

**An exploration into the diagnosis and management of neck pain by
Ayurvedic practitioners in South Africa**

**By
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I, Karmen Manda, do declare that this dissertation is representative of my own
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DEDICATION

To, Jesus Christ

“Therefore, do not worry about tomorrow, for tomorrow will worry about itself, each day has enough trouble of its own.” Matthew 6:34

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My mom, you are beautiful both inside and out. You truly are a Proverbs 31 woman. Thank you for your kind words and warm hugs during this studying journey. Thank you for your continuous prayers and thank you for your endless love and support. I love you with all my heart, mom.

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ABSTRACT

Background

The health care system of South Africa is growing exponentially and providing patients with various treatment options. Recently, Ayurveda has become popular because of its nature-based and spiritual approach to ailments. Neck pain has been researched to a great extent in allopathic medicine, but not in the context of Ayurvedic medicine. Although there is a wealth of information regarding Ayurveda and its basic principles, there are limited publications on the Ayurvedic approach to common musculoskeletal conditions such as neck pain. Therefore, the aim of this study was to determine the Ayurvedic approach to the diagnosis and management of neck pain by Ayurvedic practitioners in South Africa.

Method

A qualitative exploratory descriptive study was conducted using standardized open-ended questions. Eight Ayurvedic practitioners, from South Africa, from the provinces of KwaZulu-Natal and Gauteng, were interviewed to establish their methods of diagnosis and management of neck pain. The interviews were semi-structured and conducted in English and later transcribed verbatim. The transcripts were then analysed using thematic analysis to establish codes, categories and themes.

Results

Eight out of thirteen registered Ayurvedic practitioners in South Africa participated in the study. Five main themes emerged from the data: the Ayurvedic approach to management of neck pain, the Ayurvedic diagnosis of neck pain, the Ayurvedic treatment of neck pain, the use of modalities in the Ayurvedic profession for the management of neck pain and the basis of referral in the Ayurvedic profession to manage a patient with neck pain.

Participants discussed the importance of the three *dosha* principle and the importance of knowing the “root cause” of an ailment as an integral part of the management of a patient with neck pain. The three *dosha* principle focuses on *vata*, *pitta* and *kapha*, which are the constituents of the human body. It is essential that there is homeostasis of the three *doshas* to maintain good health and a

disease-free state. The participants, in this study, discussed the root cause of an ailment as being the underlying factors that bring about pain in the body. Participants stressed the importance of the “pulse diagnosis,” the integration of modern technology and the threefold principle of *darshana*, *sparshna* and *prashana* in order to properly diagnose a patient. These diagnostic tools emphasize the holistic approach of the Ayurvedic system of medicine. The treatment method varied amongst participants. Although each practitioner practices differently, the basic principles of the profession are still applied when administering treatment to a patient. Treatment focused on *panchakarma therapy*, *greeva basti*, *shirodhara*, massage and *potli therapy*, herbal oils and medication. The goal of Ayurvedic treatment is to pacify the aggravated *doshas*, utilizing these various treatment options. Participants in this study focused on *yoga*, *marma therapy* and patient education as modalities that are utilized by the profession to assist in the management of neck pain. They discussed the importance of referral to the appropriate health care professional, so that the patient receives the best possible care.

The results of this study revealed that the Ayurvedic system of medicine is a holistic system of medicine that addresses all aspects of the mind, body and spirit. In Ayurveda, the management of a patient relies on the patient, practitioner and the “three *dosha* principle”. The foundation of the “three *dosha* principle” focuses on *vata*, *pitta* and *kapha*. Essentially, various ratios of *vata*, *pitta* and *kapha* exist in every individual, however, when there is lack of homeostasis between these three elements, disease occurs in the body. The therapeutic goal in Ayurveda is to restore *doshic* balance in the body.

Conclusion

This is the first South African study to be conducted on the Ayurvedic management and diagnosis of the musculoskeletal condition, neck pain. This study will add to the body of literature and enable other practitioners to have a better understanding of Ayurveda, thus giving the patient the best, appropriate care available. The foundation of Ayurveda is the “three *dosha* principle” which the profession applies to holistic patient management, focuses on the mind, body and spirit of the patient, rather than the disease per se.

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DEFINITIONS

Traditional medicine: A system of medicine, based on oral tradition, which encompasses the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health (Chaudhary and Singh 2011).

Traditional Indian Medicine: A system of traditional medicine that has originated from India; such as Ayurveda (Jaiswal and Williams 2017).

Ayurveda: A form of traditional Indian medicine which concentrates on holistic management based on the *tridosha* principle (Jaiswal and Williams 2017).

Tridosha principle: A principle that focuses on the equilibrium of the bodily constituents of *vata*, *pitta* and *kapha* (Kumar *et al.* 2017).

Vata: Vata is one of the three doshas and is responsible for movement in the body (Patwardhan *et al.* 2005).

Pitta: Pitta is another element of the three doshas and is responsible for the functioning of the metabolic system (Patwardhan *et al.* 2005).

Kapha: Kapha is the third element of the doshas and is responsible for mental and physical functioning (Patwardhan *et al.* 2005).

Complementary and Alternative Medicine: A system of medicine that encompasses diagnostic and therapeutic disciplines that are used as an adjunct to other forms of treatment therapy (Hwang *et al.* 2018).

Chiropractic: A system of Complementary and Alternative Medicine based on the diagnosis and manipulative treatment of misalignments of the joints (Brosnan 2017).

CHAPTER ONE - OVERVIEW OF THE STUDY

1.1 INTRODUCTION

Neck pain is a common condition which refers to pain within the cervical region (Cooper 2014). The aetiology is multifactorial (Phadke *et al.* 2016). It is considered to be a primary musculoskeletal condition and has rapidly become a health concern globally (Kim *et al.* 2018).

Various treatment options for neck pain exists (Phadke *et al.* 2016), with the most common being pharmaceuticals, complementary and alternative medicine (CAM) therapies such Chiropractic and Homeopathy as well as traditional medicine, which includes but is not limited to Traditional African Medicine (TAM), Traditional Chinese Medicine (TCM) and Ayurveda (Mann and Pathak 2018).

The World Health Organization (WHO) defines traditional medicine as follows:

“Traditional medicine is the knowledge, skills and practices of holistic healthcare, recognized and accepted for its role in the maintenance of health and the treatment of diseases. It is based on indigenous theories, beliefs and experiences that are passed on from generation to generation” (Chaudhary and Singh 2011).

Ayurveda is a one of the most well recognized forms of traditional medicine, with its roots established in India. It is a healing system which utilizes individualized treatment options which include but is not limited to, herbal medication, *yoga* and massage (Chinsamy 2017). Ayurveda is an ancient traditional Indian system of medicine, that the WHO has recognized as an important aspect of health care. According to WHO, 80% of individuals internationally rely on traditional medicine such as Ayurveda for health purposes (Parasuraman, Thing and Dhanaraj 2014). Moreover, the WHO has listed 20 000 plants for medicinal purposes, with India's contribution ranging between 15-20% (Bijauliya *et al.* 2017). Ayurveda has a worldwide establishment, being attentive to the patient as a unique individual (Morandi *et al.* 2011).

The Indian population rely on Ayurveda as a system of medicine based on faith, which is an important aspect in the Indian community (Yusoff 2018). In India, the rural population makes up 70% of the entire population, which utilize Ayurveda. Similarly, the Indian population in South Africa consists of 1.29 million Indian people, of which a large number make use of this knowledgeable system of medicine (Yusoff 2018). Furthermore, Ayurveda has become a respectable profession which is practiced worldwide and thus become intercultural. It is utilized as an alternative to allopathic medicine in many parts of the world (Chaudhari *et al.* 2018).

1.2 CONTEXT OF THE STUDY

Although pharmacological treatment has been the most favourable treatment option, some patients are seeking alternative and cost effective treatment options because of the number of side effects (Bronfort *et al.* 2012). South African health care systems are developing, therefore it is important to explore various traditional medicine practices (Chinsamy 2017).

Ayurveda is a form of traditional Indian medicine which encompasses the management and diagnosis of various conditions, however, there is lack of literature on neck pain (Jan *et al.* 2015). The origin of Ayurveda is in India, -based on the principles of *Sankhya philosophy*. Ayurveda, which is based on the principles of body, mind and spirit determines the root cause of the condition and focuses on the root cause when treating a patient (Patwardhan and Mashelkar 2009). Ayurveda is a healing system which uses an holistic approach to patient care, focusing on the prevention of a condition (Samal 2013).

The philosophy of Ayurveda is based on the three *dosha* principle or the tridosha, namely, the *vata*, *pitta* and *kapha doshas*. When there is an imbalance of these three *doshas* in the body, sickness will occur. Ayurvedic treatment aims to pacify the *doshic* imbalance thus allowing the body to heal naturally (Jaiswal and Williams 2017).

The field of traditional medicine is not a new concept. South Africa is a diverse nation consisting of various ethnic groups, with a range of knowledge systems which have impacted on health care, with a diverse approach to common conditions. When comparing the various types of traditional medicine, in South Africa, Ayurveda is one which is accepted and practised (Chinsamy 2017).

A study of this nature will benefit both CAM and traditional medicine as it will allow for a multidisciplinary approach to neck pain. It will also allow for inter-referral relationships to be established, thus allowing for optimal patient management; as multidisciplinary management has shown to be clinically effective in the management of several musculoskeletal conditions (Volker *et al.* 2017).

1.3 PROBLEM STATEMENT

It is said that pain originates from different sources; thus pain can be perceived differently by each individual, depending on the cultural background of the individual, as a result, it may ultimately be a challenge to effectively treat individuals from different cultural backgrounds and different belief systems (Mahomoodally 2013).

Approximately 80% of South Africans use traditional medicine for a number of medical conditions such as hypertension, arthritis and diabetes (Chinsamy 2017). Traditional medicine does not only include TAM, it also includes Traditional Indian Medicine (TIM), namely Ayurveda (Reddy 2017).

There is a growing number of registered Ayurvedic practitioners in South Africa. However, little is known about specific management regimes of musculoskeletal disorders such as neck pain. Furthermore, to determine and encourage multidisciplinary approaches to such disorders, it is vital that we understand the various management protocols utilized by Ayurvedic practitioners in South Africa.

1.4 AIM OF THE STUDY

The aim of this study was to explore the diagnosis and management of neck pain by Ayurvedic practitioners in South Africa.

1.5 RESEARCH QUESTIONS

Grand tour question:

As an Ayurvedic practitioner describe the Ayurvedic management of neck pain.

Sub questions:

Describe the Ayurvedic approach to diagnosis of neck pain.

Describe the Ayurvedic approach to treatment of neck pain.

Describe the various other modalities, if used, in the Ayurvedic approach to the management of neck pain.

Describe when referral can be done.

1.6 CONCLUSION

There are innumerable treatment options for the management of neck pain. Each sector of medicine diagnoses and manages a patient differently. Each philosophy is based on a set of unique principles which aid in the management of a patient. This study will give the chiropractic profession insight into the understanding of Ayurvedic medicine and how Ayurvedic practitioners' diagnose and manage neck pain in comparison to allopathic medicine and chiropractic. This chapter discussed the background and purpose of this study. Chapter 2 will provide relevant literature on neck pain, non-allopathic medicine, Ayurveda and Chiropractic.

CHAPTER TWO – LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the literature on neck pain, anatomy of the neck, non-allopathic medicine, the chiropractic diagnosis and management of neck pain, and Ayurvedic diagnosis and management of neck pain.

Neck pain affects a number of individuals globally (Kim *et al.* 2018). Neck pain refers to pain that occurs in the cervical spine and or shoulder area (Ahmed Samir Mohamed Abdelhamid 2015). The aetiology of neck pain is multifactorial, including individual, physical and psychosocial factors (Paksaichol, Lawsirirat and Janwantanakul 2015), such as fear, depression, job strain and job dissatisfaction (Bialosky, Bishop and Cleland 2010).

The treatment that the patient receives depends largely on the practitioner (Deyo 2017). Pharmacological interventions have several side effects. Consequently, non-pharmacological options, such as traditional medicine and CAM, are gaining popularity because they are accessible and safe alternatives and have proved their efficacy in the management of neck pain (Bronfort *et al.* 2012).

Ayurveda is gaining popularity worldwide (Jaiswal and Williams 2017). It is a system of medicine which has a holistic approach, managing the mind, body and spirit of the patient (Chaudhary, Singh and Kumar 2010).

The Ayurvedic system of medicine focuses on promoting the overall health of the patient as well as preventing disease. It is a precise system of medicine that enables patients to have an optimal state of health and well-being (Chaudhary, Singh and Kumar 2010). Ayurveda is an ancient system of medicine that has proven to be effective in the management of a number of conditions, however, it has not been explored to its fullest and requires further investigation (Jaiswal and Williams 2017).

2.2 ANATOMY OF THE CERVICAL SPINE

The understanding of the anatomy of the cervical spine is vital in evaluating a patient with neck pain. The cervical spine is made up of seven cervical vertebra which interconnect above and below via the ligaments, intervertebral discs and muscles of the cervical spine; this serves as a biomechanical chain to allow for mobility of the head and neck as well as positioning of the eyes on the relatively immobile thoracic spine (Nguyen *et al.* 2016).

The cervical spine is divided into two entities: upper (from C0 – C2) and lower (from C3 – C7). Vertebrae of C0 – C2 and C7 are atypical, vertebrae C3 – C6 are typical vertebra. These two entities work together to produce lateral flexion, rotation, flexion and extension of the head and neck (Nguyen *et al.* 2016). The first two vertebra are given unique names, namely atlas (C1) and axis (C2). The C1 vertebra acts as a ring that the skull rests upon and articulates like a pivot joint with the odontoid process of C2, which allows for mobility of the skull. The thoracic and lumbar regions are not as mobile as the cervical region of the spine. Unlike the other regions of the spine, the cervical spine has transverse foramina in each vertebra which accommodate the vertebral arteries, which supply blood to the brain (Moore *et al.*, 2010).

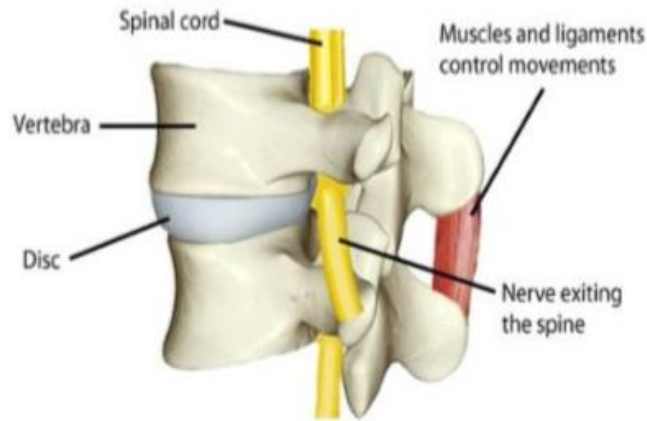


Figure 2.1: Depicts the lateral view of the cervical spine (Abu-Naser and H Almurshidi 2016)



Figure 2.2: Depicts the posterior view of the cervical spine (Lopez *et al.* 2015)

The intervertebral discs (IVD) make up 25% of the cervical spine height. It is thicker anteriorly and is responsible for the cervical lordosis. The IVD of the cervical spine bears more weight because of the facets having minimal weight bearing function. Discs provide protection and support to the spine (Wilke and Volkheimer 2018). Ligaments and muscles are vital in providing stability to the

neck, however, in the cervical spine, the spinous process is short, causing certain muscles, like the trapezius and splenius capitis, to attach to the nuchal ligament as opposed to the vertebra. Muscles and ligaments provide strength and facilitate the movement in the cervical spine (Fine and Stokes 2018).

2.3 EPIDEMIOLOGY OF NECK PAIN

Musculoskeletal conditions are common, with neck pain ranked as the fourth most disabling condition worldwide, a major contributor to the global disability burden, resulting in significant costs to health care (Chou 2018). Many individuals experience neck pain at some point in their lifetime. Annually, an episode of neck pain occurs in 15-20% of the general population, in 15-60% of working individuals and in 10-14% of those individuals in motor vehicle accidents. The prevalence of neck pain varies from 12-72% in the general population and from 27-48% among working individuals (Gross *et al.* 2015).

Office workers are more susceptible to developing neck pain, with a prevalence of 13-48% annually (Paksaichol, Lawsirirat and Janwantanakul 2015). There is a higher prevalence of neck pain in females compared to males, which increases in women between the ages of 40 to 60 years of age (Paksaichol, Lawsirirat and Janwantanakul 2015). The annual prevalence of activity limitations related to neck pain has been reported as 11% in the United Kingdom and 14% in Canada (Gross *et al.* 2015). Societal and personal burden from persisting symptoms of post whiplash injury has been described in up to 50% of those attending an emergency department (Gross *et al.* 2015).

Slabbert (2010) reported a prevalence of neck pain among Caucasian eThekweni municipality residents to be 50%, while Muchna (2011) identified a 36.8% prevalence among Indians. Ndlovu (2006) reported a 45 % neck prevalence among Black African residents of eThekweni municipality. These studies reveal the prevalence of cervical pain among all the ethnic categories in the eThekweni municipality.

2.4 AETIOLOGY OF NECK PAIN

When addressing neck pain, it is important to consider the causes associated with the development of neck pain, such as mechanical, psychosocial, organic and non-organic causes, as this is vital in the diagnosis and management of neck pain (Evans 2014).

Mechanical causes of neck pain include, but is not limited to, poor posture and whiplash (Abu-Naser and H Almurshidi 2016). The musculature of the neck can be adversely affected by poor posture, which occurs as a result of muscles tightening and shortening, while other muscles lengthen and become weak, thus resulting in muscle imbalance, which subsequently causes neck pain (Abu-Naser and H Almurshidi 2016). Whiplash injuries occur as a result of rapid extension and flexion of the neck, which subsequently causes strain on the musculature of the neck, resulting in neck pain (Tanaka *et al.* 2018).

Recognizing psychosocial factors, could lead to a decrease in disability in the workplace (Jacukowicz 2016). Psychosocial factors include: increased job demand, job insecurity, which can then lead to depression and anxiety, causing biomechanical strain on the musculature of the neck, subsequently leading to the development of neck pain (Swanson *et al.* 2016).

The most common organic cause of neck pain are tumours which has become an area of concern. Tumours can be benign or malignant, both of which can cause musculoskeletal pain (Cocks *et al.* 2016). Non-organic causes of neck pain include conditions such as cervical facet syndrome, which accounts for 55% of patient cases (Wolter, Kleinmann and Knoeller 2018). Cervical facet syndrome occurs a result of trauma to the facet joints, subsequently causing varied clinical presentations, such as cervical radiculopathy, in which the nerve becomes irritated or impinged (Evans 2014). When considering neck pain, it is important to look at the patient holistically and to implement a multidisciplinary approach (Cocks *et al.* 2016), in order to properly manage the patient (Evans 2014).

2.5 RISK FACTORS

Risk factors make an individual more susceptible to developing a pathology. Early identification of risk factors associated with musculoskeletal conditions, particularly neck pain, can result in prevention of the condition (McLean *et al.* 2010), which will enable better patient management (Cagnie *et al.* 2007). Risk factors associated with the development of neck pain include: psychopathology (depression, anxiety, poor coping skills), smoking and obesity (Cohen 2015).

Common risk factors relative to occupation and lifestyle are termed as “*yellow flags*”. “*Yellow flags*” is an important aspect of developing a clinical picture of neck pain, but it is often ignored when dealing with musculoskeletal complaints like neck pain. These risk factors include, but are not limited to, irrational fears about pain or injury, negative beliefs about recovery or even life in general, and distressed affect which includes nervousness, anxiety and depression. Individual risk factors include older age. Elderly individuals are more susceptible to degenerative conditions, which is strongly associated with the development of neck pain, lack of physical activity coupled with a sedentary lifestyle and strenuous activity which places great strain on the musculature of the cervical spine (Hartvigsen *et al.* 2018).

Smoking is a risk factor for neck pain; chemicals in cigarettes cause weakening of bone tissue, decrease cartilaginous density and loss of cartilage, which accelerates degeneration of the spine, which leads to the development of neck pain (O'Sullivan 2011).

Occupations such teaching and administrative professions, where the individual is under pressure, and has to work long hours at the computer or have their head in the flexed position for prolonged periods of time, are more likely to develop neck pain (Ehsani *et al.* 2018).

2.6 SYMPTOMS OF NECK PAIN

Every individual is unique; therefore, the presentation of neck pain will vary from patient to patient. Some patients may experience mild to moderate pain whereas

others may experience unbearable pain with associated signs and symptoms (Kaplan 2016).

When considering the symptoms of neck pain, it is important to consider the associated signs and symptoms of the pain which differs from person to person (Jull *et al.* 2018). Associated symptoms of neck pain are often complex, including one or a combination of the following: neck, shoulder and thoracic pain; stiffness which is indicative of joint or facet related conditions; numbness and tingling which is associated with nerve root entrapment; dizziness and blurred vision are considered to be an area of concern and the underlying cause needs to further investigated (Liu *et al.* 2018).

The management of the patient often depends on the clinical presentation of the patient as well as the practitioner. Practitioners may opt to refer the patient or treat the patient themselves (Cagnie *et al.* 2015).

2.7 TREATMENT OF NECK PAIN

There are numerous treatment options available for neck pain (Babatunde *et al.* 2017). The management of neck pain varies amongst practitioners. The most successful methods of treatment include physiotherapy, manipulation and exercise therapy (Langenfeld *et al.* 2015). Other methods of treatment include acupuncture, cognitive therapy and electro-modalities (Langenfeld *et al.* 2015). Surgery is considered when there are neurological symptoms involved (Babatunde *et al.* 2017).

Pharmacological treatment is the most popular method of treatment for most individuals (Babatunde *et al.* 2017), which includes the administration of opioid and non-opioid analgesics by the practitioner (Hwang *et al.* 2018). Although this form of treatment is effective, it becomes costly when the patient has a chronic condition (Babatunde *et al.* 2017), and there are associated side effects, which include nausea, vomiting, pruritus and constipation; that need to be considered when administering the medication (Aggarwal *et al.* 2011). The most popular non-pharmacological treatments include Complementary and Alternative Medicine (CAM) and traditional medicine (Hwang *et al.* 2018). CAM includes the field of

Chiropractic. The Chiropractic profession uses non-invasive methods, such as spinal manipulation and mobilization, soft tissue and modalities to treat patients. In addition, there are traditional medicine practices, such as Ayurveda which, like Chiropractic, utilizes non-invasive techniques, including but not limited to herbal preparations (Tabish 2008).

2.8 NON - ALLOPATHIC MEDICINE

The South African health care system is under stress, facing a number of challenges. Consequently, patients are using non-allopathic methods of treatment such as CAM and traditional medicine which are both cost effective and beneficial. CAM refers to any practice of medicine outside the mainstream practice of conventional allopathic or western medicine. CAM includes Chiropractic, Homeopathy and Naturopathy; whereas traditional medicine includes African, Indian and Chinese medicine (Hwang *et al.* 2018).

Patients often use CAM as an alternative to western medicine or as an adjunct (Çarman *et al.* 2018). It is becoming increasingly popular in western medicine, because patients and practitioners believe that “natural is better” (Ravindran *et al.* 2016). There are approximately 120 CAM therapies available, the most popular being Chiropractic (Murthy, Sibbritt and Adams 2015). Doctors of Chiropractic form an integral branch of CAM. Chiropractors often see patients with neuromusculoskeletal complaints. Treatment approach varies amongst practitioners, the most popular method being spinal manipulative therapy (Kendall *et al.* 2018). It is a non-pharmacological and non-invasive approach that has shown efficacy in the management of neck pain by improving the quality of life and decreasing pain (Herman *et al.* 2018).

Traditional medicine differs in its philosophical approach, because it is based on the belief that the human body can heal itself (Tabish 2008). Treatment in traditional medicine focuses on the mind, body and spirit. Treatment is individualized because each patient is unique (Tabish 2008). Traditional medicine utilizes natural products that are proven to be effective since 200BC (Yuan *et al.* 2016). The most popular and ancient form of traditional medicine is Ayurveda (George, Oluwafemi and Joseph 2017). Ayurveda focuses on a number of

ailments. Patients make use of this approach because of their faith, their belief that it is a safe approach, and also because it is a cost-effective method of treatment with promising results (Thirthalli *et al.* 2016).

Furthermore, patients are becoming more aware of their health; this has led them to making use of CAM and traditional medicine. Traditional medicine is gaining popularity worldwide because of the natural treatments which utilize medicinal herbs (Hughes 2015). Other common CAM techniques include, dry needling, acupuncture and aromatherapy (Ernst 2000).

2.9 ORIGIN AND HISTORY OF CHIROPRACTIC CARE

Chiropractic is 120 years old and has become a recognized profession (Walker 2016). The foundation of the Chiropractic profession is based on the belief that a vertebral joint has a center of motion which functions within a particular field of motion. The goal of Chiropractic is to align the joints that are no longer in the center of motion and are not in the field of motion, through a Chiropractic adjustment, subsequently resulting in restoration of joint motion and reduction of pain (Brosnan 2017).

The Chiropractic profession utilizes a therapeutic approach which focuses on: diagnosis, treatment and prevention of musculoskeletal disorders through Chiropractic manipulation which is a manual form of therapy, that allows the Chiropractor to restore the normal range of motion and function of the joints, muscles, and ligaments (Conesa *et al.* 2018). Chiropractic has become increasingly popular because of its non-pharmacological approach to patient care. Doctors of Chiropractic not only treat patients, but also provide dietary advice, home therapy and education (French, Downie and Walker 2018).

