to find it, if people asked you questions. I think you just feel well informed um. So, you never really are on the back foot. (Begonia, pg. 14)

Half of the participants expressed their feelings to be active in research studies whereas the other half reported not wanting to be a lead researcher due to time and financial issues.
‘I think we need to do more, I think we as therapist needs to um which which is why I work with a research committee…….’ (Amaryllis, pg. 23)

‘I’m confident in massage therapy lets have more research.’ (Clover, pg. 5)

‘Um well we have considered it previously but its time and cost and of course you don’t often get paid for doing research and it’s very difficult to do that when you try to earn a living to do unpaid research.’ (Begonia, pg. 14)

‘No, I don’t really want to be a lead researcher.’ (Daffodil, pg. 26)

4.6. Characteristics of practice
All the participants alluded that the primary reason for treatment of their clients was not the DM. Their clients presented with different conditions. They have treated clients mostly with DMT1 and DMT2. All the participants mentioned that their clients were predominantly females (Tables 4-7).

Amaryllis had 4 clients with DM (Table 4). All her clients were females. The youngest client had DMT1 and the older clients had DMT2. Their presenting conditions were general pains and aches and they were treated occasionally. Her regular client was treated for 9 months. She presented with psoriasis, stress, emotional distress. Amaryllis used to apply a range of different massage techniques when treating these clients. She includes holistic massage, holistic sports massage, myofascial release technique, muscle energy technique and hands free techniques.
Table 4. Characteristics of practice - Amaryllis

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Type of DM</th>
<th>Presenting conditions</th>
<th>Frequency of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>20s-</td>
<td>Type 1</td>
<td>General aches and pains</td>
<td>Occasionally</td>
</tr>
<tr>
<td>Female</td>
<td>70s</td>
<td>Type 2</td>
<td>General aches and pains</td>
<td>Occasionally</td>
</tr>
<tr>
<td>Female</td>
<td>90s</td>
<td>Type 2</td>
<td>General aches and pains</td>
<td>Occasionally</td>
</tr>
<tr>
<td>Female</td>
<td>40-50s</td>
<td>Type 2</td>
<td>Psoriasis</td>
<td>For 9 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>General aches and pains</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Circulation problems (feel cold)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Emotional psychological tension</td>
<td></td>
</tr>
</tbody>
</table>

Although Amaryllis mentioned that her client has psoriasis and this condition was not a direct cause of DM, that could be an indirect complication of DM. A study suggested that there is an association between psoriasis and DM (Lønnberg et al., 2016; Yeung et al., 2013; Khalid et al., 2013).

Table 5. Characteristics of practice - Begonia

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Type of DM</th>
<th>Presenting conditions</th>
<th>Duration of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>40's</td>
<td>Type 1</td>
<td>Stress</td>
<td>Weekly for 4 weeks than sporadic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quirk neck</td>
<td></td>
</tr>
</tbody>
</table>
Begonia treated only one female client with DMT1 (Table 5). The client’s primary reason for a treatment was stress and neck problems. She treated this client with holistic massage and reflexology. These treatments were applied interchangeably. She adapted a week treatment after that the client’s sessions were intermittent.

Table 6. Characteristics of practice - Clover

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Type of DM</th>
<th>Presenting conditions</th>
<th>Duration of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not known</td>
<td>50</td>
<td></td>
<td>Neuropathy, lower back, neck and shoulders swollen ankles, hearing impairment with skin conditions (eczema), skin growth and chilblain in feet</td>
<td>Monthly</td>
</tr>
<tr>
<td>69</td>
<td></td>
<td></td>
<td>Poor eye sight</td>
<td>Monthly</td>
</tr>
<tr>
<td>Female</td>
<td>61</td>
<td></td>
<td>Cataracts and was forgetful (client said that it was stress)</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

Clover treated clients between the ages of 50-70, mostly females (Table 6). See treated clients with different complications of DM. She did not report the frequency of the treatments nor the type of DM the clients had. She has used a variety of Swedish massage techniques with manual drainage as specialized technique.
Table 7. Characteristics of practice - Daffodil

