

**Osteopathy in the cranial field - an investigation into
patient perception, satisfaction and self-reported outcomes
of a single treatment session**

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A research thesis submitted in partial fulfilment of the requirements for the degree of Master
of Osteopathy, Unitec New Zealand, 2016

Abstract

Aim: To investigate patient experiences of osteopathy in the cranial field (OCF) treatment, by assessing patients' perception, level of satisfaction, and self-reported outcomes after a single OCF treatment session in a New Zealand osteopathy patient population. **Background:** OCF is a treatment paradigm used by osteopaths and other manual therapists. Most research on OCF has been concerned with exploring the mechanism behind the treatment paradigm. Very few studies have focused on the patient experience. The present study used a questionnaire developed to explore patient perceptions, satisfaction, and self-reported treatment outcomes. **Methods:** A survey-based research design was used in a clinical setting. Two tools were used: the Patient Perception Measure-Osteopathy (PPM-O), and a demographic survey. Twelve osteopaths were recruited as practitioners, and 107 of their patients were recruited as participants in the study. Of the 107 participants, 81 responses were deemed suitable for inclusion, as OCF techniques had been applied for the majority of the treatment sessions. Data were analysed using both quantitative and qualitative methods. **Results:** The vast majority of participants (96.2%) responded that osteopathic treatment helped their condition 'mostly' (n= 39), or 'always' (n= 38). The most frequently experienced sensations were 'relaxed', 'relieving', 'releasing', 'centred', 'softening', 'lightness', and 'unwinding'. A positive relationship was observed between PPM-O and demographic variables. Three themes were also identified: 1) 'A discernible movement toward health; 2) 'Perception of the healing interface'; and 3) 'Satisfaction with the service of healthcare'. **Conclusions:** The sensations experienced by OCF patients in the present study, as well as their largely positive perception of OCF, is consistent with previous studies (Mulcahy & Vaughan, 2014). The construct validity of the PPM-O in a population receiving OCF treatment requires further investigation.

Keywords: osteopathy, osteopathy in the cranial field, patient experience, treatment outcomes

Acknowledgements

Firstly I would like to express my sincerest thanks and appreciation for my supervisor Elizabeth Niven, who supported me throughout this project and always believed that I could reach the end. Thank you for your kindness and understanding when things didn't go to plan, and for offering sound counsel and guidance along the way.

I would also like to show my gratitude to Brett Vaughan and Jane Mulcahy from Victoria University in Melbourne, who were both my associate supervisors and co-researchers on this project. Thank you for allowing me to become a part of your project, and for helping a non-statistical person understand the numbers!

Thank you also to the others who helped along the way, Catherine Bacon and Clive Standen. Your expertise on statistics and osteopathy in the cranial field is much appreciated.

To my friends Leeann and Landi, thank you for giving me direction, advice, and support when I've needed it. And to my sister Marissa, for making sure I didn't lose my sanity towards the end.

Finally, I would like to thank my parents, Kevin and Anne, for supporting me financially and emotionally through this journey. I could not have followed my passion without your unwavering love and support. Mum and Dad, this one's for you.

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List of Abbreviations

cpm	-	cycles per minute (a unit of measurement)
CRI	-	Cranial Rhythmic Impulse
CSF	-	Cerebrospinal Fluid
CV4	-	Compression of the Fourth Ventricle
GP	-	General Practitioner (Doctor)
Hz	-	Hertz (a unit of measurement)
OCF	-	Osteopathy in the Cranial Field
MDA	-	Meaningfulness of Daily Activity
PPM-OCF	-	Patient Perception Measure – Osteopathy in the Cranial Field
PPM-O	-	Patient Perception Measure – Osteopathy
SWL	-	Satisfaction with Life

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Introduction

This section introduces the research topic: Osteopathy in the cranial field - an investigation into patient perception, satisfaction, and self-reported outcomes of a single treatment session. My background, and personal interest in this topic are included, as well as the study rationale. The section concludes with a brief summary of the chapters to follow.

Background and Personal Interest

My osteopathic journey began when I first saw an osteopath for sports-related injuries. I was fascinated by the holistic view with which the osteopath approached my treatment, which included osteopathy in the cranial field (OCF), among other approaches. Although my ailments had affected me for some time, they resolved with osteopathic treatment. These overall impressions of osteopathy lead me to study osteopathy, with an interest in learning more about OCF.

The osteopathy course takes five years to complete; the first three years fall under the Bachelor of Applied Science (Human Biology), and the final two years constitute the Master of Osteopathy. It was during my first postgraduate year that OCF was removed from the curriculum. Having not received any teaching in OCF in the undergraduate program, and having waited patiently for the postgraduate program to learn more about OCF, this curricular change was somewhat of a disappointment.

When thinking about possible topics for my research project, my thoughts eventually settled on exploring osteopathy in the cranial field. It was an opportunity to educate myself on a topic which I knew very little about. It was also the most instructive way of making an informed decision about whether I would like to invest time and money on post-graduate OCF courses in the future.

I had previously come across an article describing the development of a questionnaire to investigate patient perceptions of OCF treatment (Mulcahy et al., 2013), which sparked my interest. I approached the authors to ascertain whether the questionnaire was at a stage of development that it could be used clinically, and if so, whether I might use it in a study on a New Zealand population. I learned that the questionnaire had gone through several stages of

testing, and was ready to be used in a clinical setting. The authors were already planning a study in Australia very similar to what I had been envisaging for my own. Thus, my collaboration with Brett Vaughan and Jane Mulcahy began.

Study Rationale

Osteopathy in the cranial field (OCF) is a debated topic within the osteopathic profession, and the greater health care sector. The under-lying theories of OCF challenge long-held theories on the anatomy of the human skull, and physiology of the body. Research has been carried out for several decades to both support and refute the principles that govern OCF as a treatment paradigm. Whilst the majority of research in to OCF has focused on the anatomy and physiology of the cranium and its claimed movement, only recently has scientific exploration begun to look at OCF from the patient point of view. The present study is designed to further advance current knowledge on the patient experience of OCF, and to guide future research on OCF as a treatment paradigm.

Summary of Chapters

This section has introduced the thesis topic, and given an overview of the background and personal interest related to the topic. Chapter one will explore the literature around osteopathy in the cranial field, and provide context for the present study. Chapter two concerns the methods and methodology used in this research project, and includes a description of the research tools. Chapter three is a manuscript, which comprises a summary of the methods, the results of the study, and a discussion. The manuscript is prepared for submission to the Journal of Evidence-Based Complementary and Alternative Medicine. The final sections are dedicated to references and appendices. References have been accumulated in the reference list to pertain to all chapters. References pertaining solely to the manuscript will be isolated on submission for publication to the above-mentioned journal. Appendices are listed in chronological order according to their appearance throughout this thesis.

CHAPTER ONE – LITERATURE REVIEW

Introduction

This chapter investigates the current literature on osteopathy in the cranial field (OCF), as it stands in early 2016. Topics to be explored include: the history of osteopathy and OCF, the theories that underpin the OCF paradigm, the physiological processes that are thought to take place, the palpation of cranial movement, and the plausibility of intervention effect. Patient experiences of OCF treatment are also considered, as well as surveying the current professional and political views regarding the paradigm. The chapter will not review the realm of biodynamic osteopathy.

Literature search

A literature search was carried out using the databases EBSCO, PubMed, and Science Direct, using the keywords cranial osteopathy, osteopathy in the cranial field, cranial-sacral therapy, and patient perceptions of osteopathy. Results of this search were heavily weighted toward quantitative studies investigating the validity of underpinning theories, and the reliability of examination. Very few studies explore OCF from the patients' point of view.

Osteopathy in the Cranial Field – a Brief History of the Paradigm

Osteopathy is a form of manual therapy which seeks to aid the inherent healing mechanism of the body toward an optimal state of health. The profession was founded in 1892 by Andrew Taylor Still. Still believed that the aim of a medical practitioner should be to find health, as anyone could find disease (Still, 1899). Osteopathy in the cranial field (OCF) was later conceived by a student of Still's, William Garner Sutherland (Sutherland, 1939). Sutherland was the first to record a coherent theory regarding motion occurring between the bones of the cranium. During examination of a disarticulated skull, Sutherland observed that the temporal bones had a surface that he thought seemed similar to the gills of a fish, and consequently hypothesized some form of respiratory mechanism within the skull. He proposed that inherent movement and contractility of the brain rhythmically circulated cerebrospinal fluid, resulting in movement of the cranial bones and the transmission of a comparable movement through the body as a whole. He named this phenomenon the 'Primary Respiratory Mechanism' (Sutherland, 1939), and it is alternatively referred to as the 'involuntary mechanism' (R. Becker, 1997). After many years of self-experimentation, Sutherland's cranial concepts progressed, and OCF took shape. These concepts incorporated the anatomy

and mobility of the cranium, cranial dysfunction, and techniques for treatment (Sutherland, 1939).

John Upledger later built on Sutherland's work, and founded cranio-sacral therapy (Upledger & Vredevoogd, 1983). Whilst Upledger's work largely supported Sutherland's model, Upledger did not agree with Sutherland's proposition that inherent brain motility caused the fluctuation of cerebrospinal fluid. Instead, Upledger suggested that cyclic fluctuation in cerebrospinal fluid production was the driving factor behind the fluid movement, thus causing rhythmic movement through the cranial bones. Whilst Upledger's work is considered to have its merits, Sutherland's work continues to provide a traditional basis for teaching osteopathy in the cranial field, through the Sutherland Cranial Teaching Foundation. However, the cranial concept has always been controversial and met with opposition. Prior to Sutherland's cranial hypothesis, it was accepted by anatomists and by the medical establishment that the cranial bones of adult humans were fused together, and could not possibly allow movement. Over the years a number of studies have attempted to shed light on osteopathy in the cranial field, to ascertain whether or not there is real substance to Sutherland's claims (Ferguson, 2003).

Background Theory and Physiology

Sutherland's cranial model was based on five key components, which are still held as the founding principles in much of today's teaching. They are as follows: 1) there is 'inherent' motility of the brain and spinal cord; 2) the cerebrospinal fluid fluctuates; 3) there is motility of the intracranial and spinal dural membranes; 4) the bones of the skull are mobile; and 5) there is involuntary motion between the sacrum and the ilia that is synchronised with cranial motion by the spinal dural meninges (Sutherland, 1939). This last component is referred to as the core-link hypothesis (Magoun, 1976).