2.10 CHIROPRACTIC DIAGNOSIS AND MANAGEMENT

The primary focus of Chiropractic is neuromusculoskeletal complaints which include, but is not limited to, hip, knee, lower back and neck pain. A Doctor of Chiropractic utilize the Chiropractic manipulation/adjustment as the main treatment protocol as well as other modalities, such as dry needling and electro-modalities (Fine and Stokes 2018).

Patients with cervical, thoracic and lumbar pain visit Chiropractors daily. Each practitioner examines the patient differently, however, taking a proper case history, performing a full physical examination, relevant orthopaedic examinations and an anterior, posterior and lateral postural assessment are important aspects of a Chiropractor's diagnostic approach. Chiropractors also refer patients for relevant investigations, such as radiographic imaging and blood tests, to ensure that serious pathologies, such as tumours, are not overlooked (Seffinger *et al.* 2004).

Doctors of Chiropractic assess a patient's gait, posture, joint motion, neurological red flags and palpation of musculature, to obtain a clinical picture for correct diagnosis and management of the patient is determined (Young 2014). The manner in which the patient is managed depends largely on clinical findings (Seffinger *et al.* 2004).

Chiropractic treatment for neck pain is discussed below:

2.10.1 Spinal manipulation and mobilization

Manipulation and mobilization are techniques that are used regularly by Chiropractors. The goal of both these methods of treatment is to increase the range of motion and decrease pain and immobility. Although the goal is the same, they differ in application. Manipulation is a high-velocity, low-amplitude thrust (Casanova-Méndez *et al.* 2014), associated with a cavitation phenomenon, where a click or pop is heard when the patient is manipulated (Vernon, Humphreys and Hagino 2007). Mobilization is a low velocity, high amplitude passive motion and is not associated with the cavitation phenomenon (Snodgrass *et al.* 2014). These techniques, although different, have been said to produce similar effect in terms of pain, function and patient satisfaction (Miller *et al.* 2010).

2.10.2 Soft tissue manipulation

Soft tissue manipulation is commonly practiced by Chiropractors. Some practitioners prefer to do soft tissue manipulation prior to or after the Chiropractic manipulation to relax the patient, whilst others prefer to use Chiropractic manipulation only. Both methods have been effective and have had positive

outcomes in terms of pain reduction (Piper *et al.* 2016). There are different types of soft tissue massage, namely relaxation, clinical, movement, re-education massage (Sherman *et al.* 2006). The type that is used depends on the patients' needs and the main goal of treatment (Koren and Kalichman 2018).

The aim of relaxation massage is to remove tension from the body and to relax the patient. Techniques include Swedish massage and sports massage. Clinical massage is more commonly used by Chiropractors to release myofascial trigger points, thus reducing tension, reducing pain and increasing range of motion. Movement re-education, which includes various types of stretching such as proprioceptive neuromuscular facilitation and strain-counter strain techniques, are used often to increase movement and restore posture (Sherman *et al.* 2006).

2.10.3 Modalities

Chiropractors use modalities such as cryotherapy, thermotherapy, and electrotherapy as an adjunct to the treatment of musculoskeletal conditions (Graham *et al.* 2013). Thermotherapy (heat) and cryotherapy (cold) are both effective modalities; in-clinic devices or home application with a hot water bottle or ice pack can be used to treat the area of concern. These modalities create physiological changes within the body, such as changes in blood flow, nerve conduction, and metabolic function which assist with the healing process (Graham *et al.* 2013).

Electrotherapy, which includes electrical nerve stimulation, electrical muscle stimulation and transcutaneous electrical nerve stimulation (TENS), is popular. TENS is a useful modality as it can be used to treat both chronic and acute pain. TENS treats conditions such as muscle tissue inflammations by using low-voltage electric currents that travels through the nerve fibres to reduce the pain. Interferential current (IFC) targets tissues to relieve pain due to muscle strains and sprains, inflammation and joint problems (Facci *et al.* 2011).

The field of Chiropractic uses a purely non-pharmacological approach to patient management, focusing on the use of spinal manipulation as a protocol for treatment (Sklar 2018).

2.11 ORIGIN OF AYURVEDA

Ayurveda is a profession that has grown through the decades and is globally recognized. Ayurveda is not only a system of medicine, but also a “science of life” (Bagde *et al.* 2017), with a wealth of knowledge of nature-based medicine. It focuses on the human body, the environment and the universe (Mukherjee *et al.* 2008).

“*Ayu*” translates to “*life*” and “*veda*” translates to “*science*”, thus “*Ayurveda*” is the “*science of life*.” Ayurveda also means “*science of longevity*” because it promotes a system of preventative medicine and promotes a long healthy life for all individuals (Pandey, Rastogi and Rawat 2013). Its approach to health care is unique and favorable; it is integration of the mind, body and spirit (Chaudhary, Singh and Kumar 2010).

The Ayurvedic system of medicine is complex and encompasses eight key categories (Chaudhari *et al.* 2018):

1. *Kaya Chikitsa*: General Medicine
2. *Bala Chikitsa*: Pediatrics, Gynecology and Obstetrics
3. *Graha Chikitsa*: Psychiatry
4. *Shalakya Tantra*: Ophthalmology, Ears, Nose and Mouth
5. *Vajikarana*: Reproduction
6. *Rasayana Tantra*: Geriatrics
7. *Shalya Tantra*: Surgery
8. *Agada Tantra*: Toxicology

Ayurveda originated in India in the second century BC as an oral tradition (Jaiswal and Williams 2017). The ancient texts consist of extensive knowledge on the causes, symptoms and treatment approaches of diseases pertaining to the above

mentioned eight categories (Jain, Jain and Diwedi 2018). The core principles of Ayurveda are based on three comprehensive texts namely, the *Charaka Samhita*, *Susruta Samhita* and the four *Vedas* (Bhagat and Sharma 2019):

1. *Rig Veda*
2. *Yajur Veda*
3. *Sam Veda*
4. *Atharva Veda*

The term *Veda* refers to “*knowledge*” (Lekshmi *et al.* 2018). The first three *Vedas* are known as *trayī vidyā* (the triple science) (Varshney and Suresh 2015). Each *Veda* provides information on the development of the Ayurvedic system of medicine; however, the fourth *Veda*, that is the *Atharva Veda*, contains information about an individual’s health and diseases of the body (Tripathi *et al.* 2000). Essentially the four *Vedas* are the source of knowledge for the Ayurvedic system of medicine (Lekshmi *et al.* 2018).

Similarly, the *Charaka Samhita* is one of the most important medical treatises that dates back to 800 BC and is an integral component of the establishment of the Ayurvedic system of medicine (Gupta *et al.* 2015). It functions alongside the four *Vedas* (Sinha *et al.* 2018). It consists of eight books, with one hundred and twenty chapters, in which the diagnosis and treatment of diseases are discussed in detail (Khatri, Pawar and Khardenavis 2018). These eight books include (Jalaj, Williams and Suja 2016):

1. *Sutra Sthana* – consists of thirty chapters which focuses on the general principles of the Ayurvedic system of medicine, and contains philosophies, preventive measures of living a healthy lifestyle; it discusses the benefits of various foods to maintain a healthy lifestyle and teaches doctor-patient etiquette.
2. *Nidana Sthana* – consists of eight chapters which focus on specific pathologies and causative factors of each pathology.
3. *Vimana Sthana* – consists of eight chapters which discuss pathologies, and like *Sutra Sthana* it reiterates the importance of professional etiquette, and diet.

4. *Sarira Sthana* – consists of eight chapters which discuss the anatomy of the human body in detail, the concepts of *kaal* and *akaal mritu* which refers to timely and untimely death and factors which contribute to longevity of life.
5. *Indriya Sthana* – consists of twelve chapters which focus on the diagnosis and prognosis of a patient, dreams and the relevance of dreams in terms of longevity of life.
6. *Cikitsa Sthana* – consists of thirty chapters which discuss the treatment protocols of various conditions.
7. *Kalpa Sthana* – consists of twelve chapters which elaborate on the preparation and required dosage of medicinal treatments and focuses on emetic and purgative medicine used in the *panchakarma therapy*, as well as the signs and symptoms of overuse and adverse reactions to the medicine.
8. *Siddhi Sthana* – consists of twelve chapters focusing on the first stage of the cleansing process, *poorva karma*. It also provides detailed information on the main procedure of the cleansing process, that is the *panchakarma therapy*.

The *Susruta Samhita* which dates back to 700 BC is a comprehensive text that focuses on medicine and surgery. It consists of one hundred and eighty six chapters and six sections (Bagde *et al.* 2017):

1. *Sutra Sthana* –is the first section of the *Susruta Samhita* and is composed of forty-six chapters which discusses the fundamental principles of Ayurveda. It focuses on the origin of Ayurveda, the eight categories of Ayurveda and its significance to medicine. It details surgical preparations, the use of surgical instrumentations and preparations of anti-septic medication. It focuses on patient management in terms of adequate patient care.
2. *Nidanasthana* - consists of sixteen chapters which focus on sixteen diseases in which the etiology, pathogenesis, signs and symptoms,

clinical features and prognosis of each disease are discussed. The sixteen diseases include:

- I. Nervous system conditions
 - II. Renal calculi
 - III. Ano-rectal disease
 - IV. Fistula
 - V. Leprosy and other skin disease
 - VI. Diabetes mellitus
 - VII. Abdominal conditions
 - VIII. Foetal obstruction
 - IX. Abscess formation
 - X. Sinusitis, ulcers and diseases of the breast
 - XI. Benign or malignant tumours, cervical metastases and lymphadenopathy
 - XII. Venereal diseases and filariasis
 - XIII. Minor diseases
 - XIV. Diseases of the penis
 - XV. Diseases of the mouth
 - XVI. Fractures and dislocations
3. *Sharirasthana* –comprises ten detailed chapters in which the human anatomy, physiology and genetics are discussed. It also discusses all aspects of venesection. An important aspect of this chapter is the *marma sharir*, *marmas* are the vital points of the human body which are important in surgical procedures.
 4. *Chikitsasthana* –comprises forty chapters which discuss the treatments of various conditions. It includes enema, rejuvenation and nasal therapy with reference to specific conditions, inter alia, ulcers, diabetes mellitus and skin diseases.
 5. *Kalpasthan* –comprises eight chapters which focus on poisoning, particularly poisonous foods, drinks, plants and animals. It describes the clinical presentation and treatment of each poisonous substance.
 6. *Uttaratantra* –is the last section of the *Susruta Samhita* which consists of sixty-six chapters focusing on aspects that were not

addressed in the previous sections. It discusses general medicine, pediatrics and conditions of the ears, mouth and throat.

The development and practice of Ayurvedic medicine today, is based on the above ancient treatises. It encompasses oral tradition that is still utilized to treat ailments in the 21st century. It is a health care profession that takes a holistic approach to patient management (Singh 2019).

2.12 BASIC PRINCIPLES OF AYURVEDA

The main principle of Ayurveda focuses on the *panchamahabhutas* which refers to the five elements that the universe is composed of (Upadhyay and Dinesh 2015):

1. *Vaju* (air)
2. *Jala* (water)
3. *Aakash* (space)
4. *Prithivi* (earth)
5. *Teja* (fire)

In Ayurveda the belief is that each of these five constituents is a representative of the human body. The element of space represents the oral cavity, nose, stomach and blood vessels; air represents the metabolism and brain function; the element of fire represents the activation of the retina which enables vision; the element of water represents the liquid substances in the body, namely, mucous, digestive juices and blood plasma; and the element of earth represents the solid structures of the body, namely, the bones, muscles and tendons (Yusoff 2018).

These five elements exist in nature. Similarly, these five constituents exist in the human body in combination: *vata*, which is comprised of earth and space, *pitta*, which is comprised of fire and water and *kapha*, which is comprised of water and earth (Chaudhari *et al.* 2018). *Vata*, *pitta* and *kapha* are collectively known as the “*three dosha*” principle or the *tridosha* (Kumar *et al.* 2017). “*Tri*” meaning three and “*dosha*” meaning aggravating factor. The ratio of *vata*, *pitta* and *kapha* distribution varies in individuals. Some individuals are *vata* predominant and exhibit mental and physical features of space and air elements, that is, they are quick in terms of

thinking, thin and fast in terms of movement. *Pitta* predominant individuals exhibit features of fire and water, that is, they are medium built and have a fiery personality. *Kapha* predominant individuals exhibit features of water and earth, that is, they are large and naturally calm (Gupta and Kar 2017).

The Ayurvedic system of medicine follows the *tridosha* principle stringently, to manage patients (Aggarwal *et al.* 2011). The belief is that homeostasis between the “*three doshas*” needs to be maintained for an individual to be in an optimal state of health; imbalance of the *doshas* due to an aggravating factor such as poor diet, can result in disease (Kumar *et al.* 2017).

The core principles of Ayurveda are based on the *tridosha* principle. Ayurveda focuses on treating the patient holistically, not only curing the disease, but also preventing the disease (Vassou *et al.* 2016). Table 2.1 summarizes the function and property of each *dosha*:

Table 2.1: Summarizes the function of each *dosha* and features of an aggravated *dosha* (Patwardhan *et al.* 2005).

DOSHA	FEATURES OF AGGRAVATED DOSHA	FUNCTION
Vata	Dry, cold, light interrupted sleep, thin, nervousness	It promotes movement of the body, proper musculoskeletal functioning, respiration and circulation, conducting nerve impulses, delivery of nutrients to the cells and excretion of waste products.
Pitta	Uncomfortable heat sensation from within the body, anger, oily or	It promotes digestion, metabolism, vision, assists with

	discolored skin, digestive disorders	thermoregulation, intellect and hormones.
Kapha	Jealously, lethargy weight gain, heavy stools, respiratory conditions	It gives strength and stability, both physically and psychologically. It enhances resistance to disease and promotes the healing process.

As presented in Table 2.1, *vata* is responsible for movement of the body, proper musculoskeletal functioning, respiration, blood circulation, nerve conduction, delivery of nutrients and excretion of waste products. When *vata* is aggravated, that is, when there is an imbalance in the body, as a result of a causative factor such as poor diet, stress or inadequate sleep, the patient will present with dry skin, extremities will be cold to touch, they will appear to be nervous or anxious and they will show signs of inadequate sleep such as restlessness (Asthana, Monika and Sahu 2018). *Pitta* governs intellect, vision, digestion, metabolism and thermoregulation. When *pitta* is not in equilibrium, the patient will experience a burning sensation from within the body, which is often associated with digestive disorders such as acid reflux, and will also present with oily and discolored skin, prone to acne, and may experience pruritus and redness of the skin (Chaudhari 2013). The *kapha dosha*, is responsible for physical and psychological strength and stability and the immune system of an individual. When aggravated, the patient will present with lethargy, complain of body mass gain and fatigue, will present with respiratory conditions such as asthma, susceptible to colds and flu, experience psychological stress, sleeplessness, and experience nightmares (Mills *et al.* 2018). When there is homeostasis between the *doshas*, the patient will function optimally, presenting with strength, psychological stability and positivity in demeanor (Asthana, Monika and Sahu 2018).

An imbalance in any of the *doshas* will result in illness in the body. The goal of Ayurvedic patient management is to pacify the aggravated *dosha*, allowing for restoration of health and equilibrium of *doshas*. The Ayurvedic profession has

been developed systematically and has been tested scientifically; it has shown positive results in patient management of a number of ailments (Chaudhary, Singh and Kumar 2010).

2.13 AYURVEDIC DIAGNOSIS AND MANAGEMENT

Ayurvedic practitioners are trained to diagnose and manage a broad spectrum of ailments (Patwardhan and Mashelkar 2009). The belief is that the management of a patient depends largely on the “*three dosha*” principle and the *nidana* (causative factor) of the presenting complaint. For a patient to be in optimal state of health there needs to be a balance between all “*three doshas*”. Any imbalance will result in a manifestation of certain signs and symptoms as presented in Table 2.1, which reflect a *doshic* imbalance (Mills *et al.* 2018). The Ayurvedic profession focuses on determining the *doshic* imbalance with the use of various diagnostic tools.

Ayurvedic doctors manage patients holistically, each practitioner focuses on the patient as an individual rather than on the presenting ailment. The goal is to transition the patient from a disease state to a state of *doshic* homeostasis (van der Greef *et al.* 2015), that is to achieve *doshic* equilibrium and allow for an optimal state of health in the patient (Patwardhan *et al.* 2005).

Determining the causative factor is a vital element of patient management. The causative factor is the root cause of the presenting condition. The causative factor of a condition will vary among patients, as each patient has different lifestyle regimens (Pandya and Baghel 2015). Ayurvedic texts state: “*A single causative factor can lead to a single disease. Many causative factors can lead to a single disease. Many causative factors can lead to several diseases*” (Prajapati, Kori and Patel 2018). Causative factors for musculoskeletal conditions include, but is not limited to (Jayasundar 2010):

- Poor lifestyle habits
- Poor ergonomics
- Diseases

Poor lifestyle habits include, lack of exercise, sleep and poor diet. This is often associated with the root cause of musculoskeletal pain as lack of exercise and

improper diet, can lead to obesity which subsequently places abnormal stress and strain on the musculature of the spine and the vertebra. Similarly, inadequate sleep can cause tension on the musculature, which often results in pain (Williams *et al.* 2018).

Poor ergonomics refers to defective posture, stress and lack of maintaining correct posture during daily activities, such as correct posture while working. These causative factors are diagnosed by Ayurvedic doctors who focus on correcting the posture and eliminating stress, which cause significant stress on the musculature resulting in pain (Pallotta and Roberts 2017).

Diseases such as meningitis, tuberculosis, fractures, tumors, cervical spondylosis, osteoarthritis and rheumatoid arthritis are among the most common causative factors seen by Ayurvedic practitioners. In such complex cases, Ayurvedic doctors often refer to the appropriate health care professional to ensure adequate patient management (Smythe *et al.* 2017).

The Ayurvedic profession focuses on removing the root cause of the presenting complaint for effective patient orientated management, which decreases pain and dysfunction and simultaneously increases patient satisfaction (Kumar, Dubey and Singh 2017).

The *nidan* (diagnosis) in Ayurveda is essentially done by the threefold principle of (Yogita 2018):

- 1) *Darshana* – observation
- 2) *Sparshana* – touch
- 3) *Prashna* – questioning

Darshana is a vital aspect of patient diagnosis in Ayurveda which involves observing the physical appearance and demeanor of the patient. Regarding neck pain, the practitioner is attentive to the posture and gait of a patient. The practitioner observes for signs of pallor, cyanosis and jaundice. *Sparshana*

includes palpation of anatomical structures of the body and practitioners take note of the color and temperature of the skin. *Prashna* is in-depth questioning of the patient which provides the practitioner with information about the seriousness of the condition. Thereafter, the practitioner performs a clinical examination which is known as *Astha sthana pariksha* (eight-point diagnosis) and includes (Dagenias 2001):

- 1) Nadi pariksha - pulse diagnosis
- 2) Mutra pariksha - urine examination
- 3) Mala pariksha - stool examination
- 4) Jihva pariksha - tongue examination
- 5) Sabda pariksha - examination of bodily sounds
- 6) Netra pariksha - eye examination
- 7) Twacha pariksha - skin examination
- 8) Akrit pariksha -total body appearance

The Ayurvedic approach to patient examination is similar to allopathic medicine. *Nadi pariksha*, which is known as “pulse diagnosis,” is an important aspect of patient examination in Ayurveda. The practitioner examines all pulses, but is more attentive to the radial pulse as in Ayurveda it signifies the “presence of life.” *Nadi pariksha* is a useful diagnostic tool in Ayurveda because it provides information regarding the health of a patient (Mann and Pathak 2018). It is considered to be the gold standard of diagnosis in the Ayurvedic profession (Manohar *et al.* 2018).

The method used to examine the radial pulse is unique; the practitioner places three fingers 2cm above the radial artery at the wrist; the index finger is closest to the thumb of the patient, each finger represents each *dosha*: the index finger represents *vata*, the middle finger represents *pitta* and the ring finger represents *kapha*. When performing the “pulse diagnosis,” the practitioner feels for dominance of the pulse against the practitioners finger which is indicative of *doshic* imbalance, which suggests disease in the body (Goyal and Agarwal 2016). For example, if the patient’s pulse beats firmly against the practitioner’s index finger, this indicates a *vata* related disorder, due to aggravation of the *vata dosha*. The radial pulse is the preferred pulse as it is the easiest to examine. The practitioner

palpates the pulse, ensuring that there are 30 beats per minute together with the predominant pulse; this is done three times before making a definitive diagnosis. This is a skill that is acquired by Ayurvedic doctors, whose fingers and mind work together to determine the *doshic* imbalance (Gupta and Kothainayagi 2018).

Table 2.2: Indicates the basic functioning of the "pulse diagnosis" (Goyal and Agarwal 2016).

	Vata	Pitta	Kapha
Location	Index finger	Middle finger	Ring finger
Movement	Spiral (associated with the movement of a snake)	Jumping (associated with the movement of a frog)	Symmetrical (associated with the movement of a swan)
Speed	Irregular	Fast	Slow
Volume	Low	Full	Full

As presented in Table 2.2, patients presenting with a *vata* imbalance will have an irregular pulse which is associated with the spiral movement of a snake. The pulse will be dominant on the index finger of the practitioner, indicating *vata* related imbalances. Similarly, in *pitta* imbalances the patient's pulse will be dominant on the middle finger of the practitioner; it is rapid and is associated with the jumping movement of a frog. Patients presenting with a *kapha* imbalance will have a slow pulse rate which is associated with the symmetrical movement of a swan. This examination is mandatory and provides the practitioner with relevant information regarding the *doshic* imbalance (Mann and Pathak 2018).

Mutra pariksha which is a urine examination, where the practitioner observes the color, consistency and appearance of the urine, is an important prognostic aspect in Ayurveda (Sangu *et al.* 2011). The Ayurvedic system of medicine does not follow the conventional method of urine examination. There is a specific technique for urine examination: urine is collected in a glass vessel, in which a drop of sesame oil is poured. The practitioner takes note of the rate, shape and direction of spread of the oil (Kachare and Kar 2014). It is a technique that is not disease specific, rather prognosis specific. The shape indicates the *doshic* involvement,

which is which *dosha* is imbalanced. In *vata* related imbalances the oil is shaped like a snake, in *pitta* imbalances the oil “bubbles” and in *kapha* imbalances the oil forms a “drop.” The direction is described as cardinal points. East, west and north directions indicate a good prognosis, where-as south, north-west, north-east, south-west, south-east are indicative of a poor prognosis. Similarly, the rate at which the oil spreads demonstrates curability of the condition. If the drop of oil spreads, the condition is curable, if the drop of oil spreads slowly the condition is difficult to treat, and if the drop of oil sinks or is stagnant, the condition is incurable (Kachare and Kar 2014).

Mala pariksha refers to stool examination. It is an important diagnostic and prognostic tool in the Ayurvedic system of medicine. It is used to diagnose conditions of the digestive system. When examining the stool, practitioners are attentive to the odor, color, froth, quantity and consistency of the stool (Gupta, Shrivastava and Kirar 2018). If digestion and absorption of food is not optimal, the stool has a foul odor and sinks in water, furthermore when the *vata dosha* is disturbed, the stool will be dry, hard and grey in color. Patients presenting with a *pitta* imbalance will have watery yellow/green stools and patients presenting with a *kapha* imbalance will have mucous-lined stools (Rohit, Hetal and Prajapati 2012).

Jihva pariksha refers to the examination of the tongue. Various locations of the tongue represent various organs of the body which enable Ayurvedic practitioners to determine which organs of the body are involved in the disease process (Rohit, Hetal and Prajapati 2012). Ayurvedic practitioners are attentive to the color, movement and taste senses of the tongue (Yogita 2018). A patient presenting with a *vata* imbalance will present with a small, dry, brown and thin tongue upon examination, with an associated tremor. Similarly, a patient with a *pitta* imbalance will present with a tapered tongue, with sharp margins and will have red discoloration. Patients with *kapha* imbalances will have a round, thick, glossy tongue, which occupies the entire oral cavity and the tongue will be pale in color (Modir 2018).

Sabda pariksha focuses on bodily sounds, particularly vocal sounds. When the *doshas* are in equilibrium, the patient’s voice will be normal and healthy. *Vata*

imbalances are associated with a rough and hoarse voice, where-as *pitta* imbalances are associated with a cracked voice and *kapha* imbalances are often associated with a heavy voice (Rohit, Hetal and Prajapati 2012).

Netra pariksha refers to examination of the eye. In this examination practitioners focus on various aspects of the eye which reveal *doshic* imbalances. In a *vata* imbalance, the patient's eye will be sunken, red/brown and dry in appearance. In a *pitta* imbalance, the patient's eye will be red in color and they will often complain of photophobia. In *kapha* imbalances, the patient will have watery and heavy eyes (Rohit, Hetal and Prajapati 2012).

Twacha pariksha refers to the examination of the skin. The skin is the largest organ of the human body and is an integral part of clinical examination in Ayurveda. In Ayurveda, *vata* is responsible for the complexion of the skin. Patients presenting with black complexion and rough skin often have *vata* imbalances. *Pitta* is responsible for the health of the skin (glow). *Pitta* imbalances are diagnosed when the patients appear to be pale and the skin is soft and fragile. *Kapha* is responsible for the consistency of the skin. Patients with *kapha* disorders have oily skin (Bangarwar and Eppalpalli 2017).

The last component of the clinical examination is *Akrit pariksha*, which refers to the general appearance of the patient, indicating the predominant dosha. *Vata* individuals are ectomorphs (lean), *pitta* individuals are mesomorphs (medium) and lastly *kapha* individuals are endomorphs (large) (Gupta and Kar 2017).