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Type of DM</th>
<th>Presenting conditions</th>
<th>Frequency of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>70</td>
<td>Type 2 than type 1</td>
<td>Fibromyalgia</td>
<td>Monthly</td>
</tr>
<tr>
<td>Male</td>
<td>70-80</td>
<td>Type 1</td>
<td>Pain joints and general mobility problem</td>
<td>Monthly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sexual dysfunction</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multiple health problem</td>
<td></td>
</tr>
</tbody>
</table>

Daffodil has treated two clients with DM. One female had DMT2. Her primary reason for treatment was fibromyalgia and had monthly sessions of massage. Her male client's reason for treatment was painful joints and general mobility problems. With age, he was suffering multiple health complications and was having monthly treatments. She has used basic massage techniques and manual drainage as a specialized technique. There could be a connexion between fibromyalgia and DM. The presenting condition Daffodil's client for fibromyalgia. It is not known which of the conditions the client got diagnosed first the DM or the fibromyalgia. Research suggests that people who do not manage their DM well are at higher risk to develop fibromyalgia (Tishler et al., 2003; Yanmaz et al., 2012). Fibromyalgia can be prevented by improving the management of blood glucose level.
4.7. Summary of the Findings:

- The secondary complications of diabetes could be categorized into internal and external physiological complications.
- Massage was effective for some internal physiological complications of diabetes including improve circulation and sensitivity, as well as stabilisation of blood sugar level.
- The participants found that massage was effective for some external physiological complications of diabetes like skin conditions and oedema.
- According to the participants, massage was beneficial for psychological complications like stress and anxiety.
- Reflexology was useful for internal physiological complication such as improving blood circulation and psychological issues such as stress.
- Not all of the participants do make special arrangements or modifications to their practice for people with DM.
- In general, all the participants utilized research when they are not familiar with a condition. However, their individual interest for implementation in practice vary.
- Half of the participants would like to be involve in research projects and half declined.
5. Discussion

The prevalence of diabetes has increased over the years (Diabetes UK, 2016; World Health Organisation, 2016) and the growing interest in the use of complementary therapies such as massage and reflexology in treating secondary complications of DM has been well acknowledged (Kretchy et al., 2016; Pumthong et al., 2015; Sibbrit et al., 2015). This study explored the practitioners’ views of physical massage and reflexology on their role in the management of secondary complications of diabetes. The findings of the current study were based on how the practitioners perceived the benefits of these therapies, their approaches and obstacles to practice. The results generally show an awareness of how to treat clients with secondary complications of DM, and also to treat people with DM without these complications. Furthermore, the study suggests how to deal with other conditions associated with DM. The narratives of the participants indicate that there are positive effects associated with the treatments, as well as apprehensions and fears regarding the negative effects of massage and reflexology for this client group.

5.1 Secondary complications

Firstly, the findings indicated that there was some slight confusion about the understanding of what the secondary complications of DM entails. All but one participant knew what was meant by secondary complications. She mentioned the primary complications of DM which is the hypoglycaemia and hyperglycaemia. The secondary complications were referred to the consequences of mismanagement of hypoglycaemia and hyperglycaemia (Singh et al., 2014: Holt and Hanley, 2012) such
as retinopathy, nephropathy and neuropathy. Perhaps the interview schedule should have elucidated this issue.

5.2 Physiological complications

Secondly, the participants’ views showed that massage and reflexology are viable therapies to complement allopathic medicine in the management of secondary complications of DM. In this respect, the reported efficacy of massage was improvement of internal physiological benefits included stabilizing blood glucose level, amelioration of blood flow, increase of sensation as well as decrease of blood pressure. The reduced blood glucose level was also found in this study as suggested by Pumptong et al., (2015), however, this improvement in blood glucose level was not found in people with DMT1 (Sajedi et al., 2012) but in people with DMT2. This could be interpreted that the outcome of physical massage does not depend on the type or form of DM. Every individual will experience these benefits. Like the study by Chatchawan et al., (2015), the participants of this study reported that their clients also experienced improve of sensation in the lower limbs due to peripheral neuropathy in their clients. They also acknowledge improvement in the sense of wellbeing due to the massage treatments (Pumptong et al., 2015). In addition, the participants reported that their clients were mainly female clients. This was not in line with the findings of the reviewed study by Sibbritt and colleagues (2015), where massage was not the commonest therapy used by females with DM. This could be related to cultural predisposition of DM (WHO, 2016;).