The cranium is made up of 22 individual bones. The bones are divided in to two areas: the neuro-cranium and the viscerocranium. The neuro-cranium is comprised of the bones which house the brain; the paired parietal and temporal bones, the frontal bone, the occipital bone, and the sphenoid. The viscerocranium in turn is comprised of the bones which make up the face. These are the paired zygoma, maxilla, palatine, lacrimal, ethmoid, and inferior nasal concha bones, as well as the singular vomer and mandible (Gray, 2009). In regards to

mobility of the cranial bones, the underlying theory of OCF suggests that a flexion-extension movement occurs within the cranium. Following Sutherland's model, these movements are named according to the directional movement of the sphenoid bone, which Sutherland deemed to be the keystone of bony movement in the cranium. Theoretically, in a 'cranial flexion' phase (otherwise referred to as the 'inhalation' phase), the cranium as a whole appears to flatten and broaden, with the sphenoid and other midline bones going in to flexion. The paired peripheral bones of the cranium (for example, the parietal bones) are thought to externally rotate. The movement is then theoretically coupled with an extension movement of the occipital bone, though this 'extension' movement is still termed 'cranial flexion'. The core-link hypothesis suggests that this extension movement of the occiput will engender a mirrored movement in the sacrum, with the sacrum going in to extension also. The core-link hypothesis is based on the premise that the spinal dura mater acts as a 'reciprocal tension membrane' between the cranium and the sacrum (Magoun, 1976; H. Milne, 1998; Sills, 2001). Finally, during 'cranial extension' (or an 'exhalation' phase) the opposite movements are thought to occur, in which the cranium appears to become taller and narrower, the sphenoid bone extends, the peripheral cranium internally rotates, and the occiput and sacrum go in to flexion (Chaitow, 2005; Magoun, 1976; Parsons & Marcer, 2006). At times this movement can be halted, either naturally or by intervention. R. Becker (1997) referred to this phenomenon as a 'stillpoint'.

The existence of the above-mentioned cranial movements is still very much debated, as is the nature of the driving force behind that movement, should it exist. Movement of the cerebrospinal fluid (CSF) within the cranium is an accepted theory for how the cranial bones might move (Chaitow, 2005; Magoun, 1976; Sutherland, 1990; Upledger & Vredevoogd, 1983), but it is the mechanism by which the CSF changes that is debated. The driving force for the cranial movement is often referred to as the cranial rhythmic impulse (Woods & Woods, 1961). Since Sutherland conceived his theory of the inherently motile brain, other authors have offered alternative theories for what drives cranial bone motion through CSF movement. Ferguson (2003) reviewed a number of such studies, which laid claims to various physiological processes being the source of the cranial rhythmic impulse. Tissues thought to have some physiological involvement in the cranial rhythm include the following: arteries, veins, lymph, CSF, brain and neural tissue, bones, joints, dura, and muscles (Ferguson, 2003). Frymann (1971) offered a similar theory to Sutherland. She suggested that neural activity from the brain could conceivably augment individual neural cell activity to such a degree as

to create a rhythmic pattern of activity throughout neural tissue. Whilst too small to be physically seen, Frymann (1971) proposed that this neural activity could potentially cause CSF movement. Another theory by F. Becker (1977) suggests that changes in postural muscle contraction throughout the body could act on the dural membranes via fascial continuity. Becker proposed that such changes in the membranous tension of the dura could affect the hydraulic pressure of the CSF, thereby causing CSF movement and the cranial rhythm. As previously mentioned, Upledger (Upledger & Vredevoogd, 1983) suggested that CSF production was the mechanism behind the CRI. Upledger's theory was that the choroid plexus produced CSF at a faster rate than what was able to be reabsorbed by the arachnoid bodies, back in to venous circulation. Upledger suggested that the production of CSF must therefore occur at intermittent intervals in order to maintain homeostasis. The differences in hydraulic pressure within the cranium between production and non-production periods of CSF was what Upledger proposed to be the driving factor behind the cranial rhythmic impulse. This theory is known as the Pressurestat model (Upledger & Vredevoogd, 1983).

The cranial rhythm is thought to occur at a rate between 4-14 cycles per minute (cpm), which does not directly correspond to any of the body cycles (Degenhardt & Kuchera, 1996; Ettlinger & Gintis, 1991; Sergueef, Greer, Nelson, & Glonek, 2011; Sills, 2001; Upledger & Vredevoogd, 1983; Woods & Woods, 1961). This rate is below that of the heart rate, and occurs independently of breathing (Agustoni, 2008; R. Becker, 1997). However, Ferguson (2003) found that a pattern of variability exists within arterial vasomotion which seems to fit inside the range ascribed to the cranial rhythm. This led Ferguson (2003) and McGrath (2003) to suggest that of the previously mentioned tissues, variations in arterial vasomotion and subsequent blood pressure changes within the cranium are the most likely candidate for driving the cranial rhythmic impulse. Two peaks have been measured within the range of the cranial rhythm: a high frequency peak at 0.25Hz (14cpm), and a low frequency peak at 0.1Hz (6cpm). The high frequency peak is known as the Traube-Hering wave, and is linked to parasympathetic nervous system activity and control. The low frequency peak is known as the Mayer wave, and is associated with sympathetic nervous system activity. Together, these rhythmic fluctuations are sometimes referred to as the Traube-Hering-Mayer oscillations (Handoll, 2000; Nelson, Sergueef, Lipinski, Chapman, & Glonek, 2001; Sergueef et al., 2011).

Palpation of the Cranial Rhythm

The palpability of these cranial rhythms is a contentious topic within osteopathy and the manual therapies. Many studies have attempted to ascertain whether these rhythms can be palpated, and if they can, whether they can be palpated reliably (Hanten et al., 1998; Moran & Gibbons, 2001; Nelson et al., 2001; Wilk & Vivian, 2000; Wirth-Pattullo & Hayes, 1994).

Moran and Gibbons (2001) conducted a study assessing the intra- and inter-examiner reliability of palpating the cranial rhythmic impulse (CRI). A repeated-measures design was used within participants, with one examiner palpating the CRI at the participant's head whilst the other examiner simultaneously palpated the CRI at the participant's sacrum. The authors found that practitioners were able to palpate the CRI on their own with a "fair" amount of reliability, with intra-class correlation coefficients ranging from +0.52 to +0.73. However, the reliability of practitioners palpating the same rhythm was "poor" to "non-existent" when examining at the head and sacrum simultaneously. Intra-class correlation coefficients ranged from -0.09 to +0.31. The poor inter-examiner reliability within the study failed to support the 'core-link' hypothesis. Moran and Gibbons' (2001) results did however align with earlier studies which also assessed the reliability of CRI palpation. Both Wirth-Pattullo and Hayes (1994) and Hanten et al. (1998) found that inter-examiner reliability of CRI palpation was low, even though both studies only employed single and individual contact points at the head during examination. As a result, cross-examination of inter-examiner reliability was not conducted. Hanten et al. (1996) also examined intra-examiner reliability and found palpation of the CRI to be consistent. Furthermore, having simultaneously examined the heart and respiratory rates of the participants (patients and osteopathic practitioners), the authors ascertained that there was no correlation between the CRI, the cardiac rhythm, and the respiratory rhythm (Hanten et al.; Wirth-Pattullo & Hayes). The conclusion of the above-mentioned studies is that there is a reasonable level of intra-examiner reliability, and very low inter-examiner reliability, when palpating the CRI.

Laser-Doppler flowmetry has also been used to measure the Traube-Hering-Mayer oscillations, and comparing the readings to simultaneous palpation of the CRI by a practitioner (Nelson et al., 2001). The authors used a perfusion monitor laser-Doppler flowmeter to assess the velocity of blood flow through the earlobe of a participant. Five minutes were given for the participant to acclimatise to an ambient environment, followed by a two minute equilibration period where the examiner prepared for CRI palpation through a

bi-parietal hold of the participant's head. A five minute data acquisition period followed, whereby the palpatory changes between cranial 'flexion' and 'extension' phases were recorded, via the examiner softly enunciating either an 'f' or an 'e' to signify the start of each phase. This was recorded by a third-party on a computer, and compared to data from the laser-Doppler flowmeter. Both the participant and examiner were blinded to the flowmetry readings as they were recorded during data acquisition. Furthermore, reaction-time delays between examiner enunciation and data entry by the third-party were considered in the overall data analysis. The authors found that the Traube-Hering-Mayer oscillations occurred simultaneously with the CRI, and were possibly the same phenomenon. These findings give credence to the existence of the CRI, and the ability of practitioners to manually palpate the cranial rhythm. Hamm (2011) suggests however, that Traube-Hering waves are in a constant state of change around an autonomic mean, as a result of homeostatic mechanisms within the body. This may be a possible explanation for the perceived difficulty in reliability of CRI palpation. It would also seem logical to suggest that in a state of somatic dysfunction it might be possible for the cranial movements to become impaired.

Halma et al. (2008) observed substantial intra-examiner reliability in examiners diagnosing cranial strain patterns in healthy subjects, and subjects with asthma and headaches. However, Wilk and Vivian (2000) found that examiners were actually less likely to palpate cranial strain patterns than if they had found them by chance. With such poor results for reliably palpating the cranial rhythm and cranial dysfunction, it is no wonder that the validity of OCF is often queried. The question of appropriate measures is discussed in the chapter summary.

Affecting the Cranial Mechanism through Intervention

“The aim of treatment, indeed the fundamental philosophy of osteopathy, is to correct structure so as to improve function... Structure and function being the two sides of the same coin” (Magoun, 1976, p. 94)

Osteopaths who treat cranially employ a number of techniques to attempt to influence the cranial mechanics toward a state of ease and health. When discussing the principles of cranial treatment Magoun (1976) offered the following: that OCF treatment should aim to normalise nerve function, counteract stress producing factors [in the nervous system], eliminate circulatory stasis [in the brain], normalise cerebrospinal fluid fluctuation, release

membranous tension, correct cranial articular lesions, and modify gross structural patterns. Techniques used in OCF treatment to fulfil those principles include, but are not limited to: balanced ligamentous and membranous tension, disengagement of the bony, fascial, and fluid tissues, and compression of the fourth ventricle (CV4; Hamm, 2011).