The Ayurvedic system of medicine utilizes a similar approach to allopathic medicine in terms of patient diagnosis, however, clinical examination in Ayurveda differs in terms of method and clinical findings. Ayurvedic practitioners utilize the traditional methods of examination as well as western medicine technology, such as x- rays or hematological investigations to confirm a diagnosis or to establish a diagnosis (Malagi and Kamath 2016). Ayurvedic practitioners often refer patients when the diagnosis is not within the professions scope of practice, for example a patient presenting with neurological symptoms, are often referred to a neurologist, similarly a patient presenting with joint dysfunctions, are often referred to a

Chiropractor. Knowing the scope of practice is essential in the health care system, as well as knowing who and when to refer is an important aspect of patient management (Balikai, Prashanth and Chavan 2017).

In Ayurveda, the *chikitsa karma* (treatment procedure) depends on the clinical findings. Without knowledge of the condition, the practitioner is unable to formulate a treatment plan for the patient (Nath *et al.* 2016). Prior to treatment, the Ayurvedic doctor begins with a cleansing process which includes three phases, namely, *poorva karma* (pre-preparatory cleansing methods), *pradhana karma* (main procedure) and *paschat karma* (post-cleansing methods), to detoxify and prepare the body for treatment that is to follow (Vinjamury *et al.* 2012).

2.14 CLEANSING PROCESS

The concept of a detoxification process is not new in the field of traditional medicine. Ayurvedic medicine considers this to be an essential component of optimal treatment (Mashelkar 2008). The importance of the cleansing process is discussed in detail in the *Charaka Samhita* and *Susruta Samhita*, through the cleansing process, the body can be treated. The cleansing process consists of three main phases (Gupta and Shaw 2009):

- 1.) *Poorva karma* –is essentially the pre-preparatory phase of cleansing which includes oleation and sudation.
- 2.) *Pradhana karma* –is the main procedure of panchakarma which includes five main procedures.
- 3.) *Paschat karma* –is essentially the post-cleansing phase.

2.14.1 Poorva karma

The first phase of the cleansing procedure consists of oleation and sudation. *Snehana* (oleation) includes *snehapana*, and *abhyanga*. *Snehapana*, refers to the intake of oil and *abhyanga* refers to an oil massage of the body after which *swedana* (sudation) is performed (Gupta and Shaw 2009). *Snehapana* is essentially internal oleation, where the patient consumes pure oil or ghee for three to seven days to lubricate the lining of the digestive tract and loosen toxins in the

digestive system (Lakshmi, Chandra and Gupta 2014). *Abhyanga*, is an external application of oil to the body through massage therapy, to loosen toxins in the body. The type of oil used is specific to the requirements of the patient. Therefore, the type of oil used varies amongst patients (Kumar and Sowmya 2012). The final stage of the *poorva karma* process is *swedana* which refers to induced sweating with the use of herbal preparations to facilitate movement of toxins in the body. This is performed on the fifth and sixth day of the *poorva karma* process. *Poorva karma* is performed to prepare the body for expulsion of toxins in the *panchakarma* stage of the cleansing process (Vinjamury *et al.* 2012).

2.14.2 Panchakarma therapy

Panchakarma translates to “five procedures,” essentially panchakarma therapy is the main procedure of the cleansing process and consists of five stages (Conboy, Edshteyn and Garivaltis 2009):

- 1.) *Vamana* – therapeutic emesis
- 2.) *Virechan* - purgation
- 3.) *Basti* - enema
- 4.) *Nasya* – administration of herbal nasal medication
- 5.) *Raktamokshan* – bloodletting

Vamana is the first stage of the five step procedure (Sharma *et al.* 2018) of the *panchakarma therapy* which involves induced emesis with herbal preparations for therapeutic purposes. The purpose of this stage is to eliminate the aggravated *kapha dosha*. The preparatory *poorva karma* stage is five to seven days in duration, and on the seventh day, *vamana* is initiated. The Ayurvedic doctor monitors the patient closely, ensuring vital signs are normal throughout the procedure. The end stage of this procedure is determined by the practitioner and is based on the doshic expulsion, patient’s condition and number of emesis sessions (Kumar 2013).

Virechan is the second stage of the *panchakarma therapy*, which refers to purgation with herbal preparations to remove toxins from the body and to remove the aggravated *pitta dosha*. Like with *vamana*, the Ayurvedic doctor monitors the patient closely, and the last stage of *virechan* is determined by the patient's condition and number of bowel movements (Singh 2012).

Basti is the third stage of the *panchakarma therapy* which refers to the administration of herbal preparations through the rectal, urethral, vaginal or nasal route, with the therapeutic goal of pacifying the aggravated *dosha* (Tiwari, Sanjay and Alok 2018). There are four types of *basti* based on the route of administration (Ahuja 2018):

- 1.) *Pakvashyagata basti* –refers to the administration of herbal preparations via the rectum (enema).
- 2.) *Garbhashayagata basti* –refers to the administration of herbal preparations via the vaginal route.
- 3.) *Mutrashayagata basti* –refers to the administration of herbal preparations via the urethral route.
- 4.) *Vranagata basti* –refers to the administration of herbal preparation via the nose.

In the *panchakarma therapy*, typically herbal preparations are administered via the rectum. There are two types of herbal preparations that are used as an enema in the *basti* procedure, that is, *niruha basti* which is composed of a herbal decoction, and *anuvasana basti* which is composed of sesame oil (Ahuja 2018).

Nasya is the fourth stage of the *panchakarma therapy*, which refers to the administration of herbal medications through the nasal cavity. This treatment is particularly beneficial for conditions above the clavicle such as neck pain and sinusitis (Tiwari, Sanjay and Alok 2018).

Raktamokshan is the last and final stage in the panchakarma therapy and refers to the process of bloodletting. There are three types of bloodletting, based on the instrument used to perform the procedure (Vinjamury *et al.* 2012):

- 1.) *Pracchana karma* - use of scalpel
- 2.) *Jalaukavacharana* - use of leeches
- 3.) *Siravyadha* – use of needles

The most favorable form of bleeding letting is the *jalaukavacharana* as it is the safest and easiest method to remove toxins from the body (Garg and Jain 2016).

The *panchakarma therapy* is the foundation of Ayurvedic patient management as it eliminates the aggravated *dosha* and restores balance between the *doshas*, thus allowing for optimal health in the patient. It is important to note that the above procedures can be performed in isolation or in combination, depending on the patient's health status and requirements. The final aspect of the cleansing process is *Paschat karma* (Singh 2012).

2.14.3 Paschat karma

Paschat karma is the final stage of the cleansing process, focusing on the fundamental principles of diet and behavior (Gupta and Mamidi 2018). Each post-cleansing method is specific to each stage of the *panchakarma therapy*. The post-cleansing method for *vamana* and *virechan* are similar. Following *vamana* and / or *virechan*, the patient is instructed to inhale herbal fumes to clear the nasal and oral cavity. The patient is required to follow a specific dietary regimen known as *sansarjan*. This diet consists of a seven-day meal plan which consists of warm porridge, rice and ghee, lentils and bland soup. The patient is instructed to avoid spicy food (Singh 2015).

Basti is typically a long-term treatment plan, where dietary regimens are not as stringent but the patient must avoid spicy, fried and oily foods and consume less pungent foods, such as lentils and grains, for the remainder of the *basti* procedure (Vinjamury *et al.* 2012).

After the *nasya* and the *raktamokshan* cleansing process, patients are instructed to utilize *dhuma pana therapy* as a post cleansing process, which is the inhalation of herbal fumes (Jaiswal and Williams 2017).

The purpose of *paschat karma* is to enhance the therapeutic effect of the previous two procedures. Following the cleansing process, treatment can commence. There are two types of treatments: *dravyabhuta* (pharmacological therapy) and *adravyabhuta* (non-pharmacological therapy). These are both equally important in Ayurveda in restoring *doshic* homeostasis (Kumari and Paliwal 2018).

2.15 DRAVYABHUTA – PHARMACOLOGICAL THERAPY

In Ayurveda pharmacological treatment refers to herbs, herbal oils and herbal powders (Chopra, Saluja and Tillu 2010). The type of herbal preparation is determined by the causative factor and *doshic* imbalance of the patient. There are several Ayurvedic herbal preparations. The most common preparations will be discussed in detail below (Leung and Wai-Chun 2017).

2.15.1 Herbal oils

Herbal oils are often used as a form of pharmacological therapy in Ayurveda. Preparation includes an infusion of herbs, base oil and water in a ratio of 1:4:16, respectively; it is then heated for approximately four to eight hours until the water has evaporated; thereafter, the extract is left to cool; once cooled it is ready to use for therapeutic purposes. Herbal oils that are commonly used for musculoskeletal conditions include *sesame*, *mahanarayan* and *bala oil*, furthermore, *sesame oil* is typically used as a base oil or in isolation (Mann and Pathak 2018). The *sesame*, *mahanarayan* and *bala oils* have the ability to lubricate joints and cartilage, and strengthen muscles, ligaments and tendons hence it is often recommended for musculoskeletal conditions (Nautiyal *et al.* 2018).

The *sesame oil* is the most popular oil in the Ayurvedic system of medicine and has been used since prehistoric times. It is often used as the base oil in many

herbal preparations, as it is a multi-purpose oil. It contains linoleic acid, which has anti-oxidant and anti-inflammatory properties making it the oil of choice for musculoskeletal conditions (Sukumar, Arimboor and Arumughan 2008).

Traditionally, *sesame oil* is used in the *poorva karma* aspect of the cleansing process, for *abhyanga*, and for the *nasya* stage in *panchakarma therapy*. These two procedures, combined with the use of *sesame oil*, have positive effects on the musculoskeletal system, hence it is beneficial for neck pain due to its *vata* pacifying ability (Dhiman and Sharma 2017). A 2017 study assessed the efficacy of sesame oil on 40 participants experiencing joint pain due to acute trauma to the limbs. Participants received a 5-minute massage twice a day for 9 days. The results of the study revealed a significant improvement in terms of pain reduction, by the 3rd, 6th, and 9th day of the intervention, patients reported a decrease in pain, thus proving the efficacy of sesame oil in the treatment of joint pain (Nasiri and Farsi 2017).

There are a variety of herbal oils in the Ayurvedic system of medicine. Each oil consists of numerous herbs. Herbal oils can be used for various ailments and for different therapeutic procedures which include but is not limited to any one of the cleansing processes, massage therapy and *shirodhara*. *Mahanarayan oil* is commonly used in musculoskeletal related disorders, as it is a *vata* pacifying oil; *vata* controls the functioning of the musculoskeletal system. *Mahanarayan oil* consists of thirty-seven different herbs, each of which contain properties to facilitate the healing of muscles and joints. *Mahanarayan oil* is often used when massaging patients with neck pain, due to its ability to reduce pain and inflammation (Arora *et al.* 2018). A 2010 clinical trial was conducted on participants with osteoarthritis, in which two variations of gel was applied to the affected area twice a day. One gel contained *mahanarayan oil* and the other gel had no elements of *mahanarayan oil*. The participants utilized the intervention for 14 days consecutively. The results of the study revealed a significant decrease in pain and increase in functionality in participants who received the gel containing the *mahanarayan oil* (Dhaniwala, Kohli and Sharma 2010).

Bala is known as *Sida cordifolia*, in scientific terms. *Bala* translates to “*strength*”. Essentially *bala oil* provides strength to musculature and joints of the body. The

seeds, roots and leaves of this plant are used in the preparation of this oil (Kumar, Singh and Singh 2017). *Bala* oil is used for healing of joints and tissues in the body and pacifies the aggravated *vata* in conditions such as rheumatoid arthritis (Kadam and Jadhav 2016). A 2011 overview of *bala oil* revealed its therapeutic efficacy. The review analyzed *bala oil*, focusing on its anti-inflammatory properties in reducing joint and musculature pain when applied topically over the area of pain. Furthermore, it is used in central nervous system conditions and cardiovascular conditions such as hypertension (Jain *et al.* 2011).

2.15.2 Herbs

Herbs are an important aspect of the Ayurvedic system of medicine. Herbs are used to promote healing of the mind, body and spirit. Various combinations of herbs are used for various ailments. The herbs associated with the relief of joint pain include *turmeric*, *shallaki*, and *guggul* (Nautiyal *et al.* 2018). The *guggul* is the most favored herb in Ayurveda because of its unique, versatile and medicinal properties (Pal *et al.* 2018).

Commiphora mukul, which is more commonly known as “*guggul*”, is a resin (gum) obtained from the bark of the *Commiphora wightii* tree. There are a several types of guggul, each with various medicinal properties, based on the age and colour of the resin. *Guggul* is never administered as a raw medicine as the side effects are detrimental. Instead, there are various purification processes that take place prior to the administration of the herb. *Guggul* translates to “*that which protects against disease*” (Mayuree *et al.* 2018). It has several therapeutic properties and is used in conditions such as arthritis, atherosclerosis, morbid obesity and inflammatory conditions, as it is a potent anti-inflammatory herb (Pal *et al.* 2018). A 2003 study assessed the effectiveness of *Commiphora mukul* in 30 patients presenting with osteoarthritis of the knee. Participants in this study were instructed to take 500mg of *Commiphora mukul* herb in capsule form three times a day for two consecutive months; baseline assessments were done at one- and two-month intervals. The results of this study revealed a significant improvement by the end of one month and an increase in improvement by the end of the second month. Participants reported a decrease in pain and inflammation and an increase in walking distance

after one month of taking the *Commiphora mukul* herb, thus proving the efficacy of the herb in musculoskeletal conditions such as osteoarthritis (Singh *et al.* 2003).

The *Sushruta Samhita* discusses the properties and uses of *turmeric* in detail, emphasizing its importance as a medicinal substance in Ayurveda. Turmeric consists of two hundred and thirty-five compounds; it is found in the rhizome of the *Curcuma longa* plant. It can be prepared in combination with oils such as sesame oil or it can be used in combination with other herbs. This herb is known for its anti-oxidant, anti-inflammatory anti–arthritic properties as well as its unique ability to pacify all three *doshas* (Sharma *et al.* 2017). A 2009 study compared the efficacy of the *turmeric* herb to ibuprofen in patients presenting with primary knee osteoarthritis. Participants in group A received 800mg of ibuprofen, while participants in group B received 2mg of *turmeric* herb per day for 6 weeks. The results of this study revealed that the *turmeric* herb has anti-inflammatory, anti-oxidant and anti-infectious properties. Participants in this study reported improvements in terms of functionality, that is a decrease in pain when walking, particularly when walking up and down flights of stairs. The turmeric herb has similar effects to the allopathic drug ibuprofen, however, it is more cost-effective and has fewer side effects (Kuptniratsaikul *et al.* 2009).

Shallaki, is a common herb that is typically used for joint pain in the Ayurvedic system of medicine. Its scientific name is *Boswellia serrata*. It is used in conditions such as osteoarthritis, because of its ability to reduce pain and inflammation and increase functionality and range of motion (Nautiyal *et al.* 2018). A 2015 study reviewed the efficacy of certain herbs in degenerative conditions. The efficacy of *shallaki* herb was discussed in detail. *Shallaki* herb consists of substances such as Terpinolene, Bornyl acetate, α - Pinene, α -Thujone and α -Phellandrene, all of which assist in pain and inflammatory reduction in conditions such as osteoarthritis, cervical spondylosis and ankylosing spondylitis (Kumar *et al.* 2015).

2.16 AYURVEDIC PROCEDURES UTILIZING PHARMACOLOGICAL THERAPY

There are Ayurvedic procedures which make use of pharmacological therapy for the benefit of the health of the patient. These include procedures such as:

- 1.) *Greeva basti*
- 2.) *Kati basthi*
- 3.) *Shirodhara*
- 4.) *Potli*
- 5.) Massage therapy

2.16.1 *Greeva basti*

Greeva basti is often used to treat patients with neck pain. *Greeva* translates to “neck” and *basti* translates to “container”, essentially *greeva basti* refers to containment of herbal oil in the neck. Prior to treatment, the procedure is explained to the patient, the doctor observes the patient and checks for contra-indications such as open wounds, fever and pregnancy. During the procedure, the patient is monitored closely. Treatment procedures and techniques are outlined below (Purwar and Sharma 2017):

- 1.) Patient position - the patient should be in the prone position, so that the cervical area is adequately exposed.
- 2.) Preparation of dough – the “container” is composed of *masha* powder, which is a type of flour; it is the only flour that adheres to the skin. The “container” should be semisolid in consistency to secure the medicated oil; the “container” is slightly porous to allow the medicated oil to penetrate the skin. The dough is then manipulated to form a ring-like structure as depicted in Figure 2.3, with a height of 5cm and a diameter of 12cm.
- 3.) Medicated oil – for conditions such as neck pain, *sesame oil* is typically used. The oil is heated and poured into the ring-like structure; it is important

that the temperature of the oil is maintained at 39 degrees Celsius for the patient to receive optimal benefits of the therapeutic procedure.

- 4.) Following the *greeva basti* procedure, the practitioner massages the cervical area, thereafter patients are required to rest for 10 to 15 minutes on the table.

The treatment session is approximately 45 to 60 minutes in duration (Ajay 2018). It requires seven sessions for seven consecutive days. On the seventh day, an assessment is done to assess the efficacy of the treatment. During the procedure, the medicated oil penetrates the skin which improves blood circulation, restores muscles and connective tissues, lubricates joints of the neck and reduces pain. The therapeutic goal of *greeva basti* is to alleviate pain in the musculature of the neck and shoulder region (Kumawat and Mangal 2018).



Figure 2.3: Depicts the *Greeva basti* technique (Patil 2007)

In a study by Ajay (2018), which evaluated the efficacy of the *greeva basti* technique in ten patients presenting with cervical spondylosis, after fifteen consecutive days, it was found that all participants in this study had a positive result. After receiving the *greeva basti* technique, patients reported less pain and an increase in movement, thus proving the efficacy of this technique. Similarly, in a case reported by Kumawat (2018), which evaluated the *greeva basti* technique on a patient presenting with cervical spondylosis, it was found that after fourteen

consecutive days patients had a decrease in neck stiffness and pain due to rejuvenation of surrounding musculature and an increase in blood supply to musculature of the neck pain, thus proving efficacy in the treatment of neck pain.

2.16.2 Kati basti

Kati basti is a popular technique that is used in Ayurveda (Kumar and Bhikshapati 2008). It is typically used on patients presenting with low back pain; however, it can be used on patients presenting with neck pain. The belief in Ayurveda focuses on the “root cause”. Therefore, if the root cause of the neck pain is low back pain, then this procedure is indicated. Furthermore, it is beneficial for the entire musculoskeletal system and often utilized for other musculoskeletal complaints (Hashmi, Shaik and Pillai 2015).



Figure 2.4: Depicts the *Kati basti* technique (Patil 2007)

The *kati basti* technique is depicted in Figure 2.4. The procedure and technique of *kati basti* is the same as for *greeva basti*, however, in *kati basti*, the ring-like structure is placed on the lumbosacral area of the patient to alleviate pain and to increase flexibility, and often indicated in conditions such as sciatica (Masocco 2014).

In a comparative pre-test post-test study, the efficacy of the *kati basti* technique was investigated. The results of this study were favorable, showing improvements in range of motion and patient flexibility, and participants reported a decrease in pain and stiffness (Mangal *et al.* 2013).

2.16.3 Shirodhara

Shirodhara is a massage technique that has been utilized in Ayurveda for decades. “*Shiro*” translates to “head” and “*dhara*” translates to “continuous flow”, essentially *shirodhara* is the continuous flow of oil onto the head (Moharana *et al.* 2017). It is a technique that has gained popularity due to its simplistic technique, but effective results. Prior to *shirodhara*, practitioners perform *abhyanga*, to remove toxins from the body as well as to relax the patient. During the *shirodhara* procedure the patient is made to lie in the supine position as depicted in Figure 2.5. The practitioner ensures that the patient’s eyes are protected by placing a cloth above the eyes, thereafter, a continuous flow of medicated oil, typically *sesame oil*, from a wide mouthed vessel, which is 8cm (Bhusal and Bhatted 2015) above the patient’s head, stimulates the patient’s forehead. The mechanism of action focuses on stimulation of the forebrain. During the *shirodhara* process, there is a continuous pressure and vibration that occurs on the patient’s forehead, which is intensified by a hollow sinus located in the frontal bone. The vibration is transmitted through the cerebrospinal fluid; this vibration, coupled with the warm temperature of the oil, stimulates the thalamus and basal forebrain, which subsequently normalizes the serotonin and catecholamine. Prolonged pressure of the medicated oil interrupts the impulse conduction of the brain which causes the patient to relax (Patil *et al.* 2017).



Figure 2.5: Depicts the *shirodhara* technique (Patil 2007)

This procedure is performed in the morning in complete silence and lasts for approximately 50 to 55 minutes for a *vata* related disorder, 40 to 45 minutes for a *pitta* related disorder and 30 to 35 minutes for a *kapha* related disorder. It should be administered for a period of seven to twenty-one days, depending on the presenting complaint (Bhusal and Bhatted 2015). It is important to note that this technique is contra-indicated in instances of pregnancy, severe depression and delirium. The *shirodhara* technique is often indicated in neurological conditions (Swathika, Lakshmana Rao and Balasubramanian 2019), such as stress, anxiety and insomnia, all of which are contributing factors to the development of neck pain (Rastogi *et al.* 2016).

A 2015 study observed the effectiveness of the *shirodhara* technique on forty participants with stress-related insomnia, with the use of *sesame oil*. The results of this study showed significant improvements in sleeping patterns of the participants as well as a decrease in stress, tranquility and peace of the mind, body and spirit (Sharma *et al.* 2015). Similarly, a 2016 clinical trial study observed the effectiveness of *shirodhara* in patients with generalized anxiety disorder and co-morbid generalized social phobia. The results of this study were favorable, indicating an improvement in quality of sleep and reducing daytime sleepiness (Tubaki *et al.* 2016). These studies indicate the effectiveness of the *shirodhara*

technique in improving insomnia, anxiety and stress, all of which are “root causes” of neck pain (Pallotta and Roberts 2017).

2.16.4 *Potli* therapy

Potli therapy is a form of massage that has been utilized for generations by Ayurvedic doctors to alleviate joint pain. The therapy involves the application of herbal preparations to the joints as depicted in Figure 2.6. During this procedure the practitioner places herbs in a *potli* (muslin cloth), thereafter, the practitioner submerges the *potli* in warm oil (Mehra and Singh 2017).



Figure 2.6 : Depicts *potli therapy* (Masocco 2014)

The primary focus of the *potli therapy* is the application of approximately 180 ml-240 ml (Masocco 2014) of oil to the joints of the body, which loosens the musculature. This therapy is often indicated in conditions such as osteoarthritis and rheumatoid arthritis (Mehra and Singh 2017).

In a 2017 clinical trial, the efficacy of *potli therapy* was investigated in thirty patients presenting with osteoarthritis. The results of this study suggested that *potli therapy* with the use of *nirgundi* herbs and *sesame oil* is effective as a local treatment in conditions such as osteoarthritis. Patients in this study reported a decrease in pain and tenderness as well as improvement in functionality (Ramadas 2017).

2.16.5 Massage therapy

Massage therapy is a common therapeutic process that is utilized in Ayurveda. It is subdivided into *udvartana* (dry massage) and *abhyanga* (oil massage).

Udvartana is often used to eliminate toxins from the body. During the *udvartana* procedure the patient's skin is lubricated with a little oil, thereafter powder is placed over the skin. It is known as a dry massage. *Udvartana* is indicated in *kapha* related conditions, as it increases the metabolism and expels toxins from the body. It is contra-indicated in conditions such as anaemia and in the geriatric population (Patil 2010).

Abhyanga is used in the *poorva karma* stage of the cleansing process but can also be used in isolation. *Abhyanga* differs from *udvartana* as there is no powder in this technique, only the application of oil as indicated by the *doshic* imbalance. It is indicated in *vata* related disorders. It is a nourishing therapy that focuses on rejuvenation of tissues, thus alleviating pain and stress. It is contra-indicated in conditions such as pregnancy, morbid obesity and diabetes mellitus. The technique of *abhyanga* differs amongst practitioners as some practitioners opt for a western medicine approach, in that massage therapy focuses on musculature and removal of tension and not a particular massage technique per se, however ancient texts utilize a sequence of steps and specific techniques for both dry and oil massage (Masocco 2014):

- 1.) Tapping –refers to the initiation of the massage therapy and begins with the practitioner tapping the patient on various parts of the body, as depicted in Figure 2.7. The purpose of this procedure is to prepare the body for the massage.
- 2.) Flowing – this technique uses gentle stroking movements; palm contact is utilized over the musculature and movement is directed towards the heart to stimulate blood flow.
- 3.) Kneading - this technique is utilized on larger muscle groups and involves applying pressure to muscles in a “kneading” fashion to release tension.

- 4.) Rubbing – this applies friction to the area to increase blood supply and to remove toxins from the body.
- 5.) Pinching – this technique is only utilized on the upper and lower extremities and the back. The involved musculature is pulled away from the bone, with the forefinger and thumb, the pinching movement is done quickly and rhythmically.
- 6.) Squeezing – this technique is like the pinching technique; however, the focus is on the toes and fingers to release tension.
- 7.) Pulling – this technique is to be done gently; it requires the practitioner pulling the skin to relieve tension.
- 8.) Pressing – this is performed with palm contact; pressing is done in a wave-like motion towards the heart to regulate blood flow.
- 9.) Circular movements - this is the last stage of the massage technique and encompasses circular, clockwise and anti-clockwise movements on the joints and abdomen to lubricate joints and alleviate pain.