The reported benefit of reflexology was limited due to the low participation rate (only one participant was practicing massage and reflexology concomitantly). Unlike the
study of Magalhães da Silva and colleagues (2015), the findings of the present study suggest that due to the reflexology treatment the blood circulation of one of the participant’s client has improved and sensitivity in the feet has increased.

5.3 Psychological complications

In terms of psychological effects, the results pertaining to the outcome of massage include relaxation which results in reduced stress, improved sense of ‘feeling good’ and wellbeing. This study support the findings of previous studies that massage may have psychological benefits for people with DM (Sajedi et al., 2011; Pumthong et al., 2015). One participant suggested that stress was affecting the client’s blood glucose level and reflexology was useful in reducing the stress. This findings support the study by Wändell et al, (2012) and Pumptong et al, (2015) that stress can cause DM, and reflexology have a relaxing effect, therefore reduces stress in people with DM.

The reported accessibility of these modalities to people with DM indicated by the participant is not without restrictions. As the clients increase in age, it become more difficult for the practitioner to treat them because they can become immobile and are unable to access the treatment rooms. The risk of getting multiple health problems due to the progression of DM and further deterioration become even higher.

The results of the participants’ responses identified that they had implemented different approaches in their practice. While they all shared the same thoughts about treating a client with DM not differently than other clients, half of them mentioned that they make specific arrangements for clients with DM. This negates their previous
opinions that people with DM should not receive specialised treatment, but should be treated like other clients.

Furthermore, they were using different massage techniques. The descriptions of the applied holistic massage techniques were based on the principle of Swedish massage even though it was not mentioned explicitly. Massage strokes like petrissage and effleurage were common used strokes by the participants. According to Sajedi et al, (2011) common techniques of Swedish massage like effleurage, petrissage and tapotement are used to address the circulatory, lymphatic and nerve systems of the body. These body’s systems are all interconnected with the secondary issues of DM. Interestingly, the participants were addressing problems of these body’s systems unintentionally though not addressing symptoms of DM itself. These are encouraging indicators that lead to the effectiveness of massage therapy for people with secondary complications of DM. Following this, in Sajedi et al, (2011)’s study a daily 15-minute Swedish massage protocol was utilized to obtain positive results, however, in the current study the clients were receiving a longer session (usually 1-hour monthly treatment) with similar results. The discussion/query arises whether a 1-hour monthly therapy is equivalent to a 15-minute daily massage routine.

5.4 Research

The issues that arises following the participants’ views were the lack of research to support to their practice and the lack of understanding of research by some practitioners. They all put it down to the quality of training. Some massage training courses or reflexology training courses do not include research in their curricula.
These courses are low level courses and thus may not be accredited to a high standard. It is very enlightening that although not all the participants were trained in the same level of massage, they all aspire to be involve in research for some reasons and in some ways. The emerging issue here is that if their practice is not evidence-based they will not get the credibility of conventional medicine. If they don’t have the credentials they will not get the funding to conduct a research study and if they don’t conduct a research study, there will be no evidence based practice. The practitioners experienced this as a never-ending obstacle.

Surprisingly, none of the participant reported aftercare advice. The answer about the question of whether a specific after care advice for people with DM is necessary, remain vague. One of the participants mentioned that she used to give after care advice but did not expand on the subject. An example of recommendations for exercise to keep the joints flexible could have been a more specific selfcare advice. Exercise plays a crucial role in the management of DM therefore should be part of every aftercare advice (Holt and Hanley, 2012; Pumthong et al., 2015). keeping in mind that every type of DM required different exercises. Recommendations like drinking plenty of water to flush out all the toxins out of the system are generic advices to give to a random client with DM, and are not considered to be holistic approaches. Every individual is unique entity and therefore should be treated as such.