On a physiological level, Ferreira (2007) proposed that bone possesses piezoelectric properties, in which the pressure from a practitioner's hands creates micro-deformations in the bone structure. Ferreira suggested that this pressure causes a net negative charge within the collagen matrix, and stimulates the thixotropic properties of collagen, whereby the collagen matrix becomes more fluidic. Ferreira further described how ionic movement could result in an electrochemical gradient, which could invoke changes in the permeability of plasma membranes. This could potentially stimulate a local vasomotive response, which Hamm (2011) proposes may perhaps be the feeling of change that practitioners perceive in the quality of the cranial rhythm. However, further research would be required in this area to substantiate whether the light-touch used by OCF practitioners is enough to elicit the changes which Ferreira (2007) describes.

In a study measuring autonomic variables to ascertain the effect of CV4 on an individual, K. Milne and Moran (2007) found that CV4 had minimal effect on autonomic nervous system function in asymptomatic individuals. They did note however, that three of the ten subjects may have responded to the technique with an increase of parasympathetic activity. This led them to suggest that there could be 'responders' and 'non-responders' to cranial treatment. This suggestion was reinforced by Collard (2009), whose research supported claims that CV4 has the potential to increase parasympathetic nervous system activity in some individuals. However, the authors of both of these studies expressed the opinion that further research was required in this area to better understand the mechanism of response to CV4, and its relevance in practice.

Historically, research in to OCF and its effectiveness as a treatment modality has come up with mixed results. Because the mechanism behind OCF has not been irrefutably proved or disproved, practitioners, teachers, and students alike have continued to learn and practice based on Sutherland's original model. As a result, some critics have gone so far as to call osteopathy in the cranial field a "pseudoscientific belief system" (Hartman, 2006). Hartman and Norton (2002) have made many reasonable arguments against the rationale behind OCF, and contend Sutherland's principles with the following arguments:

1. Neural tissue does not possess the required microstructure needed to contract, and therefore cannot exhibit 'inherent' movement.
2. Cerebrospinal fluid (CSF) fluctuates on a minor level due to the cardiac and respiratory cycles, but the independently driven movement of the CSF as claimed by OCF supporters has yet to be reliably palpated.
3. That the theory of apparent 'motility' of membranes within the cranium and spinal dura is dependent on principles 1, 2, and 4 being correct, which is yet to be proven.
4. Ossification of the cranial sutures and the sphenobasilar symphysis in the adult cranium has been documented in several studies, and therefore the belief in movement occurring at those joints is unfounded.
5. Involuntary and synchronised movement between the sacrum/ilia and the cranium is once again dependent on the other principles being proven correct, which according to Hartman and Norton (2002) they have not. And furthermore, the core-link hypothesis has yet to be validated.

As a result, Hartman (2006; Hartman & Norton, 2002) opposes osteopathy in the cranial field as a treatment for patients, on the grounds that the underpinning theories supporting the paradigm are flawed. McGrath (2003) had similar views and suggested that whilst movement between cranial sutures is plausible, the notion of a primary respiratory mechanism as described by Sutherland (1939) is out-dated and without biological foundation. McGrath's (2003) proposition of cranial bone movement occurring as a result of previously mentioned changes in arterial vasomotion is an alternative theory which dismisses the belief in an inherent rhythm within the body. On the other hand, advances in other health modalities provide a challenge to current ways of thinking. For example, the long-held belief that the brain cannot change; that once neural tissue is damaged it cannot heal or re-grow. The work of Doidge (2007) explores the ability of the brain to change, where previously it was thought that various conditions of the brain were incurable. Doidge's work follows a number of scientists, doctors, and patients with a multitude of neural conditions, recounting the transformations that occurred through re-training the 'hardwire' of the brain. This kind of work illustrates the opportunities that come with being open to new ideas, and what can eventuate from the willingness to consider that what we currently know is not necessarily all there is to know.

Patient Benefit from OCF Treatment

Whilst the biological plausibility of OCF has been questioned since its conception, in more recent times another avenue of inquiry has arisen: is there any benefit to the patient from cranial treatment? According to Upledger and Vredevoogd (1983), conditions which could be amenable to OCF treatment included the following: acute sprains and strains, chronic pain problems, visceral dysfunction, autonomic nervous system disorders, some infections, emotional disorders, auditory problems, and visual disturbances.

A case report by Berkowitz (2013) describes how a patient presented with a sudden onset of left superior homonymous hemianopia. The loss of vision occurred five weeks after a successful craniotomy to remove a meningioma. After a thorough investigation to exclude any potentially serious differential diagnoses, the practitioner found that the sagittal and occipitomastoid sutures were compressed, the sphenobasilar symphysis was torsioned, and the CRI was reduced. With no evident neurological signs or patient distress, the practitioner proceeded to treat the patient using cranial techniques, with the aim to normalise the abnormal findings. Following treatment, the patient's visual loss resolved immediately, and subsequent follow ups (at two months, and again at two years) showed that the visual loss remained resolved. The synchronicity of the treatment and symptom-relief suggests that the two are causally linked, but with limited support in the current literature and no similar cases being reported, further research is needed to corroborate the relationship of osteopathic treatment to the outcome of this case.

The use of OCF as an intervention for neck pain has been studied by Haller et al. (2015) under the identity of craniosacral therapy. Patients with chronic non-specific neck pain were randomised to two groups receiving 8 weekly treatments of either craniosacral therapy, or a light-touch sham treatment. Pain intensity was the primary outcome being evaluated, which showed significant decreases in pain within the treatment group at week 8 and at a 20 week follow up, compared to the sham group. Other secondary outcomes included pain on movement, functional disability, quality of life, and global improvement. These outcomes each showed significant differences at both week 8 and week 20. Furthermore, Haller et al. found that body awareness and pain sensitivity in regards to pressure were significantly improved at week 8, and patient anxiety was improved at week 20. This study suggests that craniosacral techniques, which are equivalent to OCF techniques, can be a useful intervention for the intensity of chronic neck pain, and be effective for up to three months post treatment.

Another study has investigated the potential of OCF in affecting the gait of patients with Parkinson's disease has also been investigated, and compared with gait training from a physiotherapy approach (Müller & Pietsch, 2013). Eighteen patients with Parkinson's disease received both interventions on subsequent days in a cross-over design, and were assessed using a 10 meter walking test pre- and post-intervention. The interventions affected different aspects of the gait process. Whilst gait training reduced the number of steps participants took, OCF treatment reduced the time taken to complete the task. When the interventions were combined, the time period was once again reduced but the number of steps remained the same. The study did not investigate how long the treatment effects lasted, but given the results it would seem that OCF could potentially have a place in Parkinson's disease-related gait therapy.

As mentioned previously, the technique of compressing the fourth ventricle (CV4) has been studied with respect to its claimed effects on autonomic nervous system activity. A pilot study was carried out by Cutler, Holland, Stupski, Gamber, and Smith (2005) to determine whether cranial manipulation was associated with sleep latency. A randomised block design with repeated measures was used with 20 healthy subjects. The participants each received 3 randomly ordered treatments, receiving CV4 technique, sham CV4 technique, and control (no treatment). For the 11 subjects who were examined for sleep latency, it was found that the participants who received CV4 were able to fall asleep quicker than those in the control group, and those who had received a sham treatment. The authors also measured the sympathetic nerve activity of muscles in the remaining 9 subjects, to determine whether a CV4-induced stillpoint had an effect on it. The pre- and post-stillpoint measurements showed that the nerve activity in treated subjects was lessened after stillpoint. Control and sham groups showed no change. Whilst Cutler et al. admitted that the mechanism behind the recorded changes remained unclear, these results provide insight in to the cranial mechanism, as well as support evidence that the effects of CV4 technique occur independently of mere touch.

Whilst the anatomy of the adult skull is a topic of controversy, OCF treatment is considered to be appropriate for infants and young children (Gardner, 2011). From an anatomical point of view the skull of an infant is in a perpetual phase of growth, and is not yet ossified. As a result, the bones and related sutures are still pliable. Sergueef (2007) proposes that the anatomy of an infant is in such a state of vitality, that somatic dysfunction can be alleviated and potentially reversed. Osteopathic examination of neonates has also been suggested as a

means of identifying individuals who may be predisposed to developing posterior plagiocephaly, and thus provide for early intervention (Sergueef, Nelson, & Glonek, 2006). Furthermore, Sergueef (2007) suggests that the long term outcomes for infants are particularly important, and that infants need good foundations for healthy development and optimal functioning later in life.

With regard to interventions, Hayden and Mullinger (2006) investigated the effects of OCF on 28 infants with colic over a four week period in a randomised controlled study. Infants were randomised to either an intervention group or a control group, and had weekly appointments with their practitioner. Each infant/parent received equal time from their practitioner, regardless of their randomisation. Infants in the control group received an examination with minimal touch, whilst the intervention group received OCF treatment following their examination. Treatment was individualised according to the presentation of each infant, and was administered by the same practitioner. All parents were able to ask questions, discuss any issues or concerns, and receive advice from their practitioner. Data were gathered through a 24-hour diary kept by the parents. The authors found that in the treatment group there was a progressive and highly significant reduction in the amount of time the infants spent crying, as well as an improvement in their overall sleep time. Treated infants were also reported to require less parental attention. No significant changes were identified in the control group.

Whilst the studies reviewed so far in this section have tended toward supporting claims of OCF treatment efficacy and effectiveness, studies have also been completed which refute treatment claims. The effect of cranial therapy on children with cerebral palsy was studied by Wyatt et al. (2011), to investigate whether OCF could affect the general health and wellbeing of the participants. There were 142 participants, aged between 5-12 years old, with varying levels of gross motor function. Prior to group randomisation, parents completed baseline data for their children, including the paediatric pain profile 14, the Child Health Questionnaire 13, a sleep and fitness diary, and a measure for how strong their belief was that OCF would be beneficial for their child. The participants were then allocated to either an intervention group, or a 6 month waiting list with partial attention control. Parents of the children who were randomised to the waiting list were invited to discuss their views on available services for their children, as well as discussing the parents' choices regarding complementary and alternative therapies. These discussions took place through two semi-structured interviews. Patients in the treatment group were invited to six OCF treatment sessions. Both objective

and subjective measures were used to investigate the following: participants gross motor function, global health, sleep patterns, and pain, as well as the quality of life of the main carer. The results showed no statistically significant changes between children with cerebral palsy who had received cranial treatment, and those in the control group. However, carers of participants who had received OCF treatment were almost twice as likely to report an improvement in their child's global health at six months after commencement of treatment. The study provides an example of the limitations of OCF treatment claims. Whilst no objective measures showed improvement in the health outcomes of the population studied, the role of placebo on the parents' perceptions of their child's health could merit further investigation.