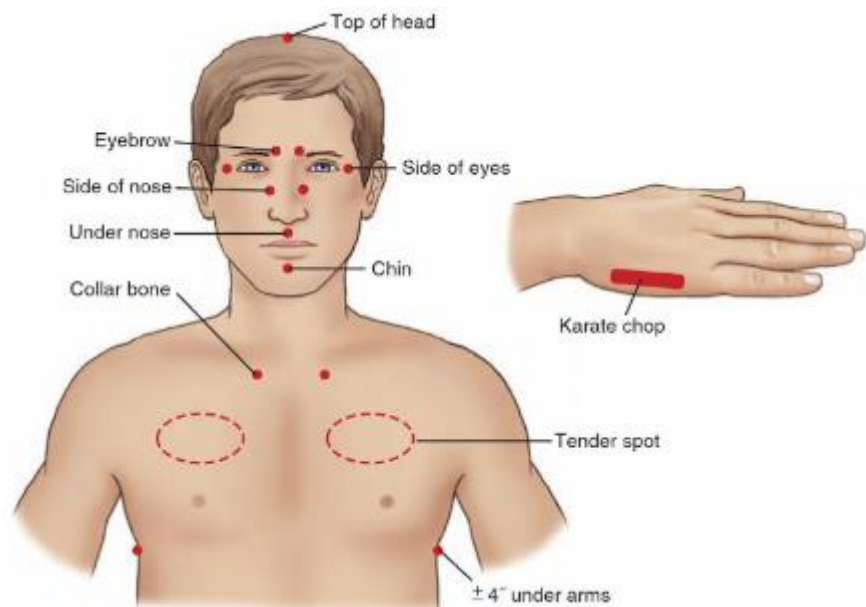


Figure 2.7: Depicts the tapping points for massage therapy (Masocco 2014)

2.17 ADRAVYABHUTA – NON-PHARMACOLOGICAL THERAPY

Non-pharmacological therapies are also referred to as modalities. Non-pharmacological therapies are effective as an adjunct to pharmacological therapy

or in isolation. The most popular non-pharmacological procedures in Ayurveda for neck pain include (Kessler *et al.* 2018):

- 1.) Yoga
- 2.) Marma therapy
- 3.) Patient education

2.17.1 Yoga

Modern practices of *yoga* differ from traditional Ayurvedic *yoga* (Braun *et al.* 2016). The concept of *yoga* is a fundamental aspect of Ayurveda. The foundation of *yoga* focuses on eight basic principles known as *Astanga* (Cramer *et al.* 2016):

- 1.) *Yamas* – social behaviors
- 2.) *Niyamas* – personal behaviors
- 3.) *Asana* - postures
- 4.) *Pranayam* – breathing
- 5.) *Pratyahara* – internalization of senses
- 6.) *Dharana* – focus
- 7.) *Dhyana* – meditation
- 8.) *Samadhi* – integration

The *rigveda* discusses the *yamas* and its complement *niyamas* which focuses on “right living”. It emphasizes good moral behavior towards one’s self and towards others. It focuses on non-violent behavior and compassion. The five most mentioned *yamas* include (Babatunde *et al.* 2017):

- 1.) *Ahimsa* – non-harming
- 2.) *Satya* - truthfulness
- 3.) *Brahmacharya* – right use of sexual energy
- 4.) *Asteya* – non-stealing
- 5.) *Aparigraha* – non-possessive

Non-harming implies conducting one's self in a manner that is unharmed to others as well as to one's self. This is the foundation of a healthy lifestyle which encompasses well-being of the mind, body and spirit. Truthfulness refers to being truthful to one's self and to others; to establish secure and healthy social relationships. The right use of sexual energy refers to being sexually moral; avoiding sexual misconduct, such as rape which leads to psychological instability. Non-stealing refers to not taking what does not belong to us as it causes negativity and psychological instability. Lastly, non-possessiveness refers to non-coveting and non-greed; it emphasizes the material simplicity of *yoga* (Frawley and Kozak 2001).

The *niyamas* refer to personal aspects and allow for healing and development of one's self. It includes: (Bachman 2015):

- 1.) *Saucha* - cleanliness
- 2.) *Santosha* - contentment
- 3.) *Tapas* - discipline
- 4.) *Svadhyaya* - study of self
- 5.) *Isvara pranidhana* - spiritual surrender

Cleanliness refers to internal and external cleanliness; following a healthy and balanced lifestyle is essential in Ayurveda; it is important to have a clean mind, body and spirit to maintain a healthy lifestyle. It is important to be content through the negative and positive aspects of life to maintain a healthy mind. Discipline refers to self-motivation to achieve goals and to have ambition in life. Study of self refers to knowing one's capabilities and learning how to develop one's self. Spiritual surrender refers to the religious aspect of yoga and surrendering one's life to a deity (Frawley and Kozak 2001).

Asana refers to posture positions, the most beneficial postures for neck pain are *Gomukhasana* (cow's head posture), *Sarvangasana* (shoulder stand posture), *Dhanurasana* (bow posture) and *Matsyasana* (fish pose) (Tiwari 2018).

Gomukhasana technique is beneficial for patients presenting with neck pain, often recommended to patients as a form of home therapy. As depicted in Figure 2.8, the patient is in the seated position. The left foot is placed under the right knee, in line with the right hip. The right leg is then crossed over the left leg and is in line with the left hip. The patient then grasps their hands behind their back as depicted in Figure 2.8. This technique alleviates neck and shoulder pain, it is also beneficial in relieving indigestion (Tiwari 2018).



Figure 2.8: Illustrates the *gomukhasana* (Astrogle 2019)

Sarvangasana technique is prescribed to patients with the therapeutic goal of relieving stress and depression. The patient is initially in the supine position, both legs are raised from the floor, while the head is in the neutral position and the chin is tucked in as depicted in Figure 2.9. The patient's hands support the torso. This technique increases blood circulation and decreases anxiety (Tiwari 2018).



Figure 2.9: Illustrates the *Sarvangasana* (Svastha Ayurveda 2018)

Dhanurasana technique strengthens the spine. During this technique the patient lies in the prone position, grasps the ankles as depicted in Figure 2.10. This technique is beneficial for patients with neck pain as it not only strengthens the spine, but the musculature (Tiwari 2018).



Figure 2.10: Illustrates the *dhanurasana* (Astrogle 2019)

Matsyasana is another yoga asana that is prescribed for patients presenting with neck pain. During this pose the patient is in the supine position, with the hips and knees in extension. The patient extends the torso and the neck as depicted in Figure 2.11. The patient places their hands under the gluteus to provide support. This technique strengthens the spine and improves posture (Cowen and Adams 2005).



Figure 2.11: Illustrates the *matsyasana* (Sacredpaths 2018)

Pranayama refers to controlled breathing and is to be performed for all *asanas*. All breathing techniques focus on diaphragmatic breathing. *Pranayama* helps to alleviate stress and anxiety and it is also beneficial in strengthening the respiratory function, especially in the geriatric population. Furthermore, *pranayama* can eliminate stress and alleviate pain. This is due to the shift in control of breathing. Initially, during *pranayama*, the medulla oblongata controls breathing, which shifts to the cerebral cortex, resulting in serenity of the mind, body and spirit (Khan and Pillai 2016).

Pratyahara, *dharana*, *dhyana* and *samadhi* essentially function as a unit. *Pratyahara* deals with the withdrawal of senses, that is, that the patient cannot perceive any of the five senses. This is achieved through the process of *dharana*, which teaches the patient to focus on a single object, through the process of

dhyana, which teaches the patient to focus on a single object for a long period of time, thereafter a state of *samadhi* is achieved, which is the integration of the mind, body and spirit (Bachman 2015).

A 2017 systematic review assessed and meta-analyzed the effectiveness of *yoga* in relieving neck pain. Three studies consisting of 188 participants were reviewed. The results of the study suggest that *yoga* is an effective form of non-pharmacological treatment; the study revealed an increase in quality of life and a decrease in pain. In addition, *yoga* creates postural awareness which can lead to correction of maladaptive postures and muscle tension and alleviate neck pain (Cramer *et al.* 2017).

2.17.2 Marma therapy

Marma therapy has been used for centuries for the treatment of various ailments (Mamatha, Swamy and Shailaja 2018). *Marma therapy* focuses on applying a gentle pressure to a specific point on the body to promote healing and awakening of the mind by manipulating the *prana* (energy) of the body (Lad *et al.* 2008). *Marma therapy* is a multidimensional form of treatment as it addresses the energy, physical and mental component of a patient (Frawley, Ranade and Lele 2003).

There are one hundred and seven *marma* points located throughout the body. *Marma* points are commonly classified according to location; there are twenty-two points in the upper extremities, twenty-two points in the lower extremities, twenty-six located in the thorax and abdomen and thirty-seven in the neck and head (Mamatha, Swamy and Shailaja 2018). The *Susruta Samhita* classifies *marma* points into five main categories (Naiker 2017):

- 1.) *Mamsa* – 11 *marma* points located in various musculature
- 2.) *Sira* – 41 *marma* points located in the arteries and veins
- 3.) *Snayu* – 27 *marma* points located in the ligaments and tendons
- 4.) *Asthi* – 8 *marma* points located in the bone
- 5.) *Sandhi* – 20 *marma* points located in joints

At the junction of the muscle, joint, ligament, blood vessel and bone, a *marma* point or an energy source is located, as depicted in Figure 2.12 (Sharma, Bharti and Prasad 2017). Each *marma* point is an access point to the mind, body and consciousness of a patient (Dagenias 2001). Furthermore, each *marma* point indicates the presence of the three *doshas*, along with the *prana* (Mamatha, Swamy and Shailaja 2018).

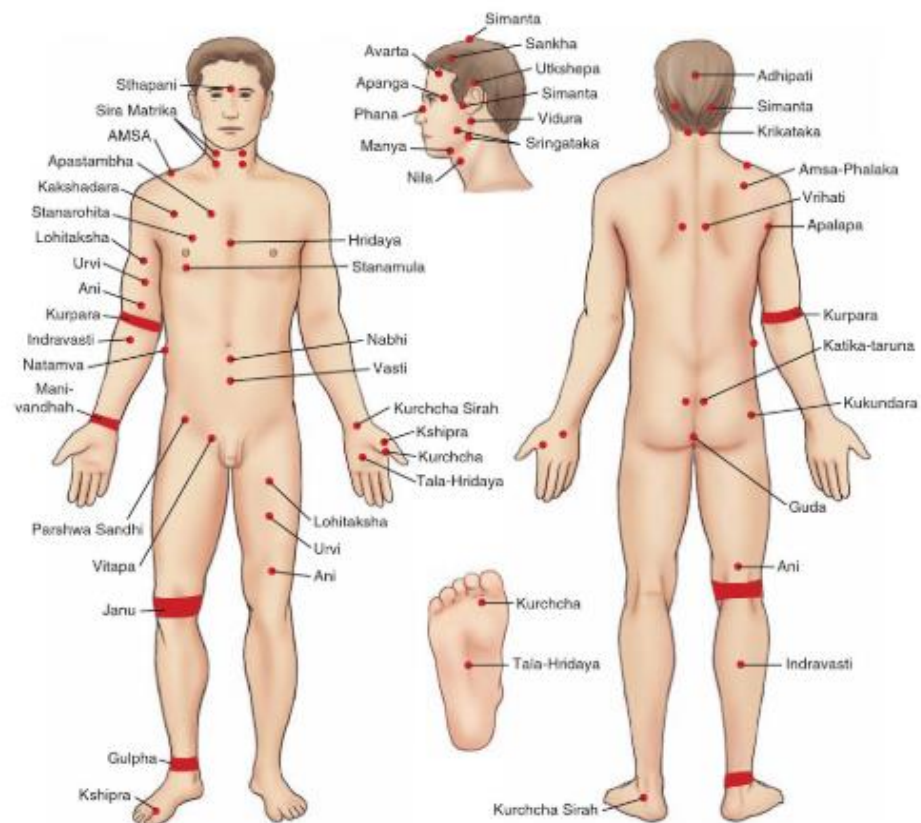


Figure 2.12: Depicts location of *marma* points (Masocco 2014)

During *marma therapy*, the practitioner stimulates the relevant *marma* point by applying gentle pressure to the *marma* point which stimulates the energy portals, known as *strotas*, which subsequently balances the *doshas*. Each Ayurvedic doctor practices *marma* therapy differently. When stimulating the relevant *marma* point, pressure should be optimal with a contact time of 8 seconds which is the equivalent of one cardiac cycle. This should be repeated 12-20 times, which is the equivalent

of one normal respiratory cycle (Negi *et al.* 2018). The general procedure of *marma* therapy is outlined below (Negi *et al.* 2018):

- 1.) Practitioners' nails should be short and should not contact the *marma* point.
- 2.) The procedure must be administered in silence.
- 3.) The procedure can be administered twice a week, however, in severe instances the patient should receive *marma* therapy daily.
- 4.) After the procedure, practitioners are required to touch a wooden surface, to avoid transfer of heat to the next patient.
- 5.) The patient is instructed to avoid dairy products after receiving treatment.
- 6.) The applied pressure depends on the ailment and age of the patient.
- 7.) *Marma* therapy procedure should be administered in the morning.

Marma therapy is often indicated in musculoskeletal, neurological, respiratory, cardiovascular and metabolic conditions. The role of *marma* therapy is to unblock energy pathways, restore *doshic* imbalances and to provide stability of the mind and body (Negi *et al.* 2018). On a physical level, it allows for rejuvenation of body tissues and on a cellular level, it improves blood circulation, gastrointestinal and respiratory functioning. On a psychosomatic level, it optimizes mental function and regulates hormones by focusing on the central nervous system and endocrine system functioning. Finally, it allows the patient to be in a tranquil state of mind, body and spirit (Tiwari 2018).

2.17.3 Patient education

In Ayurveda, patient education is governed by three principles, namely, sleep, diet and exercise. Figure 2.13 depicts, the triad of patient education.

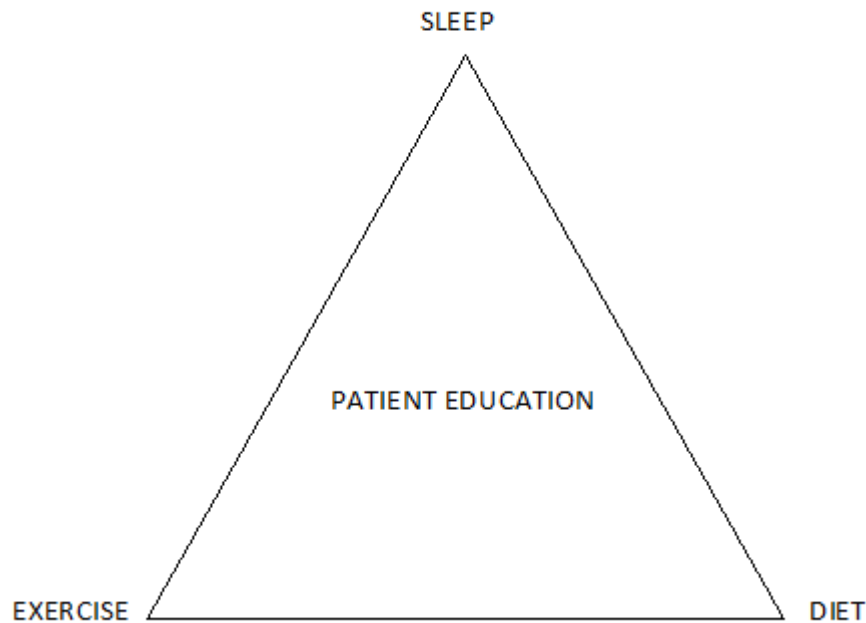


Figure 2.13: Depicts the triad of patient education (Desai, Sawarkar and Yelne 2016)

Ayurvedic practitioners focus on sleeping patterns of the patient. Sleep is important in maintaining a balance between the *doshas* (Lambert 2018). The quality of sleep at the right time is vital in maintaining *doshic* equilibrium and optimal mental and physical well-being. Optimal quality of sleep is achieved when the patient disconnects from the five senses of the body. Prior to sleeping, patients are advised to relax the mind, body and spirit by performing diaphragmatic breathing as well reciting prayers of gratitude to the gods. Patients are advised to get approximately seven to eight hours of sleep and instructed on head positions to optimize sleep. Patients are advised to sleep with the head in the *purva* (east) and *dakshina* (south) position, as these positions improve intellect and longevity of life respectively. Patients are instructed not to assume *pashima* (west) and *uttara* (north) head positions, as these positions result in mental distress (Shukla *et al.* 2014).

Diet is another fundamental pillar in Ayurveda. Ayurvedic doctors formulate a dietary plan based on the patient's requirements, with the goal of restoring *doshic* balance. The concept of diet in Ayurveda is centered around three aspects (Banerjee, Debnath and Debnath 2015):

- 1.) *Ras* – taste
- 2.) *Virya* – potency
- 3.) *Vipak* – post digestion effect

The aspect of *ras* is an integral component of digestion, which includes sweet, sour, salty, bitter, pungent and astringent tastes. Sweet tasting foods promote strength which helps to pacify aggravated *vata* and *pitta doshas*, however, if consumed in excess it can result in morbid obesity and cause the *kapha dosha* to become imbalanced. Sour tasting foods facilitates digestion and pacifies the aggravated *vata dosha*. However, if consumed in excess, it can result in indigestion and cause imbalance of the *pitta* and *kapha dosha*. Salty tasting foods promotes electrolyte equilibrium and clears the path of the *srotas*, and pacifies the *vata dosha*. However, if consumed in excess, it can induce vomiting and hypertension and imbalance of the *pitta* and *kapha dosha*. Bitter foods, such as turmeric, stimulates the functioning of all tastes. Pungent foods pacify the *kapha dosha*, however, in excess it causes imbalance of the *pitta* and *vata dosha*. Astringent foods, such as unripe bananas, aid in absorption of nutrients. However, if consumed in excess, they can lead to constipation and blood coagulation (Singh, Baghel and Tripathi 2016).

The *virya*, in Ayurveda, refers to the potent energy of food which can be classified into two subgroups, namely, *usana* (hot) and *sita* (cold). In Ayurveda, the belief is that food can either cool down or heat up the metabolism. Foods with *usana* properties restore *kapha* and *vata doshas* and simultaneously promotes blood circulation; foods with *sita* properties, restore the *pitta dosha* and simultaneously decrease inflammation in the body.

Vipak is the taste at the end of digestion; it addresses post-digestion, focusing on the effect of food on the excretory process and nutritive value of food. Ayurveda further divides *vipak* into three categories, namely, sweet, sour and pungent *vipak*. The sweet *vipak* promotes growth and encourages urination and bowel movement. The sour *vipak* is responsible for loosening of stools, and the pungent *vipak* is responsible for decreasing urination and fecal output. The type of diet that the practitioner recommends for the patient depends on which *dosha* needs to be balanced (Urmale and Kumar 2017).

The final aspect of patient education focuses on exercise and behavioral philosophies. Ayurvedic practitioners educate patients on the benefits of exercise. In Ayurveda, the belief is that exercise is beneficial to all individuals and not only healthy individuals. *Vyayama* (exercise) and *krida* (sport) form an important aspect of maintaining a healthy lifestyle. The ancient Ayurvedic texts define exercise as follows: *“a physical action which is desirable and is capable of bringing about bodily stability and strength is known as physical exercise.”* Ayurvedic practitioners advise patients to participate in physical exercise, so that *doshas* are balanced, stress is reduced, and patients can function better. Each person has a predominant *dosha*, based on the dominant *dosha*, the practitioner will recommend which exercise to perform. *Kapha* predominant individuals are encouraged to perform exercise such as swimming, running or skipping, to encourage sweating. *Pitta* predominant individuals are encouraged to perform more challenging activities such as aerobics, as *pitta* individuals are fit by nature and do not require much physical activity. *Vata* individuals are thin and fragile by nature and are encouraged to walk. The behavioural aspects of the patients are addressed by advising patients to participate in *yoga* therapy. Poor sleep, diet and lack of exercise can lead to *doshic* imbalance and disease. Therefore, Ayurvedic practitioners, like Chiropractors, provide patients with the necessary advice and education to achieve a disease free state (Wagh 2016).

2.18 INTEGRATION OF CAM INTO WESTERN MEDICINE

Integration of CAM into western medicine depends on referral. Practitioners who are currently involved with the management of the patient should establish when

referral should be done, provided they stay within the scope of practice (Poddubnyy *et al.* 2015).

Practitioners often send patients for relevant investigations to determine a definitive diagnosis which could lead to referral, based on the outcome of the diagnostic testing. Knowledge of other health care professionals, and knowing who and when to refer, will allow for better management of patients (Poddubnyy *et al.* 2015).

Primary health care professionals see patients with musculoskeletal complaints on a daily basis (Hunter *et al.* 2017). Knowledge of CAM will enable practitioners to refer patients when necessary and adopt a more holistic approach to patient management (Poddubnyy *et al.* 2015). Medical doctors often lack the time and training to help patients manage musculoskeletal conditions beyond medication. Therefore, establishing an inter-referral relationship between practitioners is important (Hunter *et al.* 2017).

Optimum musculoskeletal health is important for all patients, as it allows patients to have a better quality of life and to thrive in the workplace and function better without pain. The profound impact of impaired musculoskeletal health, characterized by morbidity and mortality, is now globally recognized (Briggs *et al.* 2016). The multidisciplinary approach is becoming more popular in the medical field, as Chiropractors, Homeopaths and traditional medicine practitioners now form part of the multidisciplinary team, which has proved to be effective in a number of conditions (Montesi *et al.* 2016).

The health care system is facing numerous challenges (Debaveye *et al.* 2016). Integrative medicine is the way forward. Health care professionals worldwide have recognized CAM and traditional medicine and have taken note of its effectiveness (Singer and Adams 2014). There is an opportunity to develop a robust system of medicine which includes a multidisciplinary and integrative approach to health care, which is more cost effective. Likewise, Ayurveda, with its holistic approach, can benefit this underserved area of health care (Rao 2015).

2.19 CONCLUSION

South Africa is a diverse nation, with a wealth of culture and knowledge systems that have impacted public healthcare. Therefore, healthcare professionals need to be prepared for patients from different ethnic and racial groups, to provide the best available care. CAM and traditional medicine are alternatives to western medicine. The Ayurvedic system of medicine which has a wealth of knowledge and expertise to offer western medicine and is gaining popularity in many regions of the world, requires further investigation (Chinasamy 2017).

This study will give the Chiropractic profession a greater insight into the Ayurvedic system of medicine and how Ayurvedic practitioners diagnose and manage neck pain in comparison to western medicine and Chiropractic. It will enable inter-referral relationships and multidisciplinary management of a patient which has proved to be clinically effective in the management of musculoskeletal conditions (Volker et al. 2017).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter addresses various aspects of the research methodology that was used to implement this study. It includes the research procedure, sample population and size, ethical considerations and the process of data collection. Research methodology refers to the systematic approach used to obtain information for a study. It includes the approaches, processes and methods used to obtain and analyze data in order to gain knowledge and add to the body of literature. This research follows a qualitative approach that does not involve measuring variables in a quantifiable way (Henwood 2014).

3.2 STUDY DESIGN

The research design refers to the specific strategy that is used to conduct the research. The objective of the research design is to provide solutions to an existing problem. This qualitative research followed a design that seeks and describes new observations where no prior information existed (Marshall *et al.* 2013) and the investigation strategy guides the achievement of the objectives of the study.

3.2.1 Qualitative research

Qualitative research is exploratory research which analyses human experience and cultural phenomena. Qualitative research uses open-ended and conversational communication to gather data. Qualitative research focuses on the behavior and perception of a study population. The term 'qualitative' suggests that there are various research methodologies which include: ethnography, phenomenology, qualitative inquiry, action research, and grounded theory (Lockwood, Munn and Porritt 2015).

Researchers use qualitative methodologies to '*study things in their natural setting*', attempting to interpret phenomena in terms of the meanings people bring to them (Lockwood, Munn and Porritt 2015). The objective of qualitative research is to

allow for exploration of subjective matters. The goal is to form a holistic view of events to gain insight into the cultural or social aspects of society (Anderson 2010).

3.3 STUDY SITE

Yilmaz (2013) defines the study site as the location or place chosen to conduct the study. The research site of this study was the respective Ayurvedic practitioners' practice in South Africa. It was the most suitable place for the participants to feel comfortable. However, due to feasibility four interviews were conducted telephonically. Permission was sought from the Ayurvedic practitioners to conduct the study in their practice or to contact them telephonically.

3.4 POPULATION, SAMPLE TECHNIQUE, SAMPLE SIZE

Purposive sampling is a form of non-probability sampling which involves the conscious selection, by the researcher, of participants to include in the study. It allows for representativeness and comparability to be achieved by selecting this cohort (Marshall *et al.* 2013). This method was used by the researcher to select participants for the study. Participants that were selected were Ayurvedic practitioners registered with the Allied Health Professions Council of South Africa (AHPCSA).

In qualitative research, the sample size cannot be determined through statistical extrapolation (Creswell 2013). The larger the sample size does not mean that more data will be collected, nor does it mean that there will be more information (Ritchie *et al.* 2013). Furthermore, the time-consuming nature of qualitative data analysis makes large sample sizes impractical (Mason 2010). The sample size of this study comprised thirteen (13) participants, eight (8) of which were interviewed. The goal in qualitative research is to attain data saturation (Mason 2010), therefore the prospective sample size of thirteen (13) participants was adequate in this qualitative study.