5.5 Limitations of the study

With the aid of guaranteeing the quality of the collated data and findings, the IPA approach in the current study will be discussed in the light of the three principles of
trustworthiness by Polit and Beck (2013). The criteria for trustworthiness in qualitative study are characterized by credibility, dependability and transferability (Pham and Ziegert, 2016). Credibility is referred to the method of sampling and data collection (Pham and Ziegert, 2016; Polit and Beck, 2013). This study used purposive sampling with the aim of obtaining qualitative data from a heterogeneous population. However, the element of gender bias could not be prevented because all the participants were females. This may be because females are generally more involved in healthcare professions. In Pham, and Ziegert, (2016)’s study they also had the same issue with their sample. Purposive sampling was used and the participants happened to be more female nurses at the department they were recruited from. Nurses are healthcare professionals as well as massage therapists and reflexologists. Following this, the response of the reflexologist was extremely low. It was decided not to advertise on the website of the other professional body which may have influenced the response rate.

An interview schedule was utilized to lead the interviews which conforms with the recommendations of Oppenheim (2000) and Silverman (2016). The interview schedule could have been enhanced if a pilot study would have been conducted.

Dependability referred to reliability in quantitative study (Pham and Ziegert, 2016; Polit and Beck, 2013). This was covered by the researcher herself conducting the interviews therefore no misinterpretations could have taken place due to transformation of the data.
A factor that could have affected the results was the environment where the interviews took place. One of the interviews that was conducted over the phone, took place at the participant’s place of work. It was hard to arrange a suitable time and date in another environment to conduct the interview. The participant was very distracted and was not focusing on the questions that was being asked. The interview that took place at the participant home did not conceive any issues, neither was the other interviewee over the phone.

Transferability is concerned with how the findings of the study can be transferred to other groups of practitioners (Pham and Ziegert, 2016; Polit and Beck, 2013). In this vein, this study has succeeded to transfer the findings to other practitioners of massage and reflexology. This is supported by the varying levels of educations among the participants and years of practice.

The findings will not allow for generalisation because of the small sample size, even though the researcher did endeavour to obtain a heterogenous sample population. Another limitation was that data provided by one of the participant was lacking insight of the research problem, therefore could not be categorized as rich data. There was no possibility to ask further questions to clarify certain answers. Only the main interview questions were answered and did not allow for further clarifying questions to be probed. Another factor that could have influence the participants’ response was the time of the day that the interviews were conducted. These were not conducted at the same time. The interviews with Amaryllis and Begonia were conducted around the same time (at 11.00 am) and Daffodil’s was late afternoon and at her place of work. There were also other colleagues around her that
could have been on earshot when it was conducted. These factors could have influenced Daffodil’s opinions and thoughts because she was not focused on the interview questions therefore further investigations are warranted.

Further research is needed with larger representative sample to conclude that the perceived benefits of massage and reflexology are transferable to people with other types of DM.

The IPA is a method that requires thorough expertise in research field. For example, the lack of experience in conducting interviews could have affected the smoothness of the interviews, leading to unnecessary repetitive statements. The interviewer was strictly following the interview guide whilst the participants were already anticipating the answer of the next questions in their descriptions. A pilot study would have been useful for trial purposes of the interview questions as well as practicality

5.6 Strengths

The researcher validated the data by returning the transcripts to the participants and requesting them to read the information in order to ascertain their views. The participants read the transcripts and agreed that the information was correct, with the exception of one transcription that was amended due to typos that could have affected the sense of the participant’s meaning. The researcher did not experience any dropouts. The study considered and adhered to all the ethical procedures outlined by the Ethics Committee of Cardiff Metropolitan University. Ethical issues such as confidentiality, data protection, and anonymity were followed. Each of the participant was assigned a pseudonym.
5.7 Implications for practice, policy and research

Future studies would further examine the effectiveness of physical massage and reflexology in treating secondary complications of DM within heterogeneous population. Such studies should consider rigorous scientific measurement of the blood glucose level readings of people with DM condition. This would allow stronger conclusions to be drawn about the efficacy of massage and/or reflexology. A randomized control trial (RCT) would be useful to indicate specific effects of these two modalities. As a final thought, it would be worthwhile to develop a set protocol consisting of both massage and reflexology for people with DM.