Vreede (2010) investigated the claim that OCF could have a positive effect on an individual's stress levels. Participants were given a mental computation task, the 'Paced Auditory Serial Addition Task', after which they received either an OCF treatment or a sham treatment. Participants' salivary cortisol levels were measured at multiple time points: before task, between task and receiving treatment, and after receiving treatment. The procedure was repeated the following day, at the same time, for consistency. Self-reported stress-scores were also collected using a visual analogue scale, which indicated that the participants had indeed felt stressed by the task that was given. However, the combination for the two measures failed to find any significant difference between the participants who had received an OCF treatment and those who received the sham treatment. As a result, Vreede's study failed to support claims that OCF could decrease the stress levels of an individual. Conversely, the large variability in salivary cortisol levels that were measured indicated that the task did not reliably induce stress in the participants. There was also a limited wash-out period between the two testing days, which meant it was possible for participants to recall their stress-scores from the previous day, and respond to the second stress-score with a bias toward what they thought the researchers wanted. Furthermore, it is unclear whether a single OCF treatment was sufficient to create measureable change in the participants within the timeframe studied, and whether a task inducing greater levels of stress would have produced a different result. Further research is needed in this area before the effect of OCF treatment on stress levels is irrefutably denied.

Patient Experiences of Osteopathy in the Cranial Field

There are limited studies looking in to OCF from a subjective view point. Greene (2009) investigated the lived experience of patients who received OCF treatment. Five female participants were interviewed in a semi-structured manner, and revealed that there were many elements to the OCF treatment experience. Patients described a sort of tingling sensation, or a sense of warmth or energy in parts of their body which were not in contact with the practitioner's hands. The patients also reported feeling like they had been 'woken up', that they felt normal, aligned, and a sense of their body reorganising itself toward a state of 'health'. Some patients noted a dramatic improvement in their physical health. For instance the ability to garden was restored, where before the act of getting out of the car had proved a challenge. Some reported feeling calmer, less anxious, better able to cope, and a sense of mental clarity or emotional peace. One patient went so far as to say that she had felt 'isolated', and that cranial treatment had allowed her to 'reconnect', to discover her 'soul' or 'essence'. Other participants in Greene's study also observed that they were able to decrease their dose of medications, to the point of being able to cease entirely. Such medications included non-steroidal anti-inflammatory drugs, and anti-epileptic medication. Whilst Greene's results are not generalizable due to the small and gender-homogenous study population, the subjective insights gained from the study do support OCF as a beneficial treatment for patients.

A lack of generalizable data on the patient experience of OCF lead Mulcahy et al. (2013) to develop items for a patient self-report questionnaire to evaluate these experiences. The questionnaire, the 'Patient Perception Measure-Osteopathy in the Cranial Field' (PPM-OCF), was then revised to be used for both 'structural' osteopathy and 'cranial' osteopathy, becoming the 'Patient Perception Measure-Osteopathy' (PPM-O; appendix C). Having identified elements of the patient experience, the authors then proceeded to test the strength of the presence of those elements within OCF treatment. Using a refined version of the PPM-O, Mulcahy and Vaughan (2014) found that the most common sensations experienced by patients during OCF treatment were the sensations of 'releasing,' 'unwinding,' and being 'relaxed'. Mulcahy and Vaughan (2014) also explored patients' satisfaction with life, and the meaningfulness of their daily activities. Both were positively associated with the patients' PPM-O scores. A negative association was also found between the PPM-O and depression. Initial data suggest the questionnaire has adequate psychometric properties to be able to be

used in future research. Supplementary research is required to further validate the use of the PPM-O questionnaire in a non-student led clinical setting.

Current Professional and Political Views Regarding OCF

Osteopathy in the cranial field has come under much scrutiny in recent years. Criticism of OCF may be due to the subtle nature of its techniques, the scepticism directed at OCF principles and theory, as well as the 'alternative' status of OCF as a mode of treatment. There has been sufficient controversy that some osteopathy programs have removed OCF from their curricula. These programs include those taught at Australia's Victoria University (Maron, 2014), and Unitec Institute of Technology in New Zealand (for Unitec's policy on OCF see appendix A). The removal of OCF from learning curricula has been part of a campaign against complementary and alternative medicine. The lobbyist group, 'Friends of Science in Medicine', claim that only empirically proven medical treatment is effective, that alternative medicine is more akin to pseudoscience, and credibility for such practices should therefore be withdrawn (Dwyer, 2016). The decision to remove OCF from tertiary education in New Zealand lead some members of the profession to form a working group to oppose the decision ("OCF Working Group NZ," 2015). The purpose of the working group is to structure an argument supporting the teaching of OCF at Unitec, and to investigate alternative means of teaching. The group is showing early stages of progress, with the Sutherland Cranial Teaching Foundation investigating avenues for teaching students OCF through extra-curricular courses (R. Gijbers, personal communication, February 29, 2016).

Conclusion

This literature review provides a summary regarding the history and current position of OCF. With a global move towards evidence-based practice in healthcare, techniques with debatable validity and reliability are being questioned. Is it ethical for osteopaths to treat using techniques which are disputed in regards to their process, efficacy, reliability, and underlying theory? Sackett's (1996) definition of evidence-based practice not only includes best research evidence, it also include clinical expertise and patient values. Therefore, even though we do not fully understand the mechanism of change, studies showing patient benefit from OCF treatment should not necessarily be dismissed outright.

With political pressure being placed on OCF as a suitable treatment paradigm, it is imperative for high quality research to be undertaken in order for the profession to make an informed decision on where it stands on the issue. Most of the studies in this review focused on efficacy and internal validity, outside of the clinical setting. Their results therefore cannot necessarily be generalised to a larger, clinical population. What is lacking in OCF research is a set of normative data. Researchers have studied different aspects of OCF, and every author invariably recommends that “more research is required”. This ‘more research’ approach is vague and lacks direction. Anecdotally, patients seem to consider OCF to be a useful treatment option, so perhaps more patient-based outcomes research is what is required.

As the literature currently stands, there are debates and discrepancies between what is considered to be OCF theory, and the results of OCF related studies. It is possible that these discrepancies could be due to the chosen methodology of each study, or the variables that were chosen to be measured. Because the existence and nature of OCF mechanisms are not agreed upon, it is plausible that the variables measured in previous studies were perhaps not those which should have been investigated, or were not measured appropriately. With research beginning to delve in to the patient experience of OCF, such as that undertaken by Greene (2009), Mulcahy et al. (2013), and Mulcahy and Vaughan (2014, 2015), it may soon be possible to establish direct links between somatic dysfunction, osteopathy in the cranial field, and treatment outcomes. With these links as guides, further research can then be used to corroborate or contradict conventional variables related to OCF.

Chapter Summary

Chapter one has explored the literature concerning osteopathy in the cranial field as it stands in early 2016. Most studies have been implemented using quantitative measures. Few studies have investigated the patient experience of OCF. Consequently, Chapter one has also given context for how the present study will contribute to the current literature.

CHAPTER TWO – METHODS AND METHODOLOGY

Introduction

Chapter two will introduce the methods used in this study, and the methodology behind them. The study used both quantitative and qualitative measures, with the former having greater weighting.

Methodology - Research Paradigms

The aim of research is to obtain further knowledge. Methods for collecting this knowledge are based on differing beliefs on how that knowledge should be obtained. These beliefs constitute research paradigms. These paradigms are made up of ‘assumptions,’ and each has their own underlying theory for how information should be gathered, and for what purpose. These paradigms are argued by Domholdt (2000) to be: quantitative, qualitative, and single-system designs. Both quantitative and qualitative measures were used in the present study.

The Quantitative Paradigm

“It is possible, in principle, to predict exactly how a given event is going to unfold if we have enough information about it” (Zukav, 2012, p. 25)

Quantitative research is often thought of as the ‘traditional’ scientific method. It arose from the development of Newtonian physics in the first scientific revolution (Domholdt, 2000; Irby, 1990). The quantitative paradigm places emphasis on measuring variables in order to obtain information.

Quantitative assumptions. According to Domholdt (2000), quantitative research has five assumptions, which guide the nature of study in this paradigm. The assumptions are as follows: Assumption 1) there is a single objective reality (of which the goal is to determine its nature, predict it, or control it); Assumption 2) the researcher and the subject or object being studied can be independent of each other; Assumption 3) the goal of quantitative research is to be able to provide generalizable data; Assumption 4) the cause and effect in a study can be determined, and differentiated from one another; Assumption 5) that quantitative research is objective, impartial, and value free.

Quantitative methods. The above assumptions provide guidance and direction for quantitative researchers. They also have major implications for the methods used in quantitative research. As well as the five assumptions above, Domholdt (2000) also describes

five methodological issues to explore in relation to the assumptions. In the quantitative research method, the key issues which are addressed include the following: the underlying theory, subject selection, measuring tools, manipulating variables, and the control of peripheral factors. Quantitative research is based on an *a priori* theory. The researchers start with a hypothesis, and the purpose of the research is to determine whether that hypothesis is correct. Subject selection is also important, particularly when it comes to being able to generalise the results. For example, if the subjects are carefully (and individually) selected, the results will be less generalizable than if the subjects had been randomly selected from a given population. Likewise, for the results of a quantitative study to be considered ‘valid’ then the tools for measuring variables must be appropriate and as precise as possible. If a measuring tool fails to accurately assess the variable being studied, then the results which are obtained are unlikely to be valid or reliable. Quantitative researchers also aim to manipulate variables in their studies. By manipulating one variable, it is possible to explore its role in a given situation. It is therefore just important to be able to control the extraneous variables, in order to isolate (as much as possible) the variable being manipulated (Domholdt, 2000).