3.4.1 Inclusion criteria

Ayurvedic practitioners who are registered with Allied Health Professions Council of South Africa were included in the study.

3.4.2 Exclusion criteria

Participants who did not sign the *Letter of Informed Consent Form* were excluded from the study.

Participants who were not willing to participate in the study.

Ayurvedic practitioners who are not registered with Allied Health Professions Council of South Africa were excluded from the study.

3.5 RESEARCH INSTRUMENTATION

The most popular research instrumentation used in qualitative research is the interview protocol. Interviews provide the researcher with a wealth of information pertaining to participants' experiences of, and viewpoints on a particular topic (Turner III 2010). There are various forms of interview designs that can be developed to obtain rich data utilizing a qualitative investigational perspective (Creswell 2013). There are three formats for interview design (Turner III 2010):

1. Informal conversational interview
2. General interview guide approach
3. Standardized semi-structured open-ended interview

Standardized open-ended interviews were utilized to obtain information on neck pain from participants.

3.6 OPEN-ENDED QUESTIONS

The standardized open-ended interview is structured in terms of the wording of the questions. Participants are asked identical questions pertaining to the study;

however, the questions are phrased so that responses are open-ended, for example, using words such as “describe” as opposed to “*what*” allows for the participants response to be more open-ended. This approach allows the participants to contribute as much information as possible, and also allows the researcher to ask probing questions. Yilmaz (2013) proposed that open-ended questions allow the participant to offer information in areas that might not have been foreseen by the researcher and are especially useful when studying complex issues.

Some of the disadvantages of open-ended questioning are that it is time consuming and the researcher might record information irrelevant to the study (Yilmaz 2013). Another disadvantage with standardized open-ended interviews is that there is difficulty with coding the data (Creswell 2013). Participants are able to provide detailed information, thus making it difficult for the researcher to extract similar themes from the interview transcripts, however, this allows for the researcher to remain unbiased (Turner III 2010).

Open-ended questions were proposed to Ayurvedic practitioners to gather information on the topic and they were permitted to elaborate. Since the study is based on neck pain and the Ayurvedic understanding of neck pain, open-ended questions were beneficial as it allowed the researcher to gain an in-depth understanding of the topic, revealing information on the Ayurvedic system of medicine.

3.7 PRIOR TO INTERVIEWS

- The purpose of the study was explained to the Ayurvedic practitioners, as well as their role in the study.
- The Letter of Information (Appendix A) and Informed Consent Form (Appendix B) were given to practitioners.
- The aim of the interview was explained to each participant - the interview was not to use their information for any treatment purpose but for research purpose only.

The above points were explained to participants in detail to inform the participants throughout the study and to make sure that the Ayurvedic practitioners understood their role in the study as well as their rights as the participants.

3.8 DATA COLLECTION

The researcher conducted field interviews with the eight (8) Ayurvedic practitioners in South Africa. The intention of these interviews was to explore and document the depth of understanding, diagnosis and management of neck pain among Ayurvedic practitioners in South Africa. The researcher telephonically contacted the Ayurvedic practitioners and confirmed their availability to participate in the study and scheduled appointment dates and times. The interviews took place once the participants had read the *Letter of Information* (Appendix A), agreed to the informed consent questions and signed the *Informed Consent Form* (Appendix B) and *Confidentiality Statement* (Appendix C). Four participants were interviewed telephonically, the researcher emailed the *Letter of Information* (Appendix A), *Informed Consent Form* and *Confidentiality Statement* (Appendix C) to the participants. Electronic documentation was sent to the researcher prior to the interviews. The interviews were then voice-recorded. The researcher asked all participants the same open-ended questions as per the *Interview Guideline* (Appendix D).

3.9 THE TRANSCRIPTION OF INTERVIEW DATA

3.9.1 Process of transcription of interview data

The transcription of the data from audio recordings into word documents was done by the researcher by carefully listening to the original interview audio recordings, going back and forth to verify the original interview. All audio recordings and transcriptions were sent to the researcher's supervisors to verify the original interviews to ensure that no valuable information was excluded.

3.9.2 The coding of subjects

Interview subjects were coded to facilitate representation of their words in writing, while protecting their identities and to maintain participant confidentiality. The coding utilized reflected the Ayurvedic practitioner's designation and their placement within the sequence of eight (8) interview pairs. The coding sequence was:

1. Ayurvedic practitioner (**P** = Participant)
2. Placement within the eight pairs of interviews (**1,2,3**, up to **8**)
3. Gender of individual (**M** or **F**)
4. Age of the Ayurvedic practitioner

3.10 DATA INTERPRETATION

3.10.1 Data analysis

- Once data collection was completed, all interviews were transcribed into word documents.
- Thematic analysis was used to analyse the transcripts from the interview. Only the researcher and supervisor had access to the data that was collected.
- The data was analyzed using Tesch's Eight Step method (Creswell, 2013):
 1. Interviews were transcribed verbatim and analyzed by the researcher
 2. The researcher read the transcripts and compared them with the audio – recorded interviews
 3. The researcher read the transcript for the second time to identify the underlying meaning
 4. The researcher then selected the most interesting and informative interviews and notes were made in the margin of the transcribed interview. The process was repeated for the rest of the interviews
 5. Similar topics were then clustered together under topics
 6. From these topics, the researcher formed themes and sub-themes

7. The main supervisor of the research study; an experienced person in the field of qualitative research analyzed the data separately and identified themes which were discussed with the researcher
8. Literature was reviewed to verify the findings

3.11 DATA STORAGE

The data was stored on a compact disc and will be kept in locked storage within the research supervisors' archive for five years, after which it will be physically destroyed. The data will only be accessed by the researcher and the study supervisors. Physical transcripts and audio recordings will be kept with the researcher supervisors' archive for five years, after which it will be physically destroyed.

3.12 TRUSTWORTHINESS

Linda *et al.* (2016) discussed four major criteria which are important to obtain trustworthiness. These four criteria were used to improve the quality of the research:

1. Credibility
2. Dependability
3. Conformability
4. Reliability

3.12.1 Credibility

Credibility which can also be termed "internal validity," is when the participants recognize the reported research findings as their own experiences (Linda *et al.* 2016). The researcher was coherent and consistent throughout the interview process, which ensured validity. Closed and open-ended questions were created by the researcher during the interviews to portray an accurate reflection of the actual situation.

3.12.2 Transferability

Transferability which can also be termed “external validity;” refers to a probability that the study findings have meaning to others, in similar situations (Carcary 2009). The methodological approach was described in detail by the researcher to achieve this.

3.12.3 Dependability

Linda *et al.* (2016) explained that dependability is the extent to which research findings can be replicated with similar subjects in a similar context and similar results would be obtained. The dependability of this research was ensured by:

1. Thoroughly describing all the steps taken in conducting the study from start to finish as recorded in this chapter.
2. The transcription and analysis phases were initiated by the researcher and checked by the research supervisors for any discrepancies.

3.12.4 Confirmability of the findings

Confirmability refers to the objectivity, the extent to which the researcher is aware of or accounts for individual subjectivity or bias (Carcary 2009). To ensure this:

1. The research methods used to conduct this study were supported by the literature as demonstrated in this chapter.
2. The research methodology was examined by the research supervisors (who are experts in qualitative research).

3.13 ETHICAL CONSIDERATIONS

The researcher had a moral obligation to strictly consider the rights of the informants who were expected to provide information (Carcary 2009). The

researcher asked the participants for permission to be included in the research, participants were given information (Appendix A) about the study.

Participant autonomy was maintained in this study by using an informed consent document (Appendix A) which was given to each participant. This provided an explanation of the purpose of the study, risks and benefits, methods to ensure confidentiality, the voluntary nature of the study and the right of the participant to leave the study at any point. This was made available prior to any interviews being conducted and given to all the relevant authorities to ensure transparency.

Each participant was assigned a pseudonym during analysis, to ensure non-maleficence. Non-maleficence was also ensured by keeping the interview recordings and transcripts on a password protected laptop to which only the researcher had access.

Justice was taken into consideration as there was no discrimination in terms of age, gender or ethnicity in participant recruitment for this study, ensuring fairness. All the data collected in this study will be stored in a safe facility at the Durban University of Technology, Department of Chiropractic and Somatology for a period of five years and thereafter will be destroyed by shredding.

3.14 CONCLUSION

This chapter explained the research protocol used in this study and clarified how data was obtained and analyzed. In the next chapter the findings of the study will be presented.

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION

This chapter discusses the thematic analysis of eight semi structured interviews with Ayurvedic doctors that were registered with AHPCSA.

4.2 GENDER, AGE AND RACE OF THE PARTICIPANTS

The gender, age and race of the participants (n=8) are outlined in Table 4.1. Most participants were males (n=5; 62.5%), the remainder of the participants were females (n=3; 37.5). Indians were the only participants in the study. The mean age of the participants was 42.4 years, while the range was 28-56 years.

Table 4.1: Gender, age and race of participants

Participant	Age	Gender	Race	Years of experience
1	55	Male	Indian	31
2	35	Male	Indian	11
3	50	Male	Indian	24
4	42	Male	Indian	17
5	39	Female	Indian	13
6	28	Female	Indian	4
7	34	Female	Indian	10
8	56	Male	Indian	20

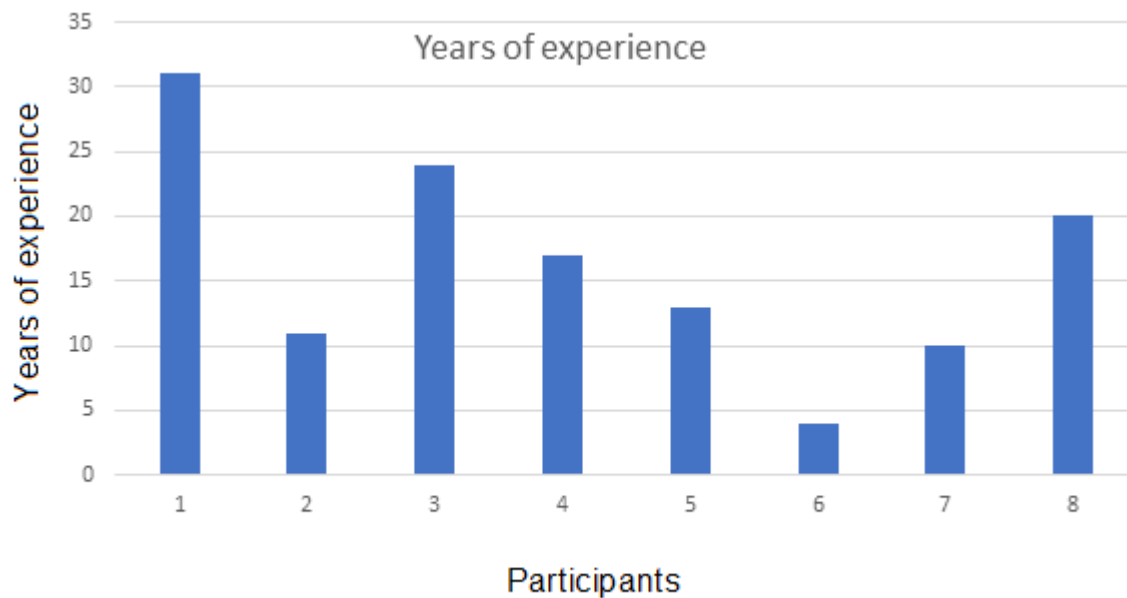


Figure 4.1: A bar graph illustrating the number of years of experience of each participant

The above bar graph illustrates the number of years of experience of each practitioner. The average years of experience among practitioners was 16.25 years, while the range was 4.31 years, suggesting that the data collected was trustworthy.

THEME ONE: THE AYURVEDIC APPROACH TO MANAGEMENT OF NECK PAIN

The participants were asked to describe the Ayurvedic management of neck pain which allowed them to discuss their various perspectives on the management of neck pain in detail.

4.2.1 The management of a patient with neck pain is based on the *three dosha* principle

Each participant mentioned that they followed the traditional texts, that is, the *Charaka Samhita* and *Susruta Samhita*, when managing a patient with neck pain. They followed the *three dosha* principle, the *vata*, *pitta* and *kapha*. The participants mentioned that when there is a *doshic* imbalance in the body, the patient will present with an ailment. In order to manage the patient, it is important to pacify the

dosha that is not in equilibrium or the *dosha* that is aggravated, which will subsequently resolve the neck pain.

The following participants expressed how they manage a patient using the *three dosha* principle:

“From an Ayurvedic perspective we would find what is the doshic imbalance in terms of his pain; this needs to be determined to determine the appropriate management of the patient. We would find out his doshic imbalance then we know what is causing the pain and then we will know how to manage.” (P1M55)

“So, in order to manage the patient adequately, we are looking at a three dosha principle. Here what happens is that every dosha has its own set factors, in any given condition, it might not necessarily be neck pain or any condition, these signs and symptoms will manifest in these three doshas. You have your pitta, vata and kapha. The signs and symptoms will manifest in these three doshas. When you become a doctor, you go through all the processes, after certain years of experience, when a patient comes in, you know which examinations to perform and you know what the doshic imbalance is. We look at which dosha is prominent in this person and which dosha is contributing to this person’s pain, whatever signs that is evident. Considering the contributing factors and the three dosha principle we will then select the treatment for the patient. If there is a kapha imbalance, then the selection of medicine is different compared to a pitta imbalance.” (P2M35)

“Any pain in the body is mostly vata related. So, in Ayurveda there are three doshas: vata, pitta and kapha. Any movement in the body that is related to vata, so the nervous system, joints, bones, pain. Its ruled by vata. So, when you get a pain in the neck, mostly vata is aggravated in the body. So, we try to manage vata, with vata pacifying treatment and herbs. The moment a patient walks in, we can see so many things. There are so many features, for example vata imbalance the person will be lean, skin is dry, impulsive or they have indigestion, there could be constipation, there is a lot of things. The person can be a pitta predominant but may be suffering from a vata disorder. Not only a vata person can suffer from a vata disorder. It will take longer for us to treat a person with a pitta disorder who is, vata. Pitta is hot, liquid. Vata related symptoms are more like pain in the joints,

aging comes faster, so all these kinds of things. Everybody has three doshas, some people have 60% vata and the rest is pitta and kapha. The vata is predominant. So, for example, a person is suffering from a vata disorder because of his diet, lifestyle, nature of his work, vata is aggravated and that is causing the disorders in the body. We pacify the aggravated vata and then the person returns to normal nature. So, we must find the doshic imbalance, then we manage the patient like that.” (P3M50)

“So, we try to do whatever they have written in the ancient texts, we try to use it in today’s Ayurveda. We focus on the doshas, if there is a doshic imbalance then there will be illness. Then when we describe any kind of disease in the body, its vata, pitta and kapha. Vata type of pain will be prickling type of pain, the person will be having dry skin, they will be nervous and restless almost. With pitta pain the patient will be quick, have burning sensation, digestion will not be good. The kapha pain the person will be slow, they will have respiratory conditions, that sort of thing. We treat and diagnosis patients with regards to the above dosha presentation and the imbalance. You can see how complex it is, it is according to which dosha is aggravated. Everything in Ayurveda is according to the dosha, then from the dosha, we will treat from the type of doshic imbalance. This is very brief obviously it will go more in depth. The whole body is made up of the doshas, which travel through the different channels. So, we must treat it differently for every patient.” (P4M42)

“Ok obviously when we look at Ayurveda with regards to managing any form of ailment, we categorize it with regards to the three doshas, so you know we have your vata, pitta and your kapha. I’d like to go the more traditional way, where we treat according to the doshic methodology. So, from an Ayurvedic perspective we say that neck pain is a vata aggravated disorder. So, we have the three doshas, your vata, pitta and kapha. So with regards to the vata element, it represents wind, so with a patient who has got a vata aggravated dosha they will be anxious, they will have constipation, this is linked to the vata element because it’s the wind element of the body, you will also find that it is linked to the nervous system of the body so it will predominantly be issues with the nerves, so also you have a tad bit of disorientation in vata aggravated pain. With pitta element, so pitta is the fire

element, so you find that the person is very hot. A patient with pitta aggravated pain, they tend to be very hungry, their digestion is poor; like they have diarrhoea. You find at the localized points that there is a lot of heat or like a burning sensation. Also, you find that they will have a lack of sleep, highly interrupted sleep. Then the kapha element its predominately more, the water and the earth. So, with those elements you find that the person is very nauseous they don't have much of an appetite, they have respiratory conditions. The stools are heavy. You find with vata its predominately more the joints and with kapha its more muscular, so you find that with a lot of the pain and discomfort, is predominately more muscular. Depending on which symptoms your patient exhibits, so we do link up the dosha and then we treat." (P5F39)

"You see we have doshas, this is the constitution, this is the national constitution of the person, the doshas are basically things that are at fault or imbalance in the body. So vata is basically all that is related to the nervous system, circulation, muscles, joints, pitta is all about the hormones, the digestion, your kapha is all about lubrication, stabilisation, physical and mental. So, the management depends on what the ratio of the imbalance may be in somebody, there is always at least one or two things that are normally out of balance. So just by gathering by how somebody looks, or how their diet may be like if somebody has a very irregular metabolism or irregular digestion, they are most likely to have a vata imbalance. From an Ayurvedic perspective, any sort of pain is related to vata, so we first find the imbalance then we manage the patient accordingly." (P6F28)

"So we believe in the three doshas, they can be simply understood as the energies within the body, the combination of the different elements in different proportions, you then get vata which is your energy movement, we look at it in this manner, vata is responsible for the metabolic process in the body, like digestion, it is the energy of movement, anything that happens in the body is because of vata. Then we have pitta, which is the fire element it takes care of metabolic processes, we have kapha, which is like a heavy water energy which brings shape and stability to the body. That's not the only way of looking at the doshas, its complex, but within the doshas we have five different varieties, which has different energy which is responsible for specific processes within the body. For example, if a patient comes

to a practitioner with a specific imbalance, let's say constipation, in that case we know that the vata is imbalanced. The belief is that the body is made up of nature, so if we look at nature; so what we are saying is that the body is just an expression of the environment outside of the body. The belief in Ayurveda, is that the body is a minute form of the external world.” (P7F34)

“In Ayurveda there are different types of people vata, pitta and kapha, its different to other systems of medicine. A specific line of treatment for the neck will be based on this. The whole management of a patient is based on this. In medical science we have cells, in Ayurveda we have our three doshas, which is energy within the cell, anything that has to do with movement is vata, anything which is responsible for digestion is pitta and anything that is responsible for strength is kapha. So, we focus on doshic imbalance and which dosha is aggravated we do tests, then we manage according to doshic imbalance.” (P8M56)

4.2.2 The management of neck pain depends on the root cause

Each participant mentioned that it is vital to identify the root cause of the neck pain in order to properly manage the patient. Once the root cause or causative factor has been identified, it can then be removed, subsequently resolving the neck pain. The participants discussed the importance of identifying the root cause in the following statements:

“Now in Ayurveda we look at what is causing the pain. We would look at his BMI, we would look at weight loss if that is the causative factor, there is no point putting the patient on medication if weight is in excess which is causing compression in the spine and causing the neck pain; that is the causative factor or the root cause. In terms of management and diagnosis, there are various causes of neck pain as well as different influential factors which can contribute to the development of neck pain. In terms of diagnosing a patient it is important to determine the underlying factor by sending for relevant investigations, this will allow us to manage the patient holistically.” (P1M55)

“Neck pain can be because of various backgrounds, it can be cervical spondylitis, inflammatory changes, autoimmune conditions or degenerative conditions, it could also be an external injury, such as whiplash. But mainly what I see in patients here, is patients with a chronic history of cervical spondylitis, so I make a diagnosis and determine the contributing factors, such as straining the neck by continuous working on computers or driving. That’s the normal understanding of the predisposing factors and what may have caused the neck pain. That’s the basic understanding of the predisposing factors that may have caused the neck pain, unlike western medicine where it is a conventional system, where there is a problem and the solution is the painkillers. So, in Ayurveda we are trying to concentrate on the root cause, all of this is the root cause. In Ayurveda we are looking at the dimension of original background. For example, I see very complicated conditions with patients presenting with neck pain over the years, it is not necessarily spondylosis, we must look for the causative factor. It can be poor diet, stress, so must find that out and remove it.” (P2M35)

“See in Ayurveda the cause is more important. See in Ayurveda basically everything is important, first we need to go through the causes of the neck pain. These days what I see in my practice, I have been practicing for so many years now. In modern age the cases of neck pain are increasing. Most of them are not injury based, I have found a correlation with poor quality of sleep, poor diet and poor lifestyle can contribute to neck pain. So, if lifestyle is not good and sleep is not good, muscles tend to get stiff, then this can cause pain anywhere there is a pressure, it can include the neck. So, in Ayurveda what we try to do, is rectify the lifestyle of the person, like the poor diet and sleep, that will be the root cause of the pain in the neck.” (P3M50)

“You see what happens here, you want to know what the causative factors are, so this is the idea that a traditional Ayurvedic practitioner has. What are the causative factors? Pain due to an internal abscess or maybe pain due to internal bleeding, or external injuries, something that we can see, something that we can’t see. But what are the causative factors, so these are the different causative factors. Everything is about the causes of the pain. For neck pain, it can be stress or tumour even, it’s very important to correctly identify the causative factor.” (P4M42)

“With Ayurveda it’s not just prescribing just the treatments, it is very holistic, now with no disrespect; with allopathic medicine it is more the symptomatic elements that they look at, but with Ayurveda we look at it holistically. You are not just looking at where the localised pain is, but you are also looking at the source. It could be a referred pain like a jaw ache or earache that is causing the neck pain, so we have to treat that first; you have to treat the root cause. It can be diet, sleep, posture, it can really be anything, we have to out what the root cause is.” (P5F39)

“Well it varies, it depends on what the cause may be, so according to that, we will assess the patient constitution and then formulate a dietary plan as well as a lifestyle management, then work towards in-cooperating some treatments. So, it really does depend on what the root cause of the neck pain may be. You see after going through an extensive amount of history taking we can usually isolate what the problem, because it varies from person to person, because a cause for neck pain in one person may not necessarily be the same cause in another person, so there is a variation of factors; there are influences, so it can be what the person is eating, how well they are sleeping, the amount of sleep they are getting, things like that also contribute to the cause of the pain.” (P6F28)

“The thing is with Ayurveda, neck pain is never an isolated issue, so the treatment will never be the same for each person, because the neck pain will be due to different causes, there will be a different reason for the pain. The drugs would vary according to the specific cause and the specific patient. We treat everyone as a specific individual, we never put a group of people into a box, we don’t say ok all these people have neck pain, so we will do this specific procedure, and everybody is going to be fine, it doesn’t work like that. So, it all depends on the root cause. That is what we focus on; everyone is different.” (P7F34)

“You have to understand that in Ayurveda, we look at the root cause, so we have to find the root cause of the neck pain. Neck pain may be related to many reasons. Neck pain and pain these are the two things. Pain is related to something that the body is not comfortable with. Especially if pain is in the neck area, if posture is disturbed, mentally disturbed, there are many reasons to cause the neck pain. In

management of neck pain, in my experience is related to the posture, and posture is related to the thought process, stress. It's related to breathing pattern. Breathing will alter our emotion, our thoughts. For me breathing is very important, patient not breathing properly can be the root cause.” (P8M56)

4.3 THEME TWO: THE AYURVEDIC DIAGNOSIS OF NECK PAIN

Diagnosis is an important aspect of patient management particularly, accurate diagnosis. Participants were asked to discuss the methods used when diagnosing a patient with neck pain. The following subthemes were identified:

4.3.1 The pulse diagnosis of neck pain

An important aspect of managing a patient is ensuring that the diagnosis is correct. When asked to discuss the methods used to diagnose a patient presenting with neck pain, 75% of participants mentioned that they would use the “pulse diagnosis” to determine the *doshic* imbalance. The following responses outline the experiences of the participants:

“When checking the pulses, unlike western culture, where they check rate rhythm and volume in Ayurveda it is a deep understanding of pulse, in Ayurveda the rate and rhythm will guide us as to what the doshic imbalance is. I was so fortunate, I went to the roots of traditional Ayurvedic healers, not the qualified doctors, in India you find traditional herbal healers and others like me from the university. The traditional healers know better pulse diagnosis. Pulse diagnosis is a complicated language. If I explain it doesn't make much sense, it is something that you go through yourself. There are some signs and symptoms that we look at when it comes to pulse diagnosis. Rapid pulse represents vata imbalance, slow and steady pulse represents kapha imbalance and irregular pulse represents pitta imbalance. That's just a general understanding.” (P2M35)

“For diagnosis of neck pain, mainly we use pulse diagnosis, which is a very important diagnostic tool for us. Pulse gives us information about the doshas, which doshas are aggravated. So, for us the pulse diagnosis is important, mostly the radial pulse. We use our three fingers. Our first finger – our index finger – this

is for vata imbalances, middle is for pitta imbalances and third one is for kapha imbalances. We feel which is prominent and then we know which dosha is aggravated.” (P3M50)

“So, the Ayurvedic management depends on the diagnosis of the different causative factors, whether its internal whether its external. Also, in Ayurveda pulse diagnosis is very important. The index finger represents the vata, the middle finger represents the pitta and the ring finger is the kapha imbalances. The pulse will tell us which dosha is imbalanced, we then treat to pacify the doshic imbalance.” (P4M42)

“So, what I do is a pulse diagnosis, its mainly the radial pulse, so what I do is place a one finger gap between your carpal and your metacarpal and thereafter your three fingers which is your index, middle and your ring finger. The index is more the indicator of the vata imbalance, the middle is pitta imbalance and the ring finger is kapha imbalance. So, it depends on which pulse is excessively beating as I would call it, that pulse is your predominant one and that is the dosha that is out of balance.” (P5F39)