5.8 Conclusion

The objective of this study was to examine the views of practitioners about the role of massage and reflexology when managing secondary complications of diabetes. The findings of this study suggest that some benefits accrued from using physical massage and reflexology in the management of secondary complications of diabetes. The clients’ experience with the therapies were unique to each of them, as such it may be unclear what the exact effects of the therapies might be for a person with the condition. Although the understanding of the research problem, secondary complications of DM, differ among the participants, they all agree that massage and reflexology are effective therapies to increase wellbeing and quality of life of people with diabetes mellitus. These perceived positive effects of massage and reflexology should be further evaluated in randomised controlled trials to determine the overall effectiveness of these therapies.
6. References


Association of Reflexologists (AoR), (2011), ‘What is reflexology?’

Accessed on: 23-03-2017

Available at: http://www.aor.org.uk/home/what-is-reflexology


(2011), ‘Connective Tissue Reflex Massage for Type 2 Diabetic Patients with Peripheral Arterial Disease: Randomized Controlled Trial’, *Evidence-Based Complementary and Alternative Medicine*, pp. 1-12.


Fitzgerald, P. J. (2009), 'Is elevated noradrenaline an aetiological factor in a number of diseases?', *Autonomic & Autacoid Pharmacology*, 29(4), pg. 143–156.


and New-Onset Diabetes, A Danish nationwide cohort study’, *Diabetes Care*, 36(8), pg. 2402-2407.


Yang, W.C., Chang, C.L.T., Li, C.R., Nammi, S., and Cho, W.S.C.,


Appendix 1

ETHICS APPROVAL
Tuesday, 06 December 2016

Adanim, Susie
BSc Complementary Healthcare
Cardiff School of Health Sciences

Dear Applicant

Re: Application for Ethical Approval: Practitioners’ Views About the Role of Physical Massage and Reflexology in Managing Secondary Complications of Diabetes

Ethics Reference Number: 8596

Your ethics application, as shown above, was considered by the Health Care and Food Ethics Panel on 07/12/2016.

I am pleased to inform you that your application for ethical approval was APPROVED, subject to the conditions listed below – please read carefully.

Standard Conditions of Approval

- Your Ethics Application has been given a Project Reference number as above. This MUST be quoted on all documentation relating to the project (e.g. consent forms, information sheets), together with the full project title.
- All documents must also have the approved University Logo and the Version number in addition to the reference and project title as above.
- A full Risk Assessment must be undertaken for this proposal, as appropriate, and be made available to the Committee if requested.
- Any changes in connection to the proposal as approved must be referred to the Panel/Committee for consideration without delay quoting your Project Reference Number. Changes to the proposed project may have ethical implications and so must be approved.
- Any untoward incident which occurs in connection with this proposal must be reported back to the Panel/Committee without delay.
- If your project involves the use of human samples, your approval is given on the condition that you or your supervisor notify the HPA Designated individual of your intention to work with such material by completing the form entitled “Notification of Intention to Work with Human Samples”. The form must be submitted to the PD (Sean Duggan). BEFORE any activity on this project is undertaken.