The Qualitative Paradigm

“The old [Newtonian] physics assumes that there is an external world which exists apart from us. It further assumes that we can observe, measure, and speculate about the external world without changing it... The new physics, quantum mechanics, tells us clearly that it is not possible to observe reality without changing it”

(Zukav, 2012, p. 29-30)

According to Irby (1990), qualitative research emerged from the second scientific revolution, following Einstein’s work on the theory of relativity and quantum theory. The qualitative paradigm is applied in research where human experience is observed and studied (Domholdt, 2000).

Qualitative assumptions. Like the quantitative paradigm, qualitative research has its own assumptions. Assumption 1) the world is made up of several constructed realities; Assumption 2) there is an interdependent relationship between the researcher and the subject; Assumption 3) knowledge is dependent on time and context; Assumption 4) it is not possible

to distinguish cause and effect, as they can be interrelated; Assumption 5) that qualitative research is value bound to the inquiry being made (Domholdt, 2000).

Qualitative methods. Qualitative research has methods which fall under the same methodological issues as quantitative research. According to Domholdt (2000) these are: theory, selection, measurement, manipulation, and control. However, unlike quantitative research, the methods in qualitative study are less about control and prediction as they are about observing experience and phenomena. For example, qualitative theory is not guided by hypothesis and resulting framework. The belief in multiple constructed realities means that researchers begin an inquiry in to a phenomenon with an idea of the concepts which may be important to understanding the phenomenon. The researchers also understand that the participants in a qualitative study may highlight other concepts which are important, which further highlights the first assumption on multiple constructed realities. Researchers in this paradigm also select participants whom they believe will offer the best insight in to the phenomenon being studied. The primary method of measurement consists of verbal communication between the researcher and the participant/s. Qualitative data is often made up of perceptions and emotions, and such is able to provide a “rich” description of a given experience. Lastly, unlike quantitative research, the qualitative paradigm does not seek to manipulate or control the phenomenon which is being studied (Domholdt, 2000). Qualitative research is often carried out in natural settings, and the researcher is aware that by asking certain questions they can influence the participant’s response and perception of the phenomenon being studied.

Research Design

The present study used a survey-based research design, with both quantitative and qualitative measures. Fink (1995) described surveys as “systems for collecting information to describe, compare, and predict attitudes, opinions, values, knowledge, and behaviour” (p. 21). Surveys can also be used to analyse relationships between given variables, and assess differences among groups, or across a period of time. Survey research is prospective and non-experimental. Rather than the researcher making observations or taking measurements, surveying relies on self-reported information from the participants. Survey studies involve the researcher using a survey tool to collect information by giving the tool to participants to

complete and analysing the data obtained. Surveys are an efficient method of collecting data, and allow the researcher to easily compare participant responses (Domholdt, 2000).

There are two formats that can be used in survey research questions: open and closed items. With open-format questions, participants are not confined in the manner of their responses, and therefore possess a level of flexibility with their answers. As a result, researchers must organise the (potentially wide range) of responses into manageable categories for analysis. Such questions would be considered to be qualitative in nature. Closed-format questions on the other hand would generally be considered as quantitative research. There are many ways which closed format questions can be presented, such as: multiple choice, Likert scales, and semantic differentials. Multiple-choice items can be used to measure a number of variables, such as knowledge, or opinions. Likert scale items revolve around a declarative statement, and measure the strength of a participant's response to that statement. For example, "I feel happy" (declarative statement), with answers ranging from 'strongly agree' to 'strongly disagree'. Semantic differentials consist of a continuum with a pair of adjective words at either end. Rather than having a pre-set range of answers (as in Likert style items), participants must indicate a place on the continuum which best represents the item being described. For example, "I feel..." (statement), with the words 'very happy' and 'not happy' at either end of a continuum.

Survey research can be implemented in one of three ways: personal interviews, telephone interviews, or written questionnaires. The present study employed the latter. Written questionnaires are time-efficient, cost effective, easily anonymised, and allow for a greater population sample when compared with interviews. However, written questionnaires also have their limitations. For example, once the questionnaires are mailed out the researcher no longer has complete control over who actually responds to the questionnaires, whether the questionnaires are fully completed, whether the participants are being entirely truthful in their responses, and during what time period the participant responds to the questionnaire. The researcher also loses the ability to clarify any queries which a participant may have regarding the questionnaire.

Questionnaires

The present study used two existing questionnaires. The first was a demographic survey (see appendix B), and the second was the Patient Perception Measure-Osteopathy (PPMO; see appendix C). Both questionnaires were developed by Mulcahy and Vaughan, with collaborative authors (Mulcahy & Vaughan, 2014, 2015; Mulcahy et al., 2013).

The Demographic Survey

The patient demographic survey (appendix B) collected the following information: sex, age, relationship status, languages spoken, occupation, employment status, level of education, and information regarding their treatment. For example, is this their first treatment? Is it their first treatment at that practice? Have they received OCF treatment previously? Which body area they are receiving treatment for? The patients' current health conditions and current medication use were also inquired into. Aside from age, all other items were multi-choice. Other information that was gathered also included payment method, whether the patient used other treatment modalities in conjunction with osteopathy (e.g. massage, chiropractic, physiotherapy, pilates, acupuncture, naturopathy, homeopathy, GP, medical specialist, or other). Furthermore, two single-item semantic differential measures were included to assess the patients' satisfaction with life, and the meaningfulness of their daily activities. Two open-format questions were also included for patients to describe their treatment session (in words), and to add any further comments.

Because the demographic survey was written for Australian participants, parts of the survey were modified in order to better reflect the New Zealand population. Such alterations included: the replacement of languages for 'languages spoken at home' ('Italian', 'Greek', and 'Cantonese' were replaced with 'Maori', 'NZ sign language', and 'Samoan'; 'English' and 'Other' remained unaltered), the replacement of payment options ('Private' and 'Workers compensation' remained, but 'Transport accident' and 'Veteran's affairs' were replaced with 'ACC'). Another section was also added, to ascertain which body regions patients were seeking treatment for. These included 'Head', 'Neck', 'Shoulder/s', 'Arm/s', 'Pelvis/Hips', 'Leg/s', 'Back', 'Lower back', 'Disease/Illness', and 'Other', with the opportunity for the respondent to state what they meant by 'Other'.

The Patient Perception Measure-Osteopathy (PPM-O)

The PPM-O questionnaire (appendix C) was developed by Mulcahy et al. (2013). The questionnaire had 37 items, which were categorised in to 6 theoretically constructed domains.

These domains covered 'Education and Information' (5 items), 'Efficacy and Satisfaction with Treatment' (7 items), 'Physical Response' (9 items), 'Therapeutic Relationship' (2 items), 'Emotion and Mood' (9 items), and 'Cognition' (3 items). Items were designed to be answered on a five-point Likert scale, with both positively and negatively worded statements. The items were further reviewed and analysed using both structural equation modelling and item response theory. The basis for item-response theory (Edelen & Reeve, 2007) will help to improve the generalizability of the results obtained from the present study. Another section was added to the PPM-O, which focused on the sensations that were experienced during an 'osteopathy in the cranial field' treatment (Mulcahy & Vaughan, 2014). This resulted in a single multi-choice section, whereby patients could indicate whether they experienced any number of the 24 sensations and symptoms suggested.

The psychometric properties of the PPM-O were tested by Mulcahy and Vaughan (2015) using Confirmatory Factor analysis (CFA) and Rasch analysis. Results from the CFA suggested that the domain structure used in the previous studies (Mulcahy & Vaughan, 2014; Mulcahy et al., 2013) did not fit the data of the (2015) study. Rasch analysis also indicated problems with the multi-dimensional structure of the PPM-O. The construct validity of the PPM-O was further challenged by classical test theory and modern test theory. This led the authors to develop a 15-item measure with two sub-scales. The two sub-scales, 'Education and Effectiveness', and 'Cognition and Fatigue' were then further analysed using Rasch analysis. Both sub-scales were analysed separately however, in order to ensure the retention of as many items as possible in regards to capturing the treatment experience of patients. Following this second Rasch analysis, a 13-item version of the PPM-O was developed, using the same two sub-scales. The sub-scales measure the following dimensions of the patient experience of osteopathic treatment: information, education and effectiveness of treatment (9 items); and the fatigue and cognitive changes experienced after treatment (4 items). Due to the unidimensional nature of the sub-scales, they cannot be added together to derive a 'total score' for the PPM-O.

Both the PPM-O and demographic survey have been designed to be read at a 13-14 year old reading level. According to the Ministry of Education (2009), by the end of year 8 (roughly 13 years of age) a person should be able think critically about what they are reading, as well as be able to find, assess, and process information in order to answer questions.

Participants

The participants involved in the present study were patients of osteopathic practitioners, who had received cranial osteopathic treatment. Osteopathic practitioners were also involved although no data were collected from them.

Inclusion and exclusion criteria for patients. No exclusion criteria were applied in the present study. Inclusion criteria are listed below:

- Patients were to be at least 18 years of age (no upper age limit was applied)
- Cranial techniques were to have been used in the majority of the treatment. The techniques used were at the discretion of the practitioner. Potential techniques included but were not limited to the following (Liem, 2009):
 - Direct action
 - Disengagement
 - Exaggeration
 - Opposite physiological motion
 - Molding
 - CV4 – compression of the fourth ventricle

Recruitment

Recruitment took place in two phases. Firstly, New Zealand osteopaths were recruited as practitioners in the study. These practitioners then acted as a base from which OCF patients could be recruited as study participants.

First phase of recruitment: practitioner recruitment. Osteopathic practitioners who were familiar with cranial techniques were recruited. An internet search was conducted on osteopathic clinics in New Zealand, using the keywords ‘cranial osteopath New Zealand’. The internet search returned approximately 20 hits on osteopathic clinic websites. These results were then investigated for their suitability. This was done by systematically visiting each clinic website and reading through the personal statement of each osteopath. If the statement included OCF as a treatment modality used by the practitioner, then the practitioner was added to the recruitment list. The Sutherland Cranial Teaching Foundation for Australia and New Zealand (SCTFANZ; 2014) website was also used a database for suitable practitioners. Practitioners were also approached through the Osteopaths New Zealand (2014) members forum on Facebook, word of mouth, and personal communications. Through the

osteopath-search process, 40 practitioners were identified as using cranial techniques in their treatment approach. Of these, 23 were identified through the internet search, 9 through the SCTFANZ website, 5 through word of mouth, and 3 through personal communication. Osteopaths were identified throughout New Zealand, in both the North Island (n= 36) and South Island (n= 4). During the search process the contact details for each osteopath were recorded. These details included the physical address of the clinic where they worked, a work-email address and/or an email address for their clinic, and a contact phone number. Of the 5 practitioners identified through word of mouth, 1 did not have accessible contact details and therefore was not contacted.