“In Ayurveda with the pulse, there are specific things, like how you are feeling for each person, for a male person it is on the left-hand side and for a female it is on the right. So, each finger, your index finger symbolises vata imbalances, your middle finger symbolises pitta imbalances and your ring finger symbolises kapha imbalances. So, when feeling the pulse, it should be in the ratio 4:3:2, so if anything is out of balance you can feel it, I’ve learnt from my nandhi guru that specific places or where you feel the pulse indicates there is some imbalance in a specific part of the body. Just by feeling it, you can feel if vata is under active or over active or pitta is not working properly it may be not as fast because specific pulses have a specific rhythm and if they are not working properly then you can determine from there.” (P6F28)

“Pulse diagnosis is very important in Ayurveda, everyone wants to know about pulse diagnosis, it can’t be discussed, it’s not hard though. Pulse diagnosis we use index finger – vata, middle finger - pitta and ring finger – kapha. We feel the

vibration. The pulse is just a part of the diagnosis, it will tell us which dosha is out of balance.” (P8M56)

4.3.2 The integration of modern technology with the Ayurvedic system of medicine to diagnose neck pain

Participants mentioned that they include aspects of modern medicine technology, which include relevant imaging and bloodwork to diagnose patients with neck pain. The participants discussed the various aspects of modern medicine technology that are utilized in the Ayurvedic profession:

“So, let’s start first with the diagnosis. First in terms of a diagnosis we would look at the normal parameters, we would look at the x-ray, MRI scan and a physical examination of the patient’s movement and flexibility. First and foremost, we would look at an x-ray or MRI scan that the patient brings in (usually an Ayurvedic practitioner is the last option for patients and they have seen all other primary care practitioners however found no relief therefore we will look at the x-rays that they bring us). With a diabetic patient, he may have a pinched nerve, this is a problem we would give a B12 injection. Sometimes I may send for blood tests if he is diabetic, I’ll send for an Hba1c, its important because we would treat the patient holistically, we can’t treat the patient only for his neck pain, we need to check his status of diabetes, or cholesterol or any kind of pathological condition, so that’s what I will send for, then we treat those as well, this is very important in Ayurveda.” (P1M55)

“We include the western understanding as well, going through the blood tests, x-rays and MRI, to further examine the patient. For example, there is a patient with chronic stiffness and pain, with all the management the result is just failure, we need to check for other factors. So, we take advantage of western technology. Patient comes with neck pain, so to really understand, you check the patient. It is easy to diagnosis cervical spondylitis, the differential diagnosis comes when we send for x-rays, blood work to check if there is, other pathological conditions to consider, like autoimmune conditions that need to be considered. If we suspect a

fracture, then we send for a cervical spine x-ray. We use modern technology to help diagnose our patients.” (P2M35)

“We look at x-rays and things like that, patients come to us with the x-rays that they got from other doctors, then we don’t need to send for it, but we can send for MRI’s if we need to. We can send for blood work, to check if there is infection that type of thing. (P3M50)

“Like modern medicine there will be x-rays, you going to do all the normal things like biopsy things like that. So that’s just what we would do if necessary.” (P4M42)

“We can send out for blood work, x-rays, MRI’s so we know how to manage the patient, obviously if we can see it’s not within our scope of practice then we will have to refer, based on the use of modern technology, we are able to do this.” (P5F39)

“Sometimes we cannot pick up things like fractures by just looking at the patient, so we do make use of the western technology like x-rays and blood work, that type of thing.” (P6F28)

“We can send patients for x-rays or MRIs, or whatever is required, depending on the severity, in my practice, I will always try to do less invasive things. We do use modern science to help us diagnose the patient.” (P7F34)

“We send for tests, like the MRI, x-ray, blood work, use things from western culture.” (P8M56)

4.3.3 Diagnosis using the threefold Darshana, Sparshana and Prashana principle

In Ayurveda the gold standard of diagnosis is the threefold principle of *Darshana* (Observation), *Sparshana* (Touch) and *Prashana* (Questioning). In this study 75% of participants discussed the importance of this threefold principle. The participants responses are presented below:

“A detailed history regarding the diet and the lifestyle of the person. For example, what time he wakes up, what time he sleeps, nature of his work, how many hours he is sitting, whether he is going for exercise or a walk or not, is he eating healthy food or not, so that is also important for us in Ayurveda, to come to a diagnosis. We ask questions about all these things. Diet is important, because in Ayurveda we believe that if people do not eat on time and they do not eat right stuff, that creates a lot of indigestion, so that results in bringing the quality of sleep down, increases stress level and may contribute to neck pain, that’s why we have to question the patient. With thoughts basically; you know every Ayurvedic doctor is basically unique, so for me if the persons thoughts are not settled, if they cannot settle as easy, it means vata is disrupted. It does not matter what type of thoughts, it’s just that thoughts are running all the time. They will be very uncomfortable sleeping and can’t relax, they are stressed, so we address this through a process of questioning that is how we can get a lot of information about the condition. Observation of the actual person, how they walk, looking at their face, are they sad or depressed. We also palpate the areas of pain, checking for any abnormalities. Palpating the spinal cord to check everything is normal.” (P3M50)

“When we diagnose, there are certain questions we ask about diet that must be followed, sleeping regimes, medication. We look at the patient, looking at the gait, are they hunched over. We also palpate over the area of pain. All of this is important, there is just so much to consider in Ayurveda.” (P4M42)

“In addition to pulse assessment, you ask patients questions this is known as prashna in Ayurveda, its mostly your cardinal questions, like your appetite, your digestion, also your bowel movements, also your sleep, sleep is a very important indicator to which dosha is imbalanced, also you ask them a list of questions about what food they prefer at that time, observation known as darshana, of the patient is also important, looking at the gait, posture, are their shoulders slouched that type of thing. Then we have sparshana which will basically be your palpation in western medicine, checking for organ enlargement, masses that sort of thing.” (P5F39)

"We check for the doshic imbalance by observing the patient, you also have to ask questions, like a case history, we also have to do different types of examination, we have to assess all of that, just by pulse, by touch, by observation, it's a lengthy thing but it varies from person to person. We look at the patient's posture, we look at what they look like because this can give us a lot of information, if a person is restless or depressed, we can tell this by looking at them. So when we take the history of the person, we also take the family history, we look at the family background, so like the western medicine; reasons to be concerned about serious illness in their family, and then go into their background you know, have you had any serious injuries, what other symptoms do they experience, when do they experience it, what type of symptom is it, is there a specific type of pain, all those things that matter, it's hard to say, but you would really have to go in depth as to what the problem may be as whole." (P6F28)

"So, a simple method of interrogation, will help us to know which dosha is imbalanced. Also observing the patient is important in Ayurveda, you see when you look at a patient you will take note of many things like posture, poor posture could be because the person is depressed or maybe they do a lot of work at the computer. Depending on the patient and the symptom they are presenting with, just like in modern medicine we will do a case history, it's all about questioning, we rely a lot, on what the patient tells us, it's important when it comes to diagnosis. It really is a holistic way, we look at everything in that person's life, from their job, what they eat, to evacuation of the bowel. We would also look at what is mentally going on, is the person stressed, you know even in modern medicine, pain is just a symptom. A symptom is just an expression to something that is underlying, which we then need to find out what it is by way of questioning and trying to find out what it is, that's the only way to come to a proper diagnosis. Every patient is different no person is the same, the questioning will change depending on the patient. Also, palpation is important for us, so we palpate for tumours, any lumps that sort of thing. Some things are not seen when we observe the patient." (P7F34)

"I do a case history, lots of important questions about diet, lifestyle. I ask about the sleep. How the patient wakes up in the morning, is he stiff and fresh, does he want

to go back to sleep. So, if the patient is not fresh in the morning it simply means that he was dreaming and this causing restlessness which disturbs muscles and doshas. In my experience if we can correct sleeping; we can have proper posture; quality of sleep is important. It takes a practitioner 45 minutes to find all of this out and to find out which dosha is imbalanced at that time. Then I observe the patient, what we call darshana, and then obviously touch, that is basically palpation.”
(P8M56)

4.4 THEME THREE: THE AYURVEDIC TREATMENT OF NECK PAIN

The treatment protocol in the Ayurvedic system of medicine varies among practitioners. The Ayurvedic belief is that each person needs to be treated as an individual, hence there is no set treatment protocol. The participants discussed the various treatment procedures. Ayurvedic treatment is based on the *doshic* imbalance of the individual. The subthemes are outlined below:

4.4.1 The Panchakarma therapy

The Panchakarma therapy is a popular Ayurvedic technique that is utilized to prepare the body for treatment. The practitioner's responses are presented below:

“All of our treatment is based on doshic imbalance. If kapha is aggravated, we treat for that imbalance. The main treatment will be panchakarma. I like to use this to prepare the body, but obviously it will be different for every patient. Panchakarma has five aspects, forced vomiting, forced diarrhoea through different herbs, then we use enemas I personally like to make use of enemas I find it very beneficial, then there is bloodletting and nasya. Now I don't do all five steps, only the necessary ones, for neck pain I will use nasya because this is what the patient needs, nasya will help for conditions above the clavicle. All five steps are to detoxify the body.” (P1M55)

“There are certain therapies in Ayurveda, we call it panchakarma therapies. This is done to remove toxins from the body and to cleanse the body. Now panchakarma

therapy is very useful, it has five steps so its forced vomiting, forced diarrhoea we do this by giving the patient certain herbal medication, now the herbs depend on the doshic imbalance, then we use enemas, then there's bloodletting and nasya, now nasya is treating through the nose. I've been practicing for a while and this is very helpful in Ayurveda. Nasya will be the best for neck pain." (P3M50)

"First of all, we must diagnose the correct doshic imbalance, then we decide on treatment. So, whatever the causative factor, whether its posture related, or lack of sleep or lack of walking. So, management will be to identify the causative factor and remove, by changing the lifestyle. And the healing will take place. Then we can give enemas, which is anal medication, oils, water. Very important is nasya, where you put medicated drops into the nose, to be inhaled, any pain above the clavicle; nasya is very good for that disorder. The enema and nasya form part of what we call panchakarma therapy, this is to remove toxins, you know all the bad things from the body, then there is blood-letting and induced vomiting and diarrhoea." (P4M42)

"I also use something known as panchakarma which is only used if necessary but is important in Ayurveda, this is to remove toxins from the body. I also like to do nasya which is basically putting medication through the nostrils this is very good, but I usually don't do blood-letting and vomiting, diarrhoea and the enema." (P5F39).

"Panchakarma is important it has five stages, forced vomiting, forced diarrhoea through different herbs based on doshic imbalance, then we use enemas, then there's bloodletting and nasya, which is basically inserting oil through the nose. I tend to use nasya for neck pain, because it is generally good for conditions above the clavicle. The goal of this form of treatment is to restore doshic imbalance and remove toxins." (P6F28)

"The panchakarma is five procedures, to eliminate toxins; which don't have to be performed together, it can be one procedure, depending on the dosha that is imbalanced and which dosha we have to bring back into balance. So, we have the first stage, we administrate medicine, then we make the patient vomit, so what the

medicine does, is get rid of the toxins in the stomach. Then we have the removal of the toxins in the form of diarrhoea it's like an enema. Then we treat the ear nose and throat, known as nasya, we believe that the nose is the gateway to the brain, so we use specific medication, those are internal meds. We can do bloodletting, it removes any bad tissue, it was done thousands of years ago. Like I said it can be performed one procedure at a time or a combination, depending on the patient's needs. Everything in Ayurveda depends on the patient and which dosha is imbalanced.” (P7F34)

“Nasya is very important for us in Ayurveda, this is pouring medicated oil into the nose, I have seen very good results with this treatment especially with neck pain. Nasya is a part of the panchakarma. There are five stages, to remove any toxins from the body. There is the vomiting, diarrhoea, bloodletting, enemas and nasya. Like I said nasya is what I mainly use, it is very helpful for the patient., but we must remember like I told you, it is based on what dosha is imbalanced.” (P8M56)

4.4.2 Greeva Basti

Greeva basti is a common Ayurvedic technique that practitioners often use to treat neck pain. In this study 75% of participants discussed the importance of this technique:

“We use greeva basti, we make a ring over the neck of the patient and the area that we select, depending on where the compression is coming from; (C1 to C2 or C2 to C3 or C3 to C4). We then pour medicated oil in it. The type of medicated oil that we pour depends on what kind of doshic imbalance there is. We don't use this for every patient, see in Ayurveda, every patient is different. See for cartilage degeneration, greeva basti, it won't help. So, we look at the patient uniquely.” (P2M35)

“Apart from that we give local treatment as well, one very famous treatment, we call it greeva basti. Greeva basically means neck. So basically, this greeva basti is a kind of procedure in order to pacify the vata in that local area. So, we use a bowl made of black gram dhal, which I prepare same time, then depending on the

person and the nature of pain; different oils are used, a combination of oils, we throw the oil into the bowl; there is different oils we use: mahanarayan oil, bala oil, sesame oil; these are all vata pacifying oil. These are the few oils we make them warm and we fill it there; in the bowl. Fill it completely and leave it for 10 to 15 minutes. So, this is a local treatment. Our objective is to pacify the vata.” (P3M50)

“Also important in Ayurveda is greeva basti. Greeva means neck. So, what we do is make a ring with dough on the patient’s neck, we pour warm medicated oils into the ring and leave it for 10 to 15 minutes. This is very good for neck pain.” (P4M42)

“With regards to neck pain I use a technique called greeva basti. Greeva means neck, but obviously if it is case of severe degeneration, I don’t do the greeva basti because it will cause nerve compression, so instead of treating the case we will cause more harm. So, depending on the severity of the case, I will not do that, but if it is mild to moderate, I will do the greeva basti. In greeva basti there is a ring dough and then we heat up the oils, and then infuse it into the neck area. The ring is like an oblong shape from the base of the neck to about C7, then we infuse the oil. So different practitioners do it differently, but the traditional text, say we have to start off for 30 minutes, we generally do it for a period of seven days, first day 30 min, second day 35 min, third day 40 min, fourth day 45 min, then you decrease it by 5 min, so your 5th day 40 min, 6th 35 min and 7th day 30 min. The reason behind it is, is to allow the patient’s body to adapt to the oils, to ensure that that oils saturate the area. So, the 4th day is the saturation of the oils.” (P5F39)

“It depends now, for the treatment of neck pain, we would usually use sesame oil, we would use greeva basti, which is basically a pool of oil that sits at the base of the neck and you make it out of black gram powder, like a dough. Pain is usually associated with vata or pitta, so we find oils that pacify this, sesame oil is good to pacify vata problems, so we would make a pool of the oil, it should be warmed, the boundaries should be made at the nape of the neck, so that the oil does not go out. You can also purchase something which is ready made tool and make like a ring around it, to prevent the oil from spilling out.” (P6F28)

“Then we have greeva basti which has different varieties, we can do this for people with neck pain, whereby you pour a certain type of oil depending on the imbalance, then let the oil sink into the area. It must be warm oil. So, we pour the warm oil into a ring-like structure. Now, the ring is made from dhal and we let it sit.” (P7F34)

4.4.3 Shirodhara, Massage and Potli therapy

Shirodhara is an Ayurvedic massage therapy that is used to treat patients. “*Shiro*” translates to head and “*dhara*” translates to flow. Essentially it is a continuous flow of oil onto the patient’s head. Despite its therapeutic efficacy only 50% of participants discussed the importance of *shirodhara* together with massage therapy. The responses of the participants are presented below:

“We do shirodhara; dropping of oil on the forehead. For treatment of neck pain. This is very good. I use it all the time, but what I also like to do is a full body massage, I have a special table for this and then I do shirodhara. Sometimes I just massage the neck area to bring down the spasms in the neck.” (P1M55)

“Also, in certain cases we use shirodhara, which is oil on the forehead. So basically, this is for the stress, back pain is also related to the stress as well. Shirodhara, in Ayurveda we use it to pacify stress and for the management of the stress. I give a full body massage too, with certain oils, like I said the oil will depend on which dosha is imbalanced.” (P3M50)

“Shirodhara, because of the soothing effect of the oil on the forehead, it helps to relax the neck area. First you do an oil massage of the entire body; you make the oil hot in a pot, to make sure that it is completely warm all the time. There’s a special pot that you get for shirodhara, so you pour the warm oil through the pot and make sure that it circulates on the forehead in the shape of an eight. There must be a continuous flow of oil, this is done four fingers above the patient’s forehead. The oil that we use depends on the doshic imbalance of the patient. It’s

important that there is a continuous flow when doing this technique and it's hung from a chain.” (P6F28)

“Shirodhara is important for us in Ayurveda, it helps the patient to relax. We put oil in a pot and then the oil is let out onto the patient's forehead. It will relax the patient; before this I like to massage the patient from head to toe, also to relax the patient. I have seen very good improvements in patients that I do this for. Head, neck and shoulder massage. Massage the site of the spinal area, which is the holding of the muscles. Then I do shirodhara.” (P8M56)

In this study 37.5 % of participants discussed the therapeutic effect of massage therapy, without the use of *shirodhara* therapy, the responses are outlined below:

“If the pain is associated with stiffness there is a different preparation of oil and there is a different preparation if the pain is associated with a burning sensation. When massaging we work around the triggering points, we take into consideration the insertion and origin of the muscle. Erectus spinae will give us most of the relief.” (P2M35)

“In practice for me massage is very important, it has so many benefits to the body. We use different oils, no person is the same, therefore the oil will be different for everyone, depends on what dosha is imbalanced.” (P5F39)

“A little bit of massage, I use different oils for this, depends on the patient. In South Africa the availability of oils is also a problem, so whatever we have here I make use of. The availability of products is very different here in comparison to India, in India we have so much, so there are really no limitations. When we massage the technique is based on the muscle. When we talk about the massage in Ayurveda, it doesn't mean applying pressure to the body, it can simply be applying the oil to the body and to that area or medication externally.” (P7M56)

Potli therapy is a popular massage technique in the Ayurvedic profession, it contains several herbs that depend on the requirements of the patient and the *doshic* imbalance. Despite its therapeutic efficacy, only 25% of participants

discussed its importance in the treatment of conditions, particularly musculoskeletal conditions. Responses of the participants are outlined below:

“We use hot potli. We fill it with warm oil or certain herbs, depending on the doshic imbalance. We rub it all over the back, it’s not that we are only treating the neck, this improves circulation all over. This improves circulation, and this helps with pain.” (P3M50)

“I will do the potli, you know the medicinal herbs, I usually fry the herbs. I put it in a cloth and press it on the joints. It must be hot; this will help with pain.” (P5F39)

4.4.4 Herbal Oils and Medication

The use of herbal oils and medication is an important component in the management of a patient. In this study, 75% of participants provided specific oils and herbal medication, whereas the other 25% briefly discussed the importance of herbal oils and medication in general. The therapeutic effects of herbal preparations used by participants are discussed below:

“In Ayurveda there are many different oils, so it will depend on the patient. It’s not like in western medicine where a patient has hypertension, let’s give these meds. No that’s not how it is in Ayurveda. We look at the patient’s root cause and doshic imbalance, certain oils like sesame oil I use to pacify the vata, I can’t give specifics because it depends on the patient. Herbal medication is something I also like to use, this a very important form of treatment in Ayurveda.” (P1M50)

“Selection of the oils is different for every patient, selection of the Ayurvedic medication is different for every patient. Selection of the oral herbal medication is different. Each Ayurvedic medical concoction comprises of more than 50 herbs, this is an example. There may be 20 herbs in some. There may be 10 herbs in some, it all depends on the patient. So, all the different herbal medications depends on the patient, which dosha is involved, then we will administrate the

medication accordingly. Also, what is important for us is the guggul, which is anti-inflammatory. When we are administering the medication, it will depend on the presenting complaint and which dosha is imbalanced.” (P2M35)

“We have a natural anti-inflammatory in Ayurveda that we call guggul, for the management of the pain, strengthening muscles and tendons that we use. Different oils are used, but the base oil is sesame oil and then there’s a concoction of herbs. We use a concoction of herbs boiled in the water. It all depends from person to person how we manage it. But for the purpose of this research I’ll say I use bala oil, mahanarayan oil. These are all vata pacifying oils. So, there are over 100 leaves that we use, it all depends on the patient. It’s such a huge thing, there’s so many possibilities. Ayurveda, we do not have any set thing, like when we go to western medicine; there’s no muscle relaxant or local application. We use certain medication with lots of guggul in it, guggul are resins from a tree. It’s very good, it’s a natural NSAID in Ayurveda.” (P3M50)

“Guggul is one of the very important Ayurvedic medications that will help with any painful condition. There are different types of guggul, we normally take guggul, with cow’s milk or water. So that’s just one of the treatment principles. We use lots of oils and herbal medication. Now this will depend on the patient, so it’s different for everyone. Bala oil is commonly used, sesame oil as well. There are also herbs that we use. What we use really all depends on the patient.” (P4M42)

“Lack of availability of the oils in the country is a problem. So, I use co-compressed sesame oil as a base oil to prepare the herbs, I use herbs that depend on the doshic imbalance. So, for now I’m only using these in my practice, because that’s what’s available to me now. So, I use that as a local treatment, so I work on the spinal element, the bone as well as the muscles. Another oil I use is mahanarayan talia, talia means oil in Sanskrit.” (P5F39)

“Sesame oil is the best to use for pain relief. We usually use sesame oil with black salt, we can use other types of oil depending on the persons constitution. In

Ayurveda we believe that it increases the absorption 10-fold, so when you are using oil, the black salt helps to hold the oil for longer in the rectum, so that it can be absorbed properly, the black salt increases the permeability. This is for enema. We use sesame oil, if it's a connective tissue problem, it's very good that coupled with turmeric acts very well. Sometimes it doesn't have to be oil, it can be just plain water with the herbs, so it depends, it's really a variation of things. Bala oil is also very good.” (P6F28)

“So, in Ayurveda we have our sesame oil, it's our primary oil, it's the most important form of oil when we are doing an external body treatment. So, sesame oil is the one. You need to understand that in Ayurveda, that it will be different for every patient. Let's say two people present with diabetes, there will be a remedy specific for diabetes, but the same remedy will not be administered to the ten people with diabetes because the diabetes that is there will be because of the different lifestyles of the different people. We never look at every person the same we always take that into consideration. For oils as well there may be twenty different oils for neck pain, but it will then depend on the cause of the neck pain then we will choose which is the dosha that is out of balance, through interrogation, that is causing the neck pain and then we will select the oil according to that, because the oil is made up of different plants, because the different plants have different energies, that is why we use different plants because they have different energies which then relate to the dosha. Bala oil we use for vata complaints in the body, I also like to use sesame oil.” (P7F34)

“We also have certain herbs. I use sesame oil, bala oil. We use medical herbs, oils. We use mahamaryan oil, I make it myself because it is not available in South Africa.” (P8M56)

4.5 THEME FOUR: THE USE OF MODALITIES IN THE AYURVEDIC PROFESSION FOR THE MANAGEMENT OF NECK PAIN

Participants were asked to discuss the use of modalities in the Ayurvedic system of medicine. Participants discussed various modalities and the success thereof, as evident in the responses below:

4.5.1 Yoga

“See people can do things at home, with us we can advise yoga at home. It's a form of exercise, usually after that the neck pain is gone. So that's the type of modalities we use. So, the most famous asanas that I give to patients are gomukhasana, matsyasana, dhanurasana.” (P3M50)

“What I believe is important is yoga, so we recommend the patient does that. In Ayurveda we focus on the asana, which are your postures, I like to give patients gomukhasana, which is cow head posture it helps to strengthen the spine.” (P4M42)

“Mild to moderate pain, I suggest the patient does the dhanurasana or even what is known as gomukhasana, which strengthen the tract muscles.” (P5F39)

“Yoga will definitely be indicated. I focus on postures and breathing, so I give postures that strengthen the spine, like gomukhasana, matsyasana, sometimes even dhanurasana is good.” (P6F28)

“We can do yoga which will help with stress. Yoga and Ayurveda are sisters they cannot function without each other. For neck pain though I usually tell patients to do gomukhasana and dhanurasana because these two postures strengthen the spinal cord. Yoga helps with stress because of the breathing practice.” (P7F34)

“I use yoga, for me this important, helps with stress and breathing. Yoga and breathing go together. So, I encourage patients to focus on breathing techniques

when doing yoga. I mainly give gomukhasana and matsyasana. I find that these two strengthen the spine.” (P8M56)

4.5.2 Marma therapy

“We would also use pressure points what we call in Ayurveda; marma points. We do this to clear the energy pathways and to clear doshas. The pressure points are different; however, the technique is like acupuncture. Treated by applying pressure to a specific set of marma points, using your thumb to push on the points. We won’t put pressure on the area of pain, we put pressure on the focal point of the marma that relates to the pain. For example, C4 and 5 controls the arm and the patient has a pain on the arm. I’m not going to press here (points to the deltoid), I’m going to press around the scapula, which is the marma point of that, so very similar to acupuncture.” (P1M55)

“See I’m not a purist, but the thing is, when we can treat the neck pain, we do. I like to use the marma points which is like acupressure points, that’s kind of like a pressure point release. The main reason is to clear the doshas and energy. In classic Ayurveda there are 107 classic marma points which are situated all over the body.” (P2M35)

“Well for me I like to use what we call marma therapy, which is very much like acupuncture, except we use our thumb to apply pressure to that marma point.” (P3M50)