This approval expires on 07/12/2017. Please set a reminder on your Outlook calendar or equivalent if you need to continue beyond this approval date. It is your responsibility to reapply / request extension if necessary.
Yours sincerely

Arthur Tatton

Chair of Department of Healthcare and Food Ethics Panel
Cardiff School of Health Sciences
Llandaf Campus
Western Avenue. Cardiff. C15 2YB
Tel: 029 2041 7125
E-mail: atatton@cardiffmet.ac.uk

Cc: Bartlett, Tim

PLEASE RETAIN THIS LETTER FOR REFERENCE
Appendix 2

CORRESPONDENCE TO PROFESSIONAL BODY
25 October 2016

Dear XXXXXX:

I am a student at of Cardiff Metropolitan University and also a member XXXXX. For my dissertation, I am looking for massage therapists who have treated clients with any form of Diabetes. I would like to explore the views of practitioners as well as their experiences of physical massage treatments for those patients with secondary complications of diabetes. The aim of the study is to investigate the perceived efficacy and obstacles to treatment. I would very much appreciate your help with this.

Please could you place the attached poster on your website and/or newsletter. If you agree to do so, please confirm this by writing to me on the following email address.

Email: supervisor: tbartlett@cardiffmet.ac.uk
I look forward to your response and thank you for your consideration.

Sincerely yours,

Susie Adamus

Attachment: Poster to recruit participants
Appendix 3

POSTER ADVERT
You may be eligible to take part in this study that could help you and other therapists

Are you a Complementary Healthcare therapist, a massage therapist or reflexologist? Have you treated clients with the condition Diabetes?

I am a student at of Cardiff Metropolitan University. I am looking for massage therapists and reflexologists who have treated clients with the condition Diabetes to take part in my dissertation. I would like to explore the practitioners’ views about the physical treatments for secondary complications of diabetes in order to reveal potential discrepancies and obstacles.

If you are interested in taking part, please email my supervisor at: tbartlett@cardiffmet.ac.uk or Phone: 029 2020 5610.
Appendix 4

CONSENT LETTER FROM AWARDING BODY
December 2016

Hello Susie,

Many thanks for your enquiry.

We would be happy to distribute your request for participants for your final year dissertation project to members of [redacted] via the register and the newsletter.

Yours sincerely,

[Redacted] Administrator
Appendix 5

PARTICIPANT INFORMATION SHEET
Title: Practitioners’ View about the Role of Physical Massage and Reflexology in the Managing Complications of Diabetes

PARTICIPANT INFORMATION SHEET

I would like to thank you for your voluntary participation in this study. Firstly, I would like to justify the importance of your involvement in this project.

As you may be aware the prevalence of diabetes in the UK is increasing every year. Diabetes is a multifactorial disease and can cause numerous health problems. There have been studies that suggested that physical massage and reflexology were effective in treating clients with diabetes. Symptoms like; fatigue, pain, depression, numbness, wounds, peripheral neuropathy and even sexual dysfunction are common complications of diabetes. In this study, I will explore two different modalities; massage and reflexology. By dipping into the practitioner’s experiences I can hopefully get an indication about the efficacy and obstacles to the treatments.

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>The participant must be over the age of 18 years</td>
<td>The participant must not suffer from diabetes</td>
</tr>
<tr>
<td>Holding a minimum Level 3 Massage diploma</td>
<td>The participants must not be related to their client.</td>
</tr>
<tr>
<td>The practitioner should be practicing.</td>
<td>The participant must not apply combination of complementary</td>
</tr>
<tr>
<td>The participants should be registered with one of these professional bodies: Massage Training Institute (MTI), (IFPA), Association of Reflexologist (AoR), Complementary &amp; Natural Healthcare Council (CNHC) for a minimum of 2 years.</td>
<td>The practitioner will be excluded if she/he is a practising nurse or other conventional healthcare professionals.</td>
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<td>---</td>
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</tr>
<tr>
<td>The therapist must have treated clients with diabetes.</td>
<td></td>
</tr>
<tr>
<td>A minimum of 4 set of treatments to the same client is required.</td>
<td></td>
</tr>
</tbody>
</table>

**Your involvement:**
- You only have to take part in the interview session that will last between 30 - 45 minutes.

Your personal details and all information about the recorded interview will be kept confidential and stored in a safe secure environment. For anonymity, your name will not be exposed in the study only a pseudonym.