Of the 39 practitioners that were identified (with contact details), 33 were initially contacted through a recruitment letter in the mail (see appendix D). The letter introduced the research project and the researchers. Practitioners were asked about their interest in the project, as well as being informed that they would receive an email from the researchers a week later to follow up on their interest. The letter also included contact details for the researchers, should the practitioner wish to make contact earlier.

The initial follow up email enquired whether they had received the recruitment letter sent out the week before, and reiterated general information about the study (see appendix E). The remaining 6 practitioners, those who were recruited later through word of mouth and personal communications, were sent an email as their first point of communication (see appendix F). This email was an amalgamation of the letter and follow up email received by the other 33 practitioners.

Furthermore, the emails asked the practitioners to indicate (be return email), which of the following options applied to them: 1) I am interested in this study and I would like to know more about it; 2) I'm not able to participate in this study right now. Of the 39 osteopaths who were approached about the study, 12 indicated their interest. These 12 osteopaths were then screened for their suitability as OCF practitioners in the study. Screening took place in order to predict what kind of treatment the osteopath's patients may have received in prior appointments, as the patient's past experiences could influence how they answered some of the questions in the PPM-O questionnaire (appendix C). Because the data being collected by the questionnaire was a snapshot taken after a single treatment, the researchers wanted to minimise possible patient-bias developed through previous treatment sessions.

The screening tool that was used was a question taken from an unpublished survey, orientated toward determining an osteopath's practice style (Blaser, 2009; see appendices G and H). Blaser's (2009) survey was based on work by Jette et al. (2003) assessing the beliefs and attitudes of physical therapists toward evidence-practice. The practice-style question from Blaser's (2009) survey that was used in the present study was a simple method for determining which techniques practitioners were most likely to use when treating patients. There are a number of different treatment paradigms within osteopathy, of which OCF is one. Such paradigms can, generally speaking, be considered to be either 'structurally based' or 'functionally based'. Osteopaths can treat with either of these styles, or a combination of both. The purpose of the screening tool was to determine whether the practitioners generally used a more 'functional' or a more 'structural' approach to treatment. A 'functional' treatment approach for example, might include visceral technique, strain/counter-strain, balanced ligamentous tension, and/or osteopathy in the cranial field techniques. On the other hand, a more 'structural' treatment approach might include muscle energy technique, high-velocity low-amplitude thrusts, and/or articulation. The survey tool would render the 'functional' approach as 'Practitioner style one', and the 'structural' approach as 'Practitioner style two'. The techniques mentioned above are those that are included in the screening tool, but are not conclusive of osteopathic techniques used by the profession. The screening tool was delivered to the osteopaths via survey monkey.

Of the 12 osteopathic practitioners who were screened, 10 satisfied the conditions for practitioner style one. The other 2 practitioners were deemed to use a mix of the techniques previously mentioned, and could not be allocated to a single practice style. As a result, individual discussions took place between the lead researcher and the 2 practitioners, and conditions were placed on the practitioners' involvement in the study. Whilst it is not unusual for practitioners to employ different treatment styles equally, due to the practitioners' mixed treatment style, only new patients or patients who had received OCF treatment from the practitioners previously, would be eligible as participants in the study.

The majority of practitioners (n= 10) worked in the Auckland region. No practitioners were recruited from the South Island due to lack of response. As part of the ethical considerations, practitioners were also required to have professional indemnity and public liability insurance in order to be eligible (discussed below). The screening process was staggered as a result of delayed recruitment and response times by some practitioners.

Second phase of recruitment: patient recruitment. Once osteopathic practitioners had been recruited to be part of the study, the practitioners' patients were used as the participant population.

Patients who were eligible for the study (i.e. patients who had received cranial techniques in the majority of their treatment session, and who were at least 18 years of age) were asked by their osteopath whether they would like to take part in the study. Patients who wished to be involved in the study, and who completed the questionnaires, were then considered to be participants.

Ethical Considerations

Ethical approval for the study was gained from the Unitec Research Ethics Committee for the period 26/6/14 to 26/6/15. Application number: 2014-1055. Please see appendix I for ethics application approval letter.

Patients were given an information sheet with the questionnaires, which were for their own use and interest. The information sheet explained the study to the participants, and provided contact details for the researchers. By completing, sealing, and returning their completed questionnaires to clinic reception, participants agreed to take part in the study. Had the participant wished to withdraw from the study for any reason, they were able to do so within two weeks of the data being returned to the researchers.

Routine ethical issues that were addressed in this study are as follows.

Patient autonomy. Patient autonomy can be an issue in a survey-based research project, as patients may feel compelled to complete the questionnaire. In order to minimise this issue, practitioners were asked to offer questionnaires to their patients rather than suggest they take part. Patients who chose to participate in the study were given an information sheet along with the questionnaires. The purpose of the information sheet was to inform the participant about the purpose of the study, what the collected data would be used for, the participant's rights (i.e. their ability to withdraw within three weeks of submission), and contact details for the researchers. This information was designed to allow the patient to make an informed decision regarding their involvement in the study. Furthermore, where possible, participants were asked to fill out the questionnaires in a separate room to the

practitioners (e.g. the clinic waiting room). These steps were taken in order to minimise practitioner-based patient bias.

Patient safety. With any therapeutic intervention, there is an associated risk to the patient. To reduce the likelihood of such complications arising, osteopaths in practice routinely screen their patients in order to determine whether the patients are safe to treat. The study was conducted in clinical settings, so each participant was screened by their osteopath prior to commencement of treatment. The osteopathic practitioners were asked to provide their usual osteopathic treatment, and were not required to perform any additional techniques. Patient risk was further minimised by the criterion that practitioners had current New Zealand registration and insurance.

Patient confidentiality. In healthcare, and in research, there is potential for patients/participants to become concerned about the confidentiality of their involvement. The practitioners in the study were bound by patient confidentiality (Health and Disability Commissioner, 1996), and patients' names were not recorded on any documentation involved in the study. Therefore, no individual is identifiable within this thesis, including practitioners.

Cultural and social sensitivity. The Patient Perception Measure-Osteopathy questionnaire (appendix C) did not contain any culturally or socially sensitive information. The Demographic survey (appendix B) contained a few questions which may have been sensitive to some people. For example, question three pertained to relationship status. Previous studies that used this tool found that relationship status was related to satisfaction with life (another question in the demographic survey), which in turn was related to an individual's perception of cranial osteopathic treatment.

Research design adequacy. A survey-based research design was best suited to achieve the aim of this research project. A previous study in this area used an interview method (Greene, 2009), but part of the aim of the present study was to provide a set of generalizable base-line (or normative) data for cranial osteopathic treatment, which the interview method is unable to do. The use of a survey allowed for a wide range of data to be collected, and allowed for easy comparison of responses.

Data Collection

In order to determine how many questionnaires should be sent to each practitioner, practitioners were asked to estimate how many patients they saw each week whom they treated using cranial techniques. These estimates ranged between 1-35 patients each week. Previous studies using the survey tools had 46 respondents (Mulcahy et al., 2013), 42 respondents (Mulcahy & Vaughan, 2014) and 183 respondents (Mulcahy & Vaughan, 2015). The present study aimed to double the data from the mentioned 2013 and 2014 studies. With an expected response rate of around 50% (Baruch & Holtom, 2008; Domholdt, 2000), and allowing for some error in the estimation, a total of 230 research packs were sent to practitioners around New Zealand.

Research packs included information sheet for practitioners (see appendix J), instructions on patient eligibility (in order to minimise practitioner bias), copies of the PPM-O and demographic questionnaires (see appendices C and B), information sheets for the patients (see appendix K), paid-return envelopes, and patient recruitment posters (see appendix L). These research packs were sent to practitioners one week prior to the data collection period. Due to the practitioner recruitment and screening processes being staggered, data collection was also staggered. The dates for each phase of recruitment and data collection were recorded, in order to determine data collection timelines for individual practitioners.

Patient recruitment ran concurrently with data collection. When patients were recruited in to the study, they were given an information sheet, the demographic survey, and the PPM-O questionnaire. Each set of documents had corresponding numbers, pertaining to an individual respondent. Participants read the information sheet and completed the questionnaires in the clinic waiting area. The information sheets were able to be removed from the questionnaires, with instructions for the participant to take the information sheet home. Completing the questionnaires in reception immediately after treatment was the only option given to participants. This was done in order to control the post-treatment timeline, in regards to patient feedback. It is recognised that the effects of osteopathic treatment do not necessarily all take place within the time allocated for an appointment, and may continue over several days after treatment has taken place. The present study did not aim to collect such extended data, therefore a limited response period was implemented to reduce the variable of the post-treatment timeline. For this reason an online survey, such as survey monkey, was not a suitable option for collecting data as the response time could not be controlled.

Should the participant have wished to withdraw their response, they could contact the researcher via contact details made available on the information sheet. Participants could withdraw within three weeks of submitting their response, by contacting the researchers and quoting the reference number on their information sheet. The completed questionnaire that was returned to the researchers with the corresponding reference number would then be omitted from the data set, and disposed of appropriately. Participants submitted their responses by placing their completed questionnaires in the paid return envelope, sealing the envelope, and giving it to their osteopath or to reception staff. These envelopes were then mailed back to the Department of Osteopathy at Unitec, and directed to the primary researcher. Because the study investigated the response to a single OCF treatment, patients were able to complete the questionnaire only once, and responded only on the experience of that one treatment.

Data collection took place over eight months, with individual practitioners collecting data within a three to eight month period. Research packs were sent in two waves. The first wave consisted of 180 questionnaires. Practitioners received 4-30 questionnaires, depending on the practitioners' self-estimated weekly total of patients receiving cranial techniques in treatment. A further 50 questionnaires were sent out in a second wave at a later date to 5 of the 12 practitioners. This second wave was sent out as a result of missing responses. As a result, data were checked during analysis to locate any duplicate entries.