“Marma therapy. In marma therapy, you have about 107 different marmas, with regards to the therapy there’s several points so you press on the marma points, especially if its more muscular, it will help to relieve the pain, it’s more like an acupuncture point. I didn’t go in depth for marma therapy, when I was studying, but it’s mostly for neck pain management. What I do know about marma is that it can clear the energy blockages, now that will help pacify the doshas.” (P5F39)

"I use marma therapy, so marma is very much like acupuncture. There is about 107 marma points, which we press on to alleviate pain, it's very helpful with patients with neck pain. It helps a lot to clear the energy pathways." (P6F28)

"You see Ayurveda is very traditional, we believe in treating traditionally. I like to use what we call marma therapy, that's the main thing for me. It pacifies the dosha." (P8M56)

4.5.3 Patient education

In Ayurveda patient education is an important aspect of non-pharmacological treatment. Education regarding diet, sleep, lifestyle habits are a key component of the wellness of a patient. The Ayurvedic professionals' belief is that a healthy lifestyle will result in prevention of diseases. In this study, 75% of participants discussed the importance of diet and healthy lifestyle habits such as adequate sleep, exercise and diet. The responses are presented below:

"I give advice about things like walking, exposure to the nature, so these are things that bring their level of stress down and that relaxes their muscles which then helps a lot with the management of neck pain, so lifestyle advice. Exercise is important in Ayurveda, we give exercise based on doshic predominance. In Ayurveda diet is important, so I give advice to patients, what they should eat. See in Ayurveda diet isn't just eating lots of vegetables and things, yes that's important, but we focus on ras, virya and vipak, so that is how we construct a diet plan for the patient. I advise also about sleep. Head position during sleep." (P3M50)

"For us in Ayurveda we can't only be looking at the neck pain, that's not how it works. So, we look at the patient's diet, are they eating enough, are they eating on time, what are they eating, things like that, it's very important, also ras, virya and vipak. Does the patient sleep well, are they exercising, it doesn't have to be hard exercise, things like walking can help the patient to relax and they will feel better and sleep better. So, I will give them advice on all these things." (P4M42)

"The patient's diet is also very important, if they are eating badly or not eating enough, it can adversely affect the patient. So, I advise them accordingly; ras, virya and vipak, all of these are qualities of food that we have to look at when drawing up a diet plan. I also advise them about sleep and exercise, even if the patient just walks in nature that is fine, that is what I advise. Sometimes I give the patient exercise based on doshic predominance." (P5F39)

"Diet is also important, exercise, sleep, breathing, all this is important. See in Ayurveda it's never like ok this patient has neck pain let's give them some herbal medication, no this is not how it works. We look at all aspects of the patient's life. We look at the patient holistically. So, we tell them to exercise at home, what diet they should follow. Diet is important. Sleep is important. I will give them patient education, is what it's called in western terminology." (P6F28)

"Like I said exercise is also important in an Ayurvedic lifestyle. Again, it just depends on the severity of the condition and then we will advise the patient about these lifestyle issues. Exercise also depends on the doshic predominance of a person, you can't expect a kapha predominant person to do the same sort of exercise as a pitta and vata predominant person. Patients diet is important, aspects of what we say in Ayurveda, are aspects of ras, virya and vipak. Treatment isn't just about giving medication, it's about making sure the patient is always taken care of, so that's why we educate them about correct diet, about sleep, about exercising, about stress levels." (P7F34)

"So, there are many types of exercise, it differs because patients will be different. Diet is important, what you eat and how you eat is important, most people have acid in the body because of modern lifestyle, so I tell them what sort of foods to avoid. Now how I draw up a plan I focus on ras, vipak and virya. Sleep is important, you find in modern days people are working late, not getting enough sleep which is not good for the body. So, I make sure that they understand the effect that this has on the body." (P8M56)

4.6 THEME FIVE: THE BASIS OF REFERRAL IN THE AYURVEDIC PROFESSION TO MANAGE A PATIENT WITH NECK PAIN

Participants were asked to discuss when they would refer to other practitioners and to whom they would refer the patient if they could no longer manage the patient using Ayurveda. The responses were as follows:

"We would normally refer to a neurologist if the pain has not subsided within 3 to 6 weeks after taking our medicine. Or upon the MRI if we see a spinal stenosis, we would massage and then refer to a neurologist to put the patient onto traction. There is no point in me massaging if the patient needs traction. Normally after 3 to 6 weeks if there is no response, or after physical examination or after examining x-rays. If there is total numbness of the left arm and no mobility, there is no point in doing any massages or anything like that, therefore would refer to a neurologist. If needed. There after the patient is sent back to the Ayurvedic practitioner. I normally work with people that are favourable to our types of treatment. Chiropractor if there is a need. After assessing the joints and checking for any restrictions, then we would send to a Chiropractor before sending to a neurologist. In fact, before we do the Ayurvedic treatment I would refer to a Chiropractor. At the end of the day everything needs to benefit the patient. Everything else we can manage ourselves; we have a whole pharmacy of Ayurvedic drugs. When we study in India, we also have a medical degree, so if a patient needs some anti-inflammatory, I give it to them." (P1M55)

"Any time necessary, I always have the belief that the best doctor is the doctor that refers patients. Ankylosing spondylitis, I send to a rheumatologist. Rheumatoid arthritis I send to rheumatologist. Stenosis, then I send to neuro. And obviously GP's, but everyone will have a GP when they come to you. When patients are looking for cost effective treatment then we also suggest Chiropractors. I have a client now, which has neuropathy and the client is going to a Chiropractor." (P2M35)

"We need to evaluate, if there is some fracture, any kind of serious injury, we can always send a person to a specialist. We suspect degenerative changes,

spondylosis, so you know that that is the cause of the neck pain, so you prepare yourself for that and we refer according to what we find. If we look at x-rays and find stenosis then we send to neuro, like that. Me personally, in India we practice differently, here we send for x-rays etc.” (P3M50)

“We refer to neuro if there is narrowing, Chiro if there is need for one.” (P4M42)

“Obviously with any treatment, you find that you are hitting a brick wall, then we refer to an orthopaedic surgeon, or neuro, depending on the patient’s needs. Also, the irony is that the patients come to us as a last resort. Generally, if a patient requires additional treatment, I do suggest an ortho or neuro if there’s stenosis or anything like that. Also, I do refer to a Chiro for manipulation and at times I refer patients for acupuncture.” (P5F39)

“I usually refer to a Chiropractor or somebody who does acupuncture. I wouldn’t refer to a neuro or anything like that. I stick to the alternative medicine or the natural root, unless it was very severe then we would have to get allopathic doctors involved, but I think that the natural root is the safest and best way to go.” (P6F28)

“The referral depends on the practitioner, it’s a choice, in certain cases they may or may not refer. If there’s a broken bone in the body then we will refer, because we don’t have the tools and it’s not in our scope of practice. Of course, if it’s a surgical procedure we will refer. We will refer to Chiro or physio that will help the patient. Just make note of the fact that Ayurveda is a complete science and we do have the tools to treat patients. It also depends on the patient and how open they are on that kind of treatment like physio etc.” (P7F34)

“Off course, if there is loss of sensation then I send to neuro. I send to medical specialists; I also send to Chiropractor. The spine is a mystery. There will still be a mystery when it comes to spinal problems. So, we have to refer when we need to and when it is not in our scope of practice.” (P8M56)

4.7 CONCLUSION

The themes represented above depict the responses of Ayurvedic doctors that were registered with AHPCSA. It was found that each practitioner had similar approaches to the overall management of a patient presenting with neck pain and the treatment of each patient is different. The diagnostic approach to neck pain was the same with all participants in the study. In terms of modalities used, practitioners mentioned the use of modalities within the Ayurvedic scope of practice. Participants in this study believed in referral as this allows for the patient to be managed holistically, which is an important principle in Ayurveda. In the Ayurvedic system of medicine, management depends on the patient and the three *dosha* principle.

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

This chapter discusses and interprets the findings of the study in context of the existing literature on the management of neck pain by Ayurvedic practitioners. There were only thirteen practitioners who were registered with AHPCSA. As a result, the sample size was estimated to be between five to seven participants, however, eight practitioners were willing to participate in the study.

5.2 OVERVIEW OF THE RESEARCH DISCUSSION

The aim of this study was to explore the Ayurvedic management of neck pain. Five main themes were identified:

Theme one: The Ayurvedic approach to management of neck pain

Theme two: The Ayurvedic diagnosis of neck pain

Theme three: The Ayurvedic treatment of neck pain

Theme four: The use of modalities in the Ayurvedic profession for the management of neck pain

Theme five: The basis of referral in the Ayurvedic profession to manage a patient with neck pain

The themes as well as subthemes are discussed below:

5.3 THEME ONE: THE AYURVEDIC APPROACH TO MANAGEMENT OF NECK PAIN

It is important to have an understanding of how the Ayurvedic system of medicine manages a patient with neck pain. Participants were asked to discuss how they would manage a patient with neck pain. Their responses highlighted common grounds among the Ayurvedic practitioners in South Africa. In general, participants mentioned that the management of a patient depends largely on the “root cause” of the neck pain as well as the “three dosha principle.”

5.3.1 The management of a patient with neck pain is based on the *three dosha* principle

In this study, all participants mentioned the importance of the three *dosha* principle in the management of neck pain, namely, the *vata*, *pitta* and *kapha*. The three

doshas control the physiological functioning of the body; the Ayurvedic doctrine states that any imbalance of the three *doshas* will cause illnesses in the body (Goyal and Agarwal 2016). The goal of the Ayurvedic system of medicine is to “pacify” the aggravated *dosha* to restore equilibrium between the *doshas*, subsequently resulting in curing the disease. (Jaiswal and Williams 2017). Similarly, in the Chiropractic profession the goal is to “pacify” or correct the aggravated musculature and joints of the neck through spinal manipulation and soft tissue treatment (Fine and Stokes 2018).

The interviews with the Ayurvedic practitioners revealed a common understanding of the three *dosha* principle, as well as the symbolism of each *dosha*, that is *vata*, *pitta* and *kapha*. Participants in this study revealed that the *doshas* are essentially energies within the body, composed of the five elements of the universe: air, space, water, fire and earth (Bell *et al.* 2017). As represented in Table 2.1, *vata* consists of earth and air and is responsible for movement in the body; it controls blood flow, breathing and excretion of waste products. *Pitta* consists of fire and water and assists with digestion, metabolism and intellectual aspects in the body. *Kapha* which consists of water and earth and is responsible for strength, stability and healing in the body (Patwardhan *et al.* 2005). Each *dosha* is responsible for a physiological function in the body. When the *doshas* are not in equilibrium, illness will occur (Kumar *et al.* 2017).

When patients visit the Ayurvedic practitioner they will present with certain symptoms, as discussed in Table 2.1. These symptoms assist the practitioner to determine which *dosha* is aggravated. Each *dosha* has certain symptoms; patients with *vata* imbalances present with dry skin and restlessness or nervousness (*vata* represents air – air is “restless”) and will be cold. Characteristic features of *pitta* are as follows: patients will be hot (*pitta* represents fire); they will describe the pain as “burning,” and they will present with discoloured skin. Characteristic features of *kapha* are as follows: patients will be slow and lethargic; they are heavy individuals, and present with respiratory conditions (Patwardhan *et al.* 2005). The Chiropractic profession has a similar approach to characteristic features; however, it is specific to neck pain. Patients complain of stiffness or aching pain in the joints,

numbness and tingling which is considered to be referred pain as a result of nerve root entrapment (Liu *et al.* 2018).

In Ayurveda, management depends on the characteristic features of the *doshic* imbalance, and in Chiropractic the management depends on the characteristic features of the patient's neck pain. Patients presenting with stiffness of the joint will be managed differently by the Chiropractor, compared to patients presenting with numbness and tingling. Likewise, patients with *vata* imbalances will be managed differently compared to patients with *pitta* and *kapha* imbalances.

In Ayurveda, the management of neck pain will be different for each patient, due to the variations of *doshic* imbalances among patients. Each patient is unique and no one patient is managed in the same manner. Likewise, in the Chiropractic field, each patient is managed differently, as no one patient has the same clinical presentation. The Ayurvedic practitioners discussed the importance of the three *dosha* principle in detail, as it emphasises a holistic approach to patient management. Ayurveda focuses on the mind, body and spirit which emphasizes holistic patient management (Bachman 2015). It is a profession like Chiropractic that is patient orientated. The holistic approach, of both the Chiropractic and Ayurvedic profession, ensures optimal patient management as it allows for all aspects, that is physical, mental and emotional aspects of the patient to be addressed.

The three *dosha* principle was discussed in detail by each Ayurvedic doctor that was interviewed. The characteristic features governed by each *dosha* assists the practitioner to determine which *dosha* is not in equilibrium, enabling the practitioner to manage the patient appropriately, depending on the imbalance (Bell *et al.* 2017). The three *dosha* principle is the fundamental principle and the foundation of the Ayurvedic system of medicine.

5.3.2 The management of neck pain depends on the root cause

The data suggests that Ayurvedic management differs from allopathic medicine in that it focuses on the root cause of an ailment, whereas allopathic medicine focuses on treating the symptoms of a condition. Ayurvedic doctors focus on

treating a patient holistically; although this is a lengthy process, practitioners who were interviewed, stressed the importance of this. The root cause is the underlying factors that contribute to the development of a condition. One of the most common root causes seen in the Ayurvedic profession is over-eating. Over eating can lead to obesity, subsequently resulting in pressure on the spine causing neck pain (Pandya and Baghel 2015). In modern society, the root cause of neck pain is commonly associated with poor lifestyle habits such as poor diet, lack of exercise and inadequate sleep (Williams *et al.* 2018). Poor ergonomics which includes poor posture is also a root cause that is often seen in Ayurveda (Pallotta and Roberts 2017). Identification of the root cause of neck pain is essential for optimal patient management. One participant highlighted the importance of identifying the root cause:

“Now in Ayurveda we look at what is causing the pain. We would look at his BMI, we would look at weight loss if that is the causative factor, there is no point putting the patient on medication if weight is in excess which is causing compression in the spine and causing the neck pain; that is the causative factor or the root cause.”

The above statement emphasizes the importance of correct identification of the root cause. In a case like this, the practitioner will study the patient's daily diet and offer dietary advice. The practitioner may suggest that the patient lose weight and make a lifestyle change. The profession believes that if the root cause is addressed, the neck pain will resolve. Similarly, Chiropractors address the root cause of the neck pain, that is, if the patient's neck pain is due to tight musculature, then the Chiropractor will address the musculature of the patient which will resolve the neck pain, and if the root cause of the neck pain is joint dysfunction, the Chiropractor will address the joint dysfunction by performing spinal manipulation to the joint that is restricted.

In Ayurveda, taking an in-depth case history is vital to determine the root cause and to manage a patient properly. When taking a case history, patients often reveal information about their diet, lifestyle, medication and family history, which

helps to diagnose the root cause of the neck pain. One participant in the study provided an example:

“A 40-year-old male presents with neck pain, the patient may or may not have degenerative changes which are causing the neck pain, when the practitioner takes the case history, the patient will mention the use of chronic NSAIDS, the NSAIDS is for the patient’s stiffness. The NSAIDS can then lead to the development of gastritis which can then cause headaches, because gastritis and headaches go together, the headache can then travel to the occipital region, which will then radiate to the neck and back and this will then present as neck pain. Ayurveda treats the stomach, the gastritis is managed by the administration of the relevant herbal drugs, thus focusing on the root cause, once this is resolved the neck pain will subside.”

In Ayurveda, the practitioner will not accept neck pain as an isolated condition as there will always be an underlying factor associated with the neck pain. There are innumerable root causes of neck pain. One of the root causes is stress which can be due to emotional issues such as death in the family or a divorce (Pandya and Baghel 2018). In this case, the practitioner may refer the patient to a psychologist or give the patient coping tools to deal with the situation. Individuals who work for long hours at the computer and those under a lot of stress are more susceptible to the development of neck pain (Cohen 2015). The Ayurvedic practitioner will rectify these root causes of neck pain, by advising the patient to exercise or do yoga asanas to destress (Braun *et al.* 2012) as part of the management plan of the patient.

The Chiropractic profession, like the Ayurvedic profession, believes in causative factors. The cause of neck pain is multifactorial, being either mechanical, organic, non-organic or psychosocial. The Chiropractor will formulate a management plan based on the causative factor of the presenting complaint.

5.4 THE AYURVEDIC DIAGNOSIS OF NECK PAIN

When it comes to diagnosing a patient, the Ayurvedic profession focuses on the “pulse diagnosis,” which focuses on the “three *dosha*” principle. The “pulse diagnosis” is complex; each participant who discussed the importance of this diagnostic tool could not go in-depth due to the complexity of the aspects surrounding this procedure. Ayurvedic practitioners utilize western medicine technology, such as relevant imaging, which include x-rays and MRIs and haematological investigations. In addition, participants elaborated on the threefold principle of *darshana* (observation), *parshana* (touch) and *prashana* (questioning) as important diagnostic tools. Three sub-themes were identified:

5.4.1 The pulse diagnosis of neck pain

The interviews with the Ayurvedic practitioners revealed a common understanding in terms of diagnostic tools utilized in their profession, particularly, the use of “pulse diagnosis.” The “pulse diagnosis” is a vital part of the Ayurvedic profession because the profession prefers to use non-invasive methods to examine patients (Goyal and Agarwal 2016). Likewise, Chiropractors use non-invasive diagnostic methods such as a full physical examination, performed in the same manner as medical doctors. In addition, Doctors of Chiropractic perform relevant orthopaedic examinations to assist in the diagnostic process (Seffinger *et al.* 2004). Thus, both professions utilize diagnostic tools which are non-invasive.

In this study, 75% of the participants discussed the “pulse diagnosis,” as being an integral part of determining the *doshic* imbalance in a patient; the participants emphasised the importance of this technique but found it difficult to go into detail and described the technique as being a “*complicated language*.” It is an important diagnostic tool that allows practitioners to predict a patient’s health status in accordance with the *doshic* imbalance (Kaur *et al.* 2015). Furthermore, the role of examination of the pulse in Ayurveda is to determine the *doshic* imbalance which will lead to accurate diagnosis of disease. However, the role of examination of the pulse in Chiropractic, like in allopathic medicine, is to determine cardiac abnormalities (Dengale *et al.* 2017).

Ayurvedic doctors are trained to become one with their body and mind so that the skill of “pulse diagnosis” can be developed. This takes years of experience, but once developed, it enables the practitioner to gather valuable information about the patient (Gupta and Kothainayagi 2018), 75% of participants in the study indicated that “pulse diagnosis” focuses on the *doshic* imbalances. Two participants’ responses are highlighted below, which emphasize the “pulse diagnosis”:

“When checking the pulses, unlike western culture, where they check rate, rhythm and volume in Ayurveda it is a deep understanding of pulse, in Ayurveda the rate and rhythm will guide us as to what the doshic imbalance is or which dosha is prominent and which dosha is less. Pulse diagnosis is a complicated language. If I explain it doesn’t make much sense, it is something that you go through yourself.”

“For diagnosis of neck pain, mainly we use pulse diagnosis, which is a very important diagnostic tool for us. Pulse gives us information about the doshas, which doshas are aggravated. So, for us the pulse diagnosis is important, mostly the radial pulse. We use our three fingers. Our first finger – our index finger – this is for vata, middle is for pitta and third one is for kapha. We feel which is prominent and then we know which dosha is aggravated.”

The literature discusses the procedure of “pulse diagnosis”. The practitioner locates the patient’s radial pulse, then places three fingers slightly above the patient’s thumb. As presented in Table 2.2, each finger of the practitioner represents each *dosha*: the index finger represents *vata*, the middle finger represents *pitta* and the ring finger represents *kapha* (Goyal and Agarwal 2016). The practitioner will then focus on the vibrations of the pulse (Dengale *et al.* 2017); the dominant pulse represents the *doshic* imbalance and is indicative of disease in the body; this method of examination was confirmed during the interviews with the practitioners.

5.4.2 The integration of modern technology with the Ayurvedic system of medicine to diagnose neck pain

Practitioners expressed the importance of including modern technology in the Ayurvedic system of medicine; the diagnostic tools used in modern medicine are often incorporated into assisting with the diagnosis of a patient. The use of modern technology allows the practitioner to diagnose conditions which may have been overlooked by adhering to a purely traditional approach. The participants in this study acknowledged the use of radiographic imaging, MRIs and haematological investigation (Balikai, Prashanth and Chavan 2017), as components of the diagnostic procedure, so that serious pathologies are not overlooked:

“It is easy to diagnosis cervical spondylitis, the differential diagnosis comes when we send for x-rays, blood work to check if there is, other pathological conditions to consider, like autoimmune conditions that need to be considered. If we suspect a fracture, then we send for a cervical spine x-ray.”

Similarly, Chiropractors utilize radiographic imaging, MRI's and haematological investigations to ascertain clinically relevant information and to ensure that serious conditions such as tumours, meningitis and fractures are not overlooked (Seffinger *et al.* 2004).

The consensus amongst the practitioners was that modern medicine technology is only necessary for certain patients and certain cases:

“Like modern medicine there will be x-rays, you going to do all the normal things like biopsy things like that. So that's just what we would do if necessary.”

Likewise, Chiropractors, request for further investigation (Young 2014), when necessary, as not all patients require further testing. Some participants mentioned that the Ayurvedic doctor is often the last resort for many patients, so the patient provides the Ayurvedic doctor with the x-rays or bloodwork that the other physicians requested. In such cases, there is no need to send for further

investigations as the practitioner can use the radiographic evidence provided by the patient to make a conclusive diagnosis.

5.4.3 Diagnosis using the threefold *Darshana*, *Sparshana* and *Prashana* principle

An important aspect of diagnosis in Ayurveda, is the threefold principle of *darshana* (observation), *sparshana* (touch) and *prashana* (questioning) (Dagenias 2001). The data suggests that Ayurvedic practitioners consider this to be an essential component of diagnosis of a patient as this threefold principle was reiterated throughout the interviewing process. Like in modern medicine and Chiropractic, observation of a patient is important (Dagenias 2001). This is confirmed in the following response from a participant:

“Observing the patient is important in Ayurveda, you see when you look at a patient you will take note of many things like posture, poor posture could be because the person is depressed or maybe they do a lot of work at the computer.”

Practitioners in this study emphasised the importance of posture and gait as well as the physical appearance and demeanour (Dengale *et al.* 2017) of a patient. One participant mentioned that it is important to be attentive to: *“the patients face, are they sad or depressed”*. Similarly, Chiropractors focus on a patients gait, posture and physical appearance (Abu-Naser and H Almurshidi 2016), as this is influential in determining the appropriate treatment for the patient. It is believed that in both the Chiropractic and Ayurvedic profession neck pain can be caused by a number of factors, such as occupation or psychological factors, which include anxiety and depression (Evans 2014).

Practitioners in this study discussed the importance of *prashana* (questioning). Similarly, Chiropractors use the same approach to evaluate patients presenting with neck pain, which includes taking a comprehensive case history (Seffinger *et al.* 2004). In this study, participants emphasised the importance of this diagnostic tool. Questioning allows the practitioner to ascertain information about the presenting complaint and the root cause of the complaint. The diagnosis of the

patient relies greatly on the what the patient tells the practitioner. Participants in this study mentioned that questions surrounding the patient's: "*diet, lifestyle, sleeping patterns and occupation*" are vital in Ayurveda. What the patients consume in their daily diet, reflects in the health status of the patient, which then causes imbalance of the *doshas*. If a patient does not get peaceful sleep, then questions regarding the patient's thoughts are important when addressing this. One participant in this study mentioned: "*it is not about the quantity of sleep, rather the quality of sleep.*" There are no set questions because every patient is unique in Ayurveda. Therefore questions regarding diet, lifestyle, sleep and occupation will be unique for every patient (Chaudhary, Singh and Kumar 2010).

Sparshana is the last aspect of the threefold principle and refers to the aspect of touch or palpation in western medicine. It is equivalent to the palpation technique used in Chiropractic. The participants in this study had a similar approach to western medicine, regarding *sparshana*. Ayurvedic practitioners palpate for abnormalities such as organ enlargement or masses. They palpate over the area of pain to check for abnormalities and tenderness in the region of the neck. Chiropractors perform a full physical examination which is inclusive of palpation of various organs of the body and during spinal assessment they palpate over the relevant musculature and vertebrae of the spine to assess for joint restrictions (Seffinger *et al.* 2004).

5.5 THE AYURVEDIC TREATMENT OF NECK PAIN

During the interview process, it was noted that the basic treatment protocols were used by majority of participants in the study. Participants elaborated on concepts such as *panchakarma therapy, greeva basti, shirodhara, massage and potli therapy, herbal oils and medication* which are outlined in the literature. Although certain herbal oils and medication were discussed by participants in this study, it was not possible to specify particular herbal remedies because the type of herbal preparation is based on the requirements of a particular patient. Nevertheless, Ayurvedic practitioners mentioned the importance of *sesame, bala and mahanarayan oils* in the treatment of neck pain. It was highlighted in chapter four that the administration of treatment depends on the patient; as each patient is unique, treatment approach will not be the same. In addition, as discussed in the

above theme, *prashana* is an integral component of patient diagnosis and an important aspect of patient treatment. For the patient to be treated effectively, the patient needs to provide the practitioner with all the information regarding the disorder (Dagenias 2001).