**Note:** You have a period of two weeks after the data validation to withdraw from this study without any obligations or reasons.

If you think you comply with all the above mentioned criteria, I will look forward to our collaboration.

Supervisor: Tim Bartlett – email: tbartlett@cardiffmet.ac.uk or Phone: 029 2020 5610.
Appendix 6

PARTICIPANT CONSENT FORM
PARTICIPANT CONSENT FORM

Reference Number: 8596
Name of participant: ...........................................................................

Title of the project: Practitioners’ View about the Role of Physical Massage and
Reflexology in the Managing Secondary Complications of Diabetes

Name of Researcher: Susie Adamus.............................................................

_________________________________________________________________
Participant to complete this section: Please initial each box.
1. I confirm that I have read and understand the information sheet for
the above study. I have had the opportunity to consider the
information, ask questions and have had these answered satisfactorily.

2. I agree to the interview being audio recorded

3. I understand that my participation is voluntary and that I am free to
withdraw within two weeks of the interview has taken place,
without giving any reason.

4. I agree to take part in the above study.

5. I agree to the use of anonymised quotes in publications

Signature of participant: .................................................. Date:......................
Signature of researcher: ................................................... Date: .......................

* When completed, 1 copy for participant & 1 copy for researcher site file
Appendix 7

INTERVIEW SCHEDULE
INTERVIEW SCHEDULE

Opening
Hi, my name is Susie Adamus. I will be interviewing you in accordance with my dissertation. This interview will take 30 to 45 minutes of your time. With this interview I aim to gather information about your experiences and knowledge in treating clients with secondary complications of diabetes.

Body

Section 1 – Information

<table>
<thead>
<tr>
<th>Question</th>
<th>Probes</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Can you tell me how long you have been a practitioner?</td>
<td>What sort of qualification do you hold? Level? Was it a certificated course?</td>
<td></td>
</tr>
<tr>
<td>2  According to your experience do you know what the possible secondary complications of diabetes can be?</td>
<td>What physical problems? What physiological problem? What psychological problems? How did you gain that knowledge?</td>
<td>Literature review/ course/ training?</td>
</tr>
<tr>
<td>3  Tell me about the clients you have with secondary complications of diabetes?</td>
<td>How many? What type of diabetes was it? Was it with Massage or Reflexology? How often? Gender? Age?</td>
<td>20's 30's 40's 50's 60's 70's</td>
</tr>
<tr>
<td>4  Do you consider any of these complications as a contra-indication?</td>
<td>Yes, why? No, why?</td>
<td></td>
</tr>
<tr>
<td>Do you have anything else to add?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 2 – Symptoms and Treatments

<table>
<thead>
<tr>
<th>Question</th>
<th>Probes</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Were you including or addressing symptoms of diabetes in the treatment?</td>
<td></td>
<td>Any common symptoms?</td>
</tr>
<tr>
<td>2  Was this the primary reason for the client having the treatment?</td>
<td>Were there other underlying reason for a treatment?</td>
<td></td>
</tr>
<tr>
<td>3  Were there secondary symptoms, related to their diabetes, which you treated?</td>
<td>What were the symptoms?</td>
<td>You have not mentioned depression/anxiety/wounds….</td>
</tr>
<tr>
<td>4  Were the presenting conditions and the treatments mainly for things other than related to diabetes?</td>
<td>What other things other than diabetes were the symptoms related to?</td>
<td></td>
</tr>
<tr>
<td>5  Briefly talk me through how you would go about assessing and working with a client with secondary complications of diabetes</td>
<td>Do you inform the client about the effects of the treatment? Benefits?</td>
<td>Adjust the massage table? Help the client to get out of the table.</td>
</tr>
<tr>
<td>6  What kind of massage/reflexology techniques have you used?</td>
<td></td>
<td>You have not mentioned…..</td>
</tr>
<tr>
<td>7  Did you add special modification / arrangements or alterations to your treatment for this specific client?</td>
<td>What modification? What arrangements? require client to have a light meal before treatment to maintain blood glucose level Blood glucose level reading on that day? Type 1 diabetes? Do you have a contact number of a next kin in case of emergency?</td>
<td></td>
</tr>
</tbody>
</table>