During the data collection process, practitioners were contacted at regular intervals to follow up on their progress. These contact points took place two weeks in to data collection, and two weeks prior to its conclusion. During these communications the practitioners were asked whether they had any questions, whether they had experienced any difficulties, and how they were progressing with their research packs. Contact was also made at the conclusion of data collection, to inform the practitioners to discontinue recruiting patients. The numbering of the questionnaires allowed the researchers to review the participant response rate, to monitor each practitioner's progress with the research pack that was sent to them, and to analyse the rate of responses being lost through the return mailing process.

Data Analysis

Quantitative Analysis

Data were entered and analysed through IBM SPSS Statistics (version 22).

Data coding. The majority of data collected by the survey tools were entered exactly as the response indicated. However, in some cases, changes were made in order to group the data for consistency. For example, in regards to body region receiving treatment, in the two instances where respondents did not indicate the ‘head’ region but stated ‘headache’ or ‘migraine’ in the ‘other’ section, data were entered as ‘head’ region. Under payment options, in the two instances where respondents indicated both ‘private’ and ‘ACC’ as methods of payment, ‘ACC’ was entered as the primary payment method, as ACC generally subsidises osteopathic treatment rather than covering the treatment cost completely. Therefore, any ACC transactions would also involve the participants paying an ACC surcharge (privately). In the one instance where ‘workers compensation’ was indicated as the method of payment, the data were entered as ‘third party payment’. ‘Third party payment’ was also used for ‘ACC’ payments. Therefore, ‘third party payment’ covered ‘ACC’, and ‘workers compensation’.

Other data entry decisions included how to enter data where a respondent had indicated more than one answer on a single-answer question. For example, the Likert-type items in the PPM-O (appendix C): in the one instance where a participant had indicated two answers, the lesser or more negative option was entered in to the data sheet. For example: Item 4 of the PPM-O, “As a result of osteopathic treatment, my general health is...”; if the participant had indicated an answer between ‘good’ and ‘very good’, the answer of ‘good’ was entered in to the data sheet. The same data entry rule was applied in the four instances where participants had indicated an answer between two options on the ‘satisfaction with life’ and ‘meaningfulness of daily activities’ measures. Due to the low number of occurrences, these responses were not removed, and the subsequent data entry choices were made in order to avoid ‘over-assuming’ a participant’s response.

Data analysis. Quantitative data were analysed using multiple approaches. Descriptive statistics were generated for each of the demographic and PPM-O items. Correlations between each of the PPM-O items and participant age, satisfaction with life and meaningfulness of daily activity were analysed using Spearman’s *rho* and interpreted

according to Hopkins (2002). Mann-Whitney tests (alpha was set at $P < .05$) were used to evaluate differences between demographic groups for each of the PPM-O items and patient-reported sensations. These processes of data analysis have been employed in previous studies involving the questionnaires being used in the present study (Mulcahy & Vaughan, 2014). Cronbach's *alpha* was calculated as the reliability estimate for each of the individual subscales, as per Mulcahy and Vaughan (2015).

Qualitative Analysis

Simple thematic analysis (Attride-Stirling, 2001) was used to analyse the following questions in the demographic survey: *'how would you describe the osteopathic treatment you had today?'* and *'are there any other comments you would like to make about today's osteopathic treatment?'*

Responses ranged from single-word to multiple-sentence answers. The thematic process of analysis began with data familiarisation, followed by generating basic ideas with which to systematically collate the data in to potential themes (Braun & Clarke, 2006; Vaismoradi, Turunen, & Bondas, 2013). The initial themes were reviewed and subsequently discarded, due to their lack of depth and comprehension of the treatment experience as described by the participants. Further analysis of the data revealed the basis of the current themes, which were then additionally investigated for their comprehension, authenticity, and distinction. The three themes were repeatedly compared to the data to ensure the themes' validity, and to generate names which encompassed the characteristics of each theme. The themes and sub-themes are explored further in Chapter Three.

Validity, Reliability, and Quality Measures

Previous studies (Mulcahy et al, 2013; Mulcahy and Vaughan, 2014; 2015) have evaluated the questionnaire used in the present study. These authors have provided evidence to support the construct validity and internal structure of the PPM-O (appendix C), as well as data related to the 'satisfaction with life' and 'meaningfulness of daily living' measures. The present study adds evidence for aspects of its validity, and provides suggestions for improvement (discussed further in Chapter Three).

Data were checked and edited for input-errors on a continual basis during the data entry phase of this study. Every fifth data case was checked for discrepancies (Wilder Research, 2009), and where discrepancies were found, a minimum of five cases prior to the given case were also checked for discrepancies. Once all data were entered, the data sheet was scanned for outliers and further anomalies. Any outliers or anomalies were marked for further investigation. All data were checked for correct entry. No revisions were needed. Furthermore, quantitative data were analysed through IBM SPSS 22 by both the primary and secondary researchers, who each had differing levels of experience using the software. The results of the data analysis were the same for both researchers. Simple thematic analysis for the qualitative data was similarly undertaken by both the primary researcher and the present study's primary supervisor, in order to further analyse the resultant themes for their authenticity and validity.

Chapter Summary

Chapter two has explored the methods and methodology behind the present study. Both quantitative and qualitative measures were employed, using accepted measures of analysis. The present study was based on the research protocols used in previously published studies by Mulcahy et al. (2013), and Mulcahy and Vaughan (2014; 2015).

CHAPTER THREE – MANUSCRIPT

Note to reader:

This manuscript has been prepared in accordance with the instructions to authors of the Journal of Evidence-Based Complementary and Alternative Medicine (Appendix M). For the purposes of examination, APA style referencing has been used for continuity with the thesis document. Citations will be amended to a numbered style prior to submission for publication. Similarly, references to appendices are included in the manuscript for examination purposes, and will be removed prior to submission for publication.

OSTEOPATHY IN THE CRANIAL FIELD - AN INVESTIGATION
IN TO PATIENT PERCEPTION, SATISFACTION, AND SELF-
REPORTED OUTCOMES OF A SINGLE TREATMENT SESSION

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Abstract

Aim: To investigate patient experiences of osteopathy in the cranial field (OCF) treatment, by assessing patients' perception, level of satisfaction, and self-reported outcomes after a single OCF treatment session in a New Zealand osteopathy patient population. **Background:** OCF is a treatment paradigm used by osteopaths and other manual therapists. Most research on OCF has been concerned with exploring the mechanism behind the treatment paradigm. Very few studies have focused on the patient experience. The present study used a questionnaire developed to explore patient perceptions, satisfaction, and self-reported treatment outcomes. **Methods:** A survey-based research design was used in a clinical setting. Two tools were used: the Patient Perception Measure-Osteopathy (PPM-O), and a demographic survey. Twelve osteopaths were recruited as practitioners, and 107 of their patients were recruited as participants in the study. Of the 107 participants, 81 responses were deemed suitable for inclusion, as OCF techniques had been applied for the majority of the treatment sessions. Data were analysed using both quantitative and qualitative methods. **Results:** The vast majority of participants (96.2%) responded that osteopathic treatment helped their condition 'mostly' (n= 39), or 'always' (n= 38). The most frequently experienced sensations were 'relaxed', 'relieving', 'releasing', 'centred', 'softening', 'lightness', and 'unwinding'. A positive relationship was observed between PPM-O and demographic variables. Three themes were also identified: 1) 'A discernible movement toward health; 2) 'Perception of the healing interface'; and 3) 'Satisfaction with the service of healthcare'. **Conclusions:** The sensations experienced by OCF patients in the present study, as well as their largely positive perception of OCF, is consistent with previous studies (Mulcahy & Vaughan, 2014). The construct validity of the PPM-O in a population receiving OCF treatment requires further investigation.

Keywords: osteopathy, osteopathy in the cranial field, patient experience, treatment outcomes

Introduction

Osteopathy is a form of manual therapy which utilizes various treatment approaches, including osteopathy in the cranial field (OCF) techniques. OCF was conceived by Sutherland (1939), who proposed a mechanism by which an inherent and involuntary rhythm within the body could be palpated through the manifestation of cranial bone movement.

Many studies have researched the validity of this rhythm's claimed existence (Ferguson, 2003), its palpability (Hartman & Norton, 2002; Moran & Gibbons, 2001), and its potential clinical uses (Berkowitz, 2013; Haller et al., 2015; K. Milne & Moran, 2007; Müller & Pietsch, 2013). However, only a limited number of studies have investigated the patient experience of OCF (Greene, 2009; Mulcahy & Vaughan, 2014; Mulcahy et al., 2013).

Osteopathy and OCF are among the healthcare practices which are considered to be 'Complementary and Alternative Medicine' (CAM). Other CAM therapies include but are not limited to: homeopathy, acupuncture, chiropractic, aromatherapy, and massage therapy (Chrystal, Allan, Forgeson, & Isaacs, 2003). Critics who support evidence-based medicine are currently putting pressure on CAM therapies, as they argue against healthcare practices that are not supported by irrefutable scientific evidence (Dwyer, 2016). However, other ways of thinking arise from work such as that by Doidge (2007), who uses re-training of the brain as an example for science to consider that what we currently know is not necessarily all there is to know.

In regards to OCF, a lack of data on patient perception and treatment outcomes lead Mulcahy et al. (2013) to develop a questionnaire to collect and analyse such data. Originally intended only for OCF patients, the questionnaire was later revised and condensed, and can now be used to respond to both 'cranial' and 'structural' osteopathic treatments (Mulcahy & Vaughan, 2014, 2015). Mulcahy and Vaughan (2014) also found that the sensations which patients experience during their OCF treatment can influence how those patients perceive the outcome of their treatment. Furthermore, information on patients' ratings of 'Satisfaction with Life' and the 'Meaningfulness of Daily Activity' were explored, which have previously been linked with better health outcomes (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Mulcahy, 2011).

The aim of the present study was to explore the patient experience of OCF in a New Zealand population, by investigating patients' perception of treatment and treatment outcomes. Further aims were to investigate whether those perceptions were affected by demographic variables, sensations the patients experienced during OCF treatment, their Satisfaction with Life, and the Meaningfulness of their Daily Activities.

Methods

Ethics approval for the study was obtained from the Unitec Research Ethics Committee.

Participants

Two groups of participants were recruited: registered osteopaths in New Zealand who were familiar with osteopathy in the cranial field techniques and used them regularly in practice, and patients of those practitioners who had received treatment consisting mostly of cranial techniques.