5.5.1 The Panchakarma Therapy

It was highlighted in chapter four that 87.5% of participants used *panchakarma therapy* in practice; the *panchakarma therapy* is the main procedure in the cleansing process. The data suggests that Ayurvedic practitioners believe that when *panchakarma therapy* is administered to patients, the aim of the treatment is to remove toxins from the body. The literature described this technique as one of the most effective treatment therapies in the Ayurvedic system of medicine. It is essentially a process of purification that consists of five steps as outlined by participants in this study (Kumar 2013):

1. *Vamana* – this is the process of emesis where the practitioner prescribes herbal preparations to induce vomiting which cleanses the body of toxins.
2. *Virechan* – this is the process of induced diarrhoea; the practitioner prescribes herbal preparations to cleanse the digestive tract.
3. *Basti* – this typically refers to an enema, which is an oil or herbal based enema, used to cleanse the digestive tract.
4. *Nasya* – this refers to administration of liquid herbal medication to cleanse structures above the clavicle.
5. *Raktamokshan* – this is the process of bloodletting, used only when deemed necessary by the practitioner.

During the interviews, Ayurvedic practitioners mentioned the importance of this technique. They mentioned that not all five steps of the *panchakarma therapy* are performed, only steps relevant to the patient's health requirements and *doshic* imbalance are necessary. *Nasya* was the most common step that practitioners used in practice. The neck is situated above the clavicle; the process of *nasya* is beneficial for conditions above the clavicle (Kumar 2013), therefore, the participants' responses correlate with the literature. The therapeutic goal of *panchakarma therapy* is to pacify the *dosha* that is aggravated by removing toxins from the body.

The field of Chiropractic does not utilize any form of purification process, instead Chiropractors assess the presenting complaint and treat the patient based on clinical assessment.

5.5.2 Greeva Basti

The data demonstrates popularity of this technique, as 75% of participants in this study discussed this technique in detail. *Greeva* translates to “neck” and *basti* translates to “retaining,” essentially *greeva basti* is retaining oil in the neck (Purwar and Sharma 2017). It emerged from the data that was collected that this technique is indicated in conditions such as neck pain.

Participants mentioned that it is a procedure used to: “*pacify the vata dosha in that local area.*” Practitioners in this study used a ring-shaped structure composed of “*black gram dhal*” a type of flour that is utilized for this technique; as it does not adhere to the skin; it is placed on the neck as depicted in Figure 2.3. Medicated oil, is poured on this structure; the type of medicated oil depends on the *doshic* imbalance of the patient (Purwar and Sharma 2017). The technique used by Ayurvedic practitioners, in this study, to perform this procedure, correlates with the technique found in the literature.

The therapeutic goal is to pacify the aggravated *dosha*. As discussed in chapter 2 *vata* is responsible for the functioning of the musculoskeletal system, therefore, the therapeutic goal is to pacify the *vata dosha*, which is aggravated. This technique is often utilized for the treatment of neck pain due to its therapeutic efficacy; it reduces muscular tension and alleviates musculoskeletal pain.

Chiropractic does not focus on techniques of this nature for the treatment of neck pain, instead, the profession utilizes modalities such as soft tissue therapy and spinal manipulation (Seffinger *et al.* 2004) to treat patients presenting with neck pain.

5.5.3 Shirodhara, Massage and Potli Therapy

Shirodhara is a popular therapeutic massage technique used in the Ayurvedic system of medicine. Traditionally, prior to *shirodhara*, a process known as *abhyanga* (full body oil massage) is performed. In this study, only 50% of participants discussed the importance of *abhyanga* prior to *shirodhara*. *Shirodhara* is a process of pouring oil over the head; participants in this study explained this procedure as follows:

“During this process the patient is made to lie in the supine position, thereafter medicated oil is poured from a pot onto the patient’s forehead, which is suspended from a chain which allows for a continuous flow of oil.”

This is vital in the *shirodhara* procedure. It is documented that *shirodhara* is beneficial in conditions which include, but is not limited to, epilepsy, anxiety disorders and other neurobehavioral disorders, all of which can lead to the development of neck pain. The *shirodhara* technique reduces stress and anxiety by stimulating the forebrain (Moharana *et al.* 2017). The selection of oils is patient dependant and relies on the “*doshic imbalance*” of the patient.

In this study 37.5% of participants discussed the use of massage therapy for the treatment of neck pain; there are two types of massage therapies in Ayurveda, that is oil massage known as *abhyanga*, and dry massage known as *udvartana* (Patil 2010). Practitioners in this study emphasized the use of *abhyanga* and not *udvartana*; the type of massage therapy depends on the patient and the practitioner’s preference. For the *abhyanga* form of therapy, the type of oil used depends on the “*doshic imbalance*”. In addition, one practitioner mentioned that massaging over the “*erectus spina*” helps to alleviate the pain. The massage technique utilized among practitioners varies (Dagenias 2001). In this study, participants did not follow the traditional sequence of massage, namely, tapping, flowing, kneading, rubbing, pinching, squeezing, pulling and pressing (Masocco 2014); instead, participants followed relevant musculature when performing *abhyanga*. Similarly, the Chiropractic profession utilizes massage therapy as a form of treatment, focusing on clinical massage (Syal *et al.* 2017). The goal of

Ayurvedic massage is to relax the patient, remove toxins from the body and to release tension from the musculature. Likewise the goal of clinical massage in Chiropractic is to release tension from the relevant trigger points in musculature of the neck (Sherman *et al.* 2006).

Potli therapy is a form of massage therapy in Ayurveda (Jaiswal *et al.* 2016). Only 25% of participants discussed the relevance of this procedure. *Potli* therapy is essentially a preparation of heated medicated herbs saturated in oil; the type of oil depends on the *doshic* imbalance. It is “*pressed over joints*” and is beneficial for blood circulation and relaxes the muscles (Jaiswal *et al.* 2016). Similarly, in Chiropractic, thermotherapy is used to relax muscles and increase blood circulation. Thermotherapy, in the form of a wheat bag, is often used in the Chiropractic profession (Graham *et al.* 2013).

5.5.4 Herbal oils and Medication

Participants in this study discussed the importance of administration of herbal oils and medications in relation to the *doshic* imbalance of the patient. There are various herbals oils and medications. The practitioners did not elaborate on all variations but focused on those pertaining to the study and those used in practice for the treatment of neck pain. During the interview process, participants discussed the use of three herbal oils, namely *the mahanmarayan* (Arora *et al.* 2018), *bala* (Kushwaha, Singh and Rajoria 2018) and *sesame oil* (Chinivar, Uchangi and Narayana 2018). As discussed in chapter two, the *vata dosha* is responsible for the proper functioning of the musculoskeletal system, therefore, the use of *mahanmarayan*, *bala* and *sesame oil* is indicated as they are *vata* pacifying oils. These oils rejuvenate and nourish the musculature of the neck (Arora *et al.* 2018). All three oils are often indicated in degenerative conditions because they have the ability to reduce inflammation and pain and improve functionality of the joint (Jain *et al.* 2011). These oils can be used in any type of treatment: they can be used externally for *shirodhara*, *greeva basti* and *abhyangam* or internally for *nasya* or enema in *panchakarma therapy*. In addition, practitioners mentioned that there are numerous herbs available; however they could not specify exact herbal names, however, “*guggul*,” which is an important “anti-inflammatory” in Ayurveda, was mentioned by two of the participants. Essentially the “*guggul is a resin*” which is

one of the most important herbs in Ayurveda. It is taken in combination with other herbal medications, and rarely taken in isolation. Furthermore, in combination with other herbs, the *guggul* pacifies *vata* imbalances (Pal *et al.* 2018). Therefore, it is used in musculoskeletal conditions such as neck pain, as *vata* controls the functioning of the musculoskeletal system.

The Chiropractic profession does not administer any form of herbal preparations, instead treatment in the Chiropractic field focuses on the use of non-pharmacological therapy to treat various complaints (Sklar 2018).

5.6 THEME FOUR: THE USE OF MODALITIES IN THE AYURVEDIC PROFESSION FOR THE MANAGEMENT OF NECK PAIN

Modalities in Ayurveda form an integral component of patient management. Participants in this study discussed three specific non-pharmacological procedures for the management of neck pain, namely, *yoga*, *marma therapy* and patient education.

5.6.1 Yoga

The western approach to *yoga* differs from the traditional Ayurvedic *yoga*. The modern perspective of *yoga* focuses on particular muscles and traditional *yoga* focuses on healing of the mind, body and spirit, which reiterates the holistic approach of the Ayurvedic system of medicine (Braun *et al.* 2016). Literature discusses traditional Ayurvedic *yoga* as having eight fundamental principles (Bachman 2015): *yamas* (social behaviours), *niyamas* (personal behaviours), *asana* (postures), *pranayama* (breathing), *pratyahara* (internalization of senses), *dharana* (focus), *dhyana* (meditation) and *samadhi* (integration) (Cramer *et al.* 2016). Participants in this study only discussed two of these eight principles, the *asana* (posture) and *pranayama* (breathing). They stated the importance of “*gomukhasana*” as depicted in Figure 2.8, and “*dhanurasana*” as depicted in Figure 2.10 and “*matsyasana*” as depicted in Figure 2.11 (Bachman 2015). These postures are often indicated as a form of non-pharmacological therapy, as they strengthen the spine and help to alleviate muscular pain.

Participants also emphasized the importance of practicing breathing techniques together with the advised *yoga asana*. Breathing allows the body to experience serenity. Focusing on breathing during certain *asanas* allows the control of breathing to shift from the medulla oblongata to the cerebral cortex, which allows for calm over the body; the focus is no longer on emotions; which causes stress; but on tranquility of the mind, body and spirit (Khan and Pillai 2016). As discussed above, management depends on the *doshic* imbalance as well as the root cause of the neck pain. Essentially, if the root cause of neck pain is stress-related, practitioners often prescribe *yoga* as a form of non-pharmacology therapy, which can be done as home therapy.

Similarly, Chiropractors, advise patients to perform stretching exercises (Sherman *et al.* 2006), which is also a non-pharmacological form of therapy which has similar therapeutic benefits to *yoga*. Stretching alleviates tension in the muscle and subsequently results in decrease in pain and increase in function (Sherman *et al.* 2006).

5.6.2 Marma therapy

Literature discusses *marma* therapy as being a form of non-pharmacological therapy which focuses on manipulation of energy in the body, to promote healing in the body, mind and spirit and to restore *doshic* imbalance. This approach reiterates the holistic approach of the Ayurvedic system of medicine (Tiwari 2018). During the interview process, participants described *marma therapy* as being “*similar to acupuncture*” in terms of technique. Furthermore, participants mentioned that there are one-hundred and seven (107) *marma* points (Mamatha, Swamy and Shailaja 2018) located throughout the body, which correlates with the literature. *Marma* points are defined as points at the junction of the muscle, tendon, ligament, bones and joints (Sharma, Bharti and Prasad 2017). The role of *marma* therapy is to unblock energy pathways, restore *doshic* imbalance, provide mental, physical and emotional stability, and allow for transformation at a physical, emotional and spiritual level by creating a link with the unconscious mind (Negi *et al.* 2018).

Participants, in this study, described the technique used to perform *marma therapy*, as “*using the thumb or finger a gentle pressure is applied,*” to a specific *marma* point thus alleviating tension and encouraging the flow of energy, which allows for equilibrium between the *doshas* to be restored. *Marma therapy* has the therapeutic ability to relieve pain and detoxify the body, mind and spirit. *Marma therapy* forms an integral part of the Ayurvedic system of medicine, and through the manipulation of energy in the body it promotes healing and allows for longevity of life (Mamatha, Swamy and Shailaja 2018).

Similarly, in the Chiropractic profession, practitioners utilize trigger point therapy (Piper *et al.* 2016) to promote healing and relieve tension in the affected musculature of the neck.

5.6.3 Patient education

Patient education focus on the three pillars of diet, sleep and exercise, all of which are important in Ayurveda (Naharia and Husain 2019) and was reiterated by participants throughout the interview process. In the absence of dietary, sleep and exercise advice by Ayurvedic practitioners, patients often follow the dietary, sleep and exercise patterns of modern society, which subsequently lead to *doshic* imbalance and disease within the body. Dietary regimens are formulated in accordance to the specific needs of the patient (Gupta *et al.* 2018). Diet in Ayurveda is complex, based on *ras* (taste), *virya* (potency) and *vipak* (post digestion). These factors are essential when it comes to restoring the *doshic* imbalance. Food is a powerful tool in Ayurveda. As discussed in Chapter 2, the body is composed of *panchamahabhutas*, that is *prithivi* (earth), *vaju* (air), *jala* (water), *aakash* (space), and *teja* (fire) (Upadhyay and Dinesh 2015). The three *doshas*, *vata*, *pitta* and *kapha* are composed of the *panchamahabhutas* (Kumar *et al.* 2017). Food can pacify the aggravated *dosha*, however, if consumed in excess it can cause imbalance of the *doshas*. Therefore, Ayurvedic practitioners advise patients to follow a healthy balanced diet, to maintain *doshic* homeostasis and simultaneously prevent disease in the body (Singh, Baghel and Tripathi 2016).

Participants discussed the importance of diet; and stated that advising the patient about correct diet is essential in Ayurveda.

The Ayurvedic system of medicine emphasises the importance of sleep and contend that lack of sleep is detrimental to the mind, body and spirit. Furthermore, head positions during sleep are essential in Ayurveda. As highlighted in chapter two, sleeping with the head in the south and east positions are favourable in Ayurveda, whereas sleeping with the head in the north and west positions is fatal (Shukla *et al.* 2014). Therefore, practitioners in this study provide patients with advice on sleep to ensure that patients experience optimal sleep to ensure optimal health.

Participants also mentioned that exercise is an integral aspect of maintaining a healthy lifestyle and they advise patients on daily exercise and the benefits thereof. Exercise is defined as “*a physical action which is desirable and is capable of bringing about bodily stability and strength is known as physical exercise*” (Wagh 2016). The practitioner addresses physical activity of a patient based on the *doshic* predominance of the individual. Daily exercise will not only keep the body healthy, but will also restore the mind and bring about tranquillity (Wagh 2016).

Similarly, Chiropractors provide patients with dietary and lifestyle advice (French, Downie and Walker 2018), focusing on educating the patient on a healthy balanced lifestyle in order to achieve an optimal state of well-being.

5.7 THEME FIVE: THE BASIS OF REFERRAL IN THE AYURVEDIC PROFESSION TO MANAGE A PATIENT WITH NECK PAIN

The data suggests that all Ayurvedic practitioners refer patients provided that the presenting complaint is not within the practitioner’s scope of practice (Poddubnyy *et al.* 2015). The basis of referral depends on the definitive diagnosis; if there is nerve root entrapment or severe degeneration, participants, in this study, mentioned that they would refer to the relevant practitioners, such as a neurosurgeon, and if the patient requires “*spinal manipulation*” then the relevant

practitioner would be a Chiropractor. Referral depends on the Ayurvedic practitioner; as some prefer to stay within the non-allopathic field of medicine, while other practitioners prefer to refer to the allopathic field of medicine to ensure holistic patient management (Malagi and Kamath 2016). One participant in the study mentioned the importance of referral to other alternative medicine practices, stating that allopathic medicine should be the last resort. Referral to allopathic or non-allopathic fields of medicine ensures that the patient is managed holistically, practising a multidisciplinary and integrated approach (Malagi and Kamath 2016). A multidisciplinary approach, especially with musculoskeletal conditions, will ensure better patient prognosis and also ensures that the practitioner uses the most appropriate and beneficial treatment plan (Cerroni *et al.* 2018).

Like Ayurvedic practitioners, Chiropractors also refer patients, when necessary, to ensure optimal patient management and to ensure that the patient receives the best available care.

5.8 CONCLUSION

Participants expressed similar views regarding the overall management of a patient with neck pain: each participant mentioned the “*three dosha*” principle and that the root cause of a condition is the foundation of the Ayurvedic system of medicine; it is the *doshic* imbalance and root cause that determines the treatment of each patient, therefore, each patient is unique and no treatment protocol is the same. The Ayurvedic system of medicine is unique and complex, integrating modern medicine technology to treat patients holistically which is a key aspect of the profession.

CHAPTER SIX: REFLECTIONS AND IMPLICATIONS

6.1 REFLECTIONS OF THE STUDY

6.1.1 Research questions

This study aimed to evaluate the management of neck pain by Ayurvedic practitioners in South Africa. The grand tour question focused on the overall management of neck pain by Ayurvedic practitioners, while the sub-questions focused on various aspects of patient management, such as diagnosis, treatment, use of modalities and basis of referral in the Ayurvedic system of medicine. Eight semi-structured interviews were conducted with Ayurvedic practitioners that were registered with AHPCSA, with the use of explorative descriptive qualitative design.

The results of this study found that each Ayurvedic doctor manages a patient based on the Ayurvedic doctrine of the three *dosha* principle. The three *doshas* are the constitution of the body, namely the *vata*, *pitta* and *kapha doshas*. For the body to be in a disease-free state, all three *doshas* need to be in a state of homeostasis. Participants mentioned the importance of the three *dosha* principle in the management of neck pain, emphasizing the importance of *doshic* equilibrium. The Ayurvedic practitioners that were interviewed also discussed the importance of the “root cause,” which is the underlying factor that is causing the pain. This could be poor diet and lifestyle habits or a pathological condition such as a tumour. The identification of the “root cause” will determine the route of treatment.

The Ayurvedic practitioners who were interviewed for this study, discussed the importance of diagnosis in patient management, focusing on aspects of “pulse diagnosis,” integration of modern medicine technology and the threefold principle of *darshana*, *sparshana* and *prashana*. Ayurvedic practitioners stated that the “pulse diagnosis” is the most important diagnostic tool in Ayurvedic. Through the palpation of the pulse, the practitioner is able to determine which *dosha* is aggravated which then determines the treatment plan. Practitioners also discussed the importance of integrating modern technology, such as MRIs, radiographic imaging and haematological investigations to come to a conclusive diagnosis, thereby, enabling better patient management, and assisting the practitioner to

decide whether to refer. Practitioners also focused on the threefold principle of *darshana*, *sparshana* and *prashana*, which translates to observation, touch and questioning respectively. Through a comprehensive process of observation, touch and questioning, practitioners can determine the “root cause” of the presenting complaint.

The participants focused on basic treatment protocols that are used in practice, which include, *panchakarma therapy*, *greeva basti*, *shirodhara*, massage and *potli* therapy as well as the use of herbal oils and medication. The *panchakarma therapy* is utilized as a cleansing procedure and is done prior to treatment. *Greeva basti*, *shirodhara* massage and *potli therapy* were discussed in detail by the Ayurvedic practitioners. The therapeutic goal of these treatments is to remove tension from the body and to alleviate pain. The type of herbal preparation that is utilized depends on the *doshic* imbalance of the patient. Since neck pain is a *vata* related disorder, practitioners opted for *vata* pacifying oils such as *sesame*, *bala* and *mahanarayan oil*.

The use of three modalities were discussed in detail by the participants interviewed in this study. Participants elaborated on aspects of *yoga*, *marma therapy* and patient education, all of which are forms of non-pharmacological treatment. Participants prescribe *yoga* to reduce tension and to strengthen the spine. *Marma therapy* is performed on patients with the goal of restoring *doshic* balance. Participants elaborated on aspects of diet, sleep and lifestyle as part of patient education.

Participants indicated that referral is an important aspect of patient management. Knowing the limitations of the Ayurvedic profession, practitioners need to refer when necessary.

This study concluded that Ayurvedic practitioners follow a holistic patient management approach, centred on the three *doshas*.

6.1.2 Limitations of the study

- There were thirteen (13) registered Ayurvedic practitioners that were registered with AHPCSA, which explains the small sample size. Only eight interviews were conducted as some practitioners were not willing to participate in the study. Despite there being a small sample size, practitioners did provide the relevant and required information for this study.

6.2 IMPLICATIONS

6.2.1 Implications for future studies

- Further investigation into various pharmacological and non-pharmacological treatments needs to be conducted to acquire knowledge and suitability of these treatment options for neck pain.
- The primary focus in the Chiropractic profession is neuromusculoskeletal complaints, with the emphasis on reducing pain and dysfunction. Similarly, the goal in Ayurveda is to get the patient to a disease-free state. A comparative investigation analysing the specific techniques of Chiropractic and Ayurveda in terms of reducing pain in various musculoskeletal conditions should be conducted.
- The orthopaedic profession, like Chiropractic, focuses on neuromuscular complaints. A Chiropractor is trained to diagnose, treat and rehabilitate disorders of the neuromusculoskeletal system. Similarly, orthopaedic surgeons are trained to diagnose, treat and rehabilitate disorders of the neuromusculoskeletal systems. However, orthopaedic surgeons are also trained to perform neuromusculoskeletal surgery. A comparative investigation, exploring the methods of patient management by orthopaedic surgeons compared to Chiropractors, should be conducted to enhance Chiropractic knowledge.

- Homeopathy and Ayurveda are both forms of alternative medicine, focusing on natural plant-based medicine. Homeopathy focuses on curing a condition based on “like versus like” principle. Ayurveda focuses on preventing a condition and is based on the “*three dosha*” principle. A comparative study between the two fields of non-allopathic medicine should be conducted focusing on various aspects of musculoskeletal pain, to broaden the scope of Homeopathy and Ayurveda.

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APPENDICES



APPENDIX A

LETTER OF INFORMATION TO PARTICIPANTS

Title of the Research Study: An exploration into the diagnosis and management of neck pain by Ayurvedic Practitioners in South Africa

Principal Investigator/researcher: Karmen Manda – Bachelor degree (Chiropractic)

Supervisor/s: Dr M Maharaj (M.Tech Homeopathy)

Dr A Abdul Rasheed (M. Tech Chiropractic)

Brief Introduction and Purpose of the Study: This study is a qualitative based study to determine the diagnosis and management of neck pain by Ayurvedic practitioners in South Africa. This study will add to the body of literature as well as allow for a multimodal approach to neck pain and it will establish referral relationships between Chiropractors and Ayurvedic practitioners.

Outline of the Procedures: The researcher is conducting research on how Ayurvedic practitioners diagnose and manage neck pain. The researcher will interview between 5 to 7 Ayurvedic practitioners in South Africa to obtain the necessary data. The interviews will take approximately an hour each. Participation is voluntary and does not require any fee. There will be no identifying details and you will remain anonymous. The interviews will be audio recorded, thereafter the interviews will be transcribed into word documents; the data will be analyzed using thematic analysis.

Inclusion criteria:

- Registered with Allied Health Professions Council of South Africa as a Ayurvedic practitioner

Exclusion criteria:

- You do not read and sign the letter of Information and Informed Consent

Risks or Discomforts to the Participant: There will be no risks or discomfort associated with participating in the study. The researcher will not use the information for any treatment purpose. The information will be used for a research purpose only, and only the supervisor and the researcher, will have access to it. Your identity will be protected.

Benefits: Participation in this study will assist to improve the knowledge and understanding of alternative treatment approach for neck pain. This may also contribute to the integration of Ayurvedic medicine in the public healthcare system in the future.

Reason/s why You May Be Withdrawn from the Study: You may withdraw from the study, if you feel uncomfortable about answering any of the questions. There will be no adverse consequences for you if you choose to withdraw from the study.

Remuneration: There will be no remuneration

Costs of the Study: There will be no costs to participate in the study

Confidentiality: The interviews with you will be completely confidential and there will be no identifying details. The interview will be audio recorded. Thereafter the interviews will be transcribed into a word document. Only the researcher and the supervisors will have access to the data and will analyze the data using thematic analysis.

Research-related Injury: There is no risk of injury

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

Please contact the researcher, Karmen Manda (076 130 1114), my supervisors, Dr M Maharaj (madhum@dut.ac.za) (083 388 2688) or Dr Abdul Rasheed (ashuraa@dut.ac.za) (076 114 4203) or the Institutional Research Ethics administrator on 031 373 2375 with any queries. Complaints can be reported to the Director: Research and Postgraduate Support, Prof C Napier on 031 373 2577.

Thank you for your participation in the study.



APPENDIX B

INFORMED CONSENT OF PARTICIPANTS

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____ (name of the researcher) about the nature, conduct, benefits and risks of this study- Research Ethics Clearance Number: 119/18
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth and opinions will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed electronically by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself to participate in the study.
- I understand that significant new findings developed during this research which may relate to my participation will be made available to me.

_____ Full Name of Participant	_____ Date	_____ Time	_____ Signature / Right Thumbprint
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I, _____ (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

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

Full Name of Legal Guardian
(If applicable)

Date

Time

Signature



APPENDIX C

CONFIDENTIALITY STATEMENT

- Once the process of data collection has been completed, all interviews will be transcribed into word documents and stored on the computer.
- Data is being collected only for a research purpose.
- Only the researcher and supervisor will have access to the data that has been collected.
- Results will remain confidential.
- The information from the participants will not be publicly reported.
- No violation of participants' rights or privacy.
- No names will be revealed in publications, only codes used.
- Pseudonyms will be used once again to ensure anonymity and confidentiality of participants.
- The information will be stored in a locked office for 5 years after the study ends and will be destroyed at that time.
- The information obtained will be available in the form of a dissertation at the Durban University of Technology.

_____	_____	_____	_____
Full Name of Participant	Date	Time	Signature
_____	_____	_____	_____
Full Name of Researcher	Date	Time	Signature
_____	_____	_____	_____
Full Name of Witness (If applicable)	Date	Time	Signature
_____	_____	_____	_____
Full Name of Legal Guardian (If applicable)	Date	Time	Signature



APPENDIX D

Grand tour question

As an Ayurvedic practitioner describe the Ayurvedic management of neck pain.

Sub questions

Describe the Ayurvedic approach to diagnosis of neck pain.

Describe the Ayurvedic approach to treatment of neck pain.

Describe the various other modalities, if used, in the Ayurvedic approach to the management of neck pain.

Describe when referral can be done.

APPENDIX E

IREC APPROVAL



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