Any further comments?
## Section 3 – Client Perspective

<table>
<thead>
<tr>
<th>Question</th>
<th>Probes</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Do you think there are specific reasons why people with diabetes come for massage/reflexology?</td>
<td>What kind of reasons?</td>
<td></td>
</tr>
<tr>
<td>2  In your experience is there a preference in the selection of treatment?</td>
<td>Why do you think people prefer Massage?</td>
<td>Why Reflexology?</td>
</tr>
<tr>
<td>3  What were the benefits of the massage/reflexology treatment for the client?</td>
<td>Do you monitor the client’s progress? How do you do that?</td>
<td>Using outcome measures</td>
</tr>
<tr>
<td>4  Were these benefits directly related to the client’s diabetes?</td>
<td></td>
<td>Clients own report</td>
</tr>
<tr>
<td>5  What kinds of things are clients surprised by during the course of their experience with you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6  Do you think you have successfully addressed the client’s expectations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7  Were there other unexpected results from the treatments?</td>
<td>What strategies do you have for doing that?</td>
<td></td>
</tr>
<tr>
<td>Any further comments?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 4 – Research; to support the practitioner

<table>
<thead>
<tr>
<th>Question</th>
<th>Probes</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Do you ever refer to research in your practice?</td>
<td>Where have you searched?</td>
<td>Free sources, paid sources, via course institution</td>
</tr>
<tr>
<td>2  Are you aware that research studies can help you tailor a treatment plan for a client?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  Do you back up your rationale for certain treatment plan with research papers?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  Do you think there is enough research to support practitioners?</td>
<td>Why do you think so?</td>
<td></td>
</tr>
<tr>
<td>5  Going back to your studies, was research included in your course/training?</td>
<td>Was it useful?</td>
<td>Why was it?</td>
</tr>
<tr>
<td>6  Would you like to be involved in a research project in your field?</td>
<td>What topic are you interested in?</td>
<td></td>
</tr>
<tr>
<td>7  What is your opinion about support to conduct a research study?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8  Any further comments?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 5 - Obstacles and/or discrepancies

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Probes</th>
<th>Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What problems do you encounter when treating this group of clients?</td>
<td></td>
<td>Problem related to techniques, Anatomy and Physiology, pathology?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Client handling?</td>
</tr>
<tr>
<td>2</td>
<td>Have you undertaken any CPD in this area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>According to your experience do you think there is a need for developing of specialised training for treating people with diabetes?</td>
<td>Why do you think so?</td>
<td>Massage Lymph drainage for diabetes patients</td>
</tr>
<tr>
<td>4</td>
<td>Do you think the NHS/authorities has to contribute to the recognition of CAM in NHS/GP practices?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Any further comments?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Closing

I want to thank you for your time to participate in my study. I want to emphasise that there will be no identifiable details in the transcript. You will be given a pseudonym. You will receive the transcript of the interview as soon as I have completed it. In case you are not happy with the transcription you can amend it and I would ask that you do so within a seven-day period.
Appendix 8

LIST OF PSEUDONYMS
List of Participants’ Pseudonyms

<table>
<thead>
<tr>
<th>Participant name</th>
<th>Pseudonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amaryllis</td>
</tr>
<tr>
<td>2</td>
<td>Begonia</td>
</tr>
<tr>
<td>3</td>
<td>Clover</td>
</tr>
<tr>
<td>4</td>
<td>Daffodil</td>
</tr>
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</table>
## 8. Word Count

<table>
<thead>
<tr>
<th>Section</th>
<th>Words</th>
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<tbody>
<tr>
<td>Abstract</td>
<td>190</td>
</tr>
<tr>
<td>Introduction</td>
<td>641</td>
</tr>
<tr>
<td>Review of the Literature</td>
<td>4266</td>
</tr>
<tr>
<td>Method</td>
<td>1039</td>
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