Osteopaths were recruited via an internet search (keywords ‘cranial osteopath New Zealand’), the Sutherland Cranial Teaching Foundation for Australia and New Zealand (SCTFANZ; 2014) website, word of mouth, and through personal communication. Interested osteopaths were screened for their suitability using a ‘practice style’ survey (Blaser, 2009), and sent research packs containing the following: information sheets, copies of the patient demographic survey (appendix B) and the Patient Perception Measure-Osteopathy (Mulcahy & Vaughan, 2015; appendix C). Patients were then recruited by the osteopaths, using convenience sampling. In order to be eligible, patients were required to be at least 18 years old, and have received a treatment consisting mostly of osteopathy in the cranial field techniques. Patients were each given a research pack following their OCF treatment session, which were completed, then returned via pre-paid post to the primary researcher at Unitec Institute of Technology.

Measures

Patient demographic survey. The patient demographic survey (appendix B) collected the following information: sex, age, relationship status, languages spoken at home, occupation, employment status, level of education, information regarding their treatment, current health conditions, current medications, payment method, and other healthcare practitioners the patient had seen in the 12 months prior to their osteopathy in the cranial field appointment. Except for age, items were multi-choice. Two single-item Likert-type scale measures were also included. These assessed the patients’ satisfaction with life and the meaningfulness of their daily activities (Cohn et al., 2009; Compton, 2000; Jason et al., 2009; Mulcahy, 2011). Furthermore, two open-style questions were also included: ‘*how would you describe the osteopathic treatment you had today?*’ and ‘*are there any other comments you would like to make about today’s osteopathic treatment?*’ These items were included to

collect any additional information which may have otherwise been missed by the closed-format questions of the PPM-O (explained below).

Patient Perception Measure-Osteopathy (PPM-O). The PPM-O (Mulcahy & Vaughan, 2015; appendix C) is a 13-item self-report measure designed to identify patient perceptions and self-reported outcomes of osteopathic treatment. The questionnaire can be used to assess both cranial and structural osteopathic treatment. Previous work (Mulcahy & Vaughan, 2015) using both confirmatory factor analysis and Rasch analysis suggests the items load onto two independent factors: ‘Education and Information’ (9 items), and ‘Cognition and Fatigue’ (4 items). Items are answered on a five-point Likert scale, and include both positively and negatively worded statements. Negatively phrased items were recoded prior to the data analysis and the PPM-O was scored as per Mulcahy and Vaughan (2015).

Patients were also asked to indicate which treatment style they predominantly received (i.e. structural or cranial), the duration of treatment, and whether they experienced any sensations during or after their treatment. A list of 24 sensations and responses was included, and patients were asked to select which (if any) sensations or responses they experienced in relation to their treatment. The sensations and responses included: Balancing, Happy, Warmth, Pain, Embarrassment, Tight, Relaxed Tingling, Softening, Pulsing, Centred, Releasing, Loose, Energetic, Unwinding, Uncomfortable, Restless, Numb, Frustration, Anxious, Emotional, Sad, Relieving, and Lightness (Mulcahy & Vaughan, 2014).

Data Analysis

Quantitative data were analysed using multiple approaches. Descriptive statistics were generated for each of the demographic and PPM-O items. Correlations between each of the PPM-O items and participant age, satisfaction with life and meaningfulness of daily activity were analysed using Spearman’s *rho* and interpreted according to Hopkins (2002). Mann-Whitney tests (alpha was set at $P < .05$) were used to evaluate differences between demographic groups for each of the PPM-O items and patient-reported sensations. These processes of data analysis have been employed in previous studies involving the questionnaires being used in the present study (Mulcahy & Vaughan, 2014). Cronbach’s alpha was calculated as the reliability estimate for each of the individual subscales, as per Mulcahy and Vaughan (2015). Qualitative data were analysed using simple thematic analysis (Attride-Stirling, 2001; Braun & Clarke, 2006)

Results

Thirty-nine osteopaths were identified through the recruitment search. Of those 39 osteopaths, 12 were interested in the study, were screened, and recruited as practitioners in the study. A total of 230 research packs were sent to osteopaths to give to eligible patients. Of these, 107 (46.52%) completed questionnaires were returned via pre-paid post to the primary researcher at Unitec Institute of Technology. Completed questionnaires included responses from patients who indicated that they had received mostly ‘cranial’ treatment (75.7%), mostly ‘structural’ treatment (15.9%), both (4.7%), or neither (3.7%). Only responses which indicated a mostly ‘cranial’ treatment (n = 81) were analysed in the present study. Nine questionnaires (3.9%) were confirmed as being lost through the mailing process. No responses were withdrawn by participants.

Participants

The demographic characteristics of the patients who participated in this study are summarised in Table 1. The study population was predominantly female (87.5%), aged between 41 and 50 years (28.4%), married (53.1%), had a Bachelor’s (20.5%) or Master’s (20.5%) degree, and

Table 1. Patient Demographic Characteristics

Patient Characteristics	Number (%)
<i>Gender</i>	
Males	10 (12.5)
Females	70 (87.5)
<i>Age Category</i>	
<20	1 (1.2)
20-30	5 (6.2)
31-40	15 (18.5)
41-50	23 (28.4)
51-60	22 (27.2)
61-70	10 (12.3)
71-80	4 (5)
80+	1 (1.2)
<i>Education</i>	
Year 12	8 (10.3)
Vocational training	13 (16.7)
Bachelor’s degree	16 (20.5)
Honours degree	5 (6.4)
Graduate certificate	3 (3.8)
Graduate diploma	15 (19.2)
Master’s degree	16 (20.5)
PhD	2 (2.6)
<i>Employment status</i>	
Employed	54 (71.1)
Unemployed	7 (9.2)
Retired	10 (13.2)
Never employed	0 (0)
Student (not working)	4 (5.3)
Student (working)	1 (1.3)
<i>Relationship status</i>	
Single	18 (22.2)
Married	43 (53.1)
Divorced/Separated	4 (4.9)
Defacto	13 (16)
Widowed	3 (3.7)
<i>Languages spoken at home</i>	
English	81 (100)
NZ Sign language	1 (1.2)
Dutch	1 (1.2)
French	2 (2.5)
German	1 (1.2)
Hebrew	1 (1.2)

were currently employed (71.1%). A minority of participants were bilingual (7.5%). Participant's occupations were also highly variable, with a diverse range between active and sedentary occupations.

Reason for Attending Osteopathy in the Cranial Field Practitioner

The most common body regions for patients to be receiving treatment for was the neck (61.7%), the pelvis or hips (40.7%), head (39.6%), and lower back (30.9%). Other reasons for seeking osteopathic treatment included anxiety, "emotional stuff", feet, general well-being, relief from stress, jaw, fertility, pregnancy, post-concussion syndrome, and nervous system complaints (13.8%). Figure 1 summarises the presenting complaints of patients, categorized by body region, disease, and 'other'.

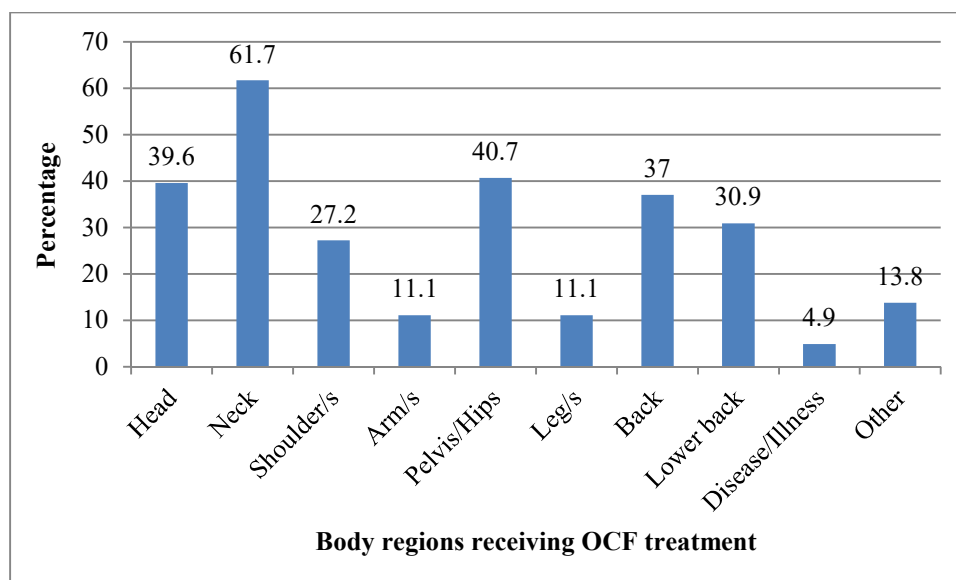


Figure 1. Presenting areas of complaint for patients attending OCF practitioners

Additional Health Issues Reported By Osteopathy in the Cranial Field Patients

Musculoskeletal conditions (43.8%; including arthritis) were the most common health conditions reported by OCF patients in the present study. Other health issues included mental health (16.3%), high cholesterol (15%), high blood pressure (13.8%), chronic respiratory complaints (11.3%), cardiovascular disease (3.8%), cancer (1.3%), and diabetes (1.3%).

Complementary and Alternative Medicine and Other Treatment Modalities

Many of the patients who participated in the present study attended other health care practitioners within the 12 months leading up to the study. Figure 2 provides a summary of those practitioners, and compares them to other treatments used by the participants in

Mulcahy and Vaughan's (2014) study. Some modalities from Mulcahy and Vaughan's study have been omitted from Figure 2, as they were not included in the demographic survey used in the present study (appendix B), and were not mentioned by patients in the present study as 'other' healthcare practitioners (or modalities) which they attended. Similarly, 'GP', 'Medical specialist', and 'Other' were added to the demographic survey in the present study. See appendix N for a full figure of Mulcahy and Vaughan's (2014) data, compared to data from the present study. 'Other' healthcare practitioners and modalities (10.3%) which were attended by OCF patients in the present study included the following: Chinese medicine, contact care¹, craniosacral therapy, kinesiology, reflexology, yoga, a healer or natural healer, dietician/nutritionist, obstetrician, and midwife. The data labels at the top of each bar represent the percentage for each healthcare modality for the present study only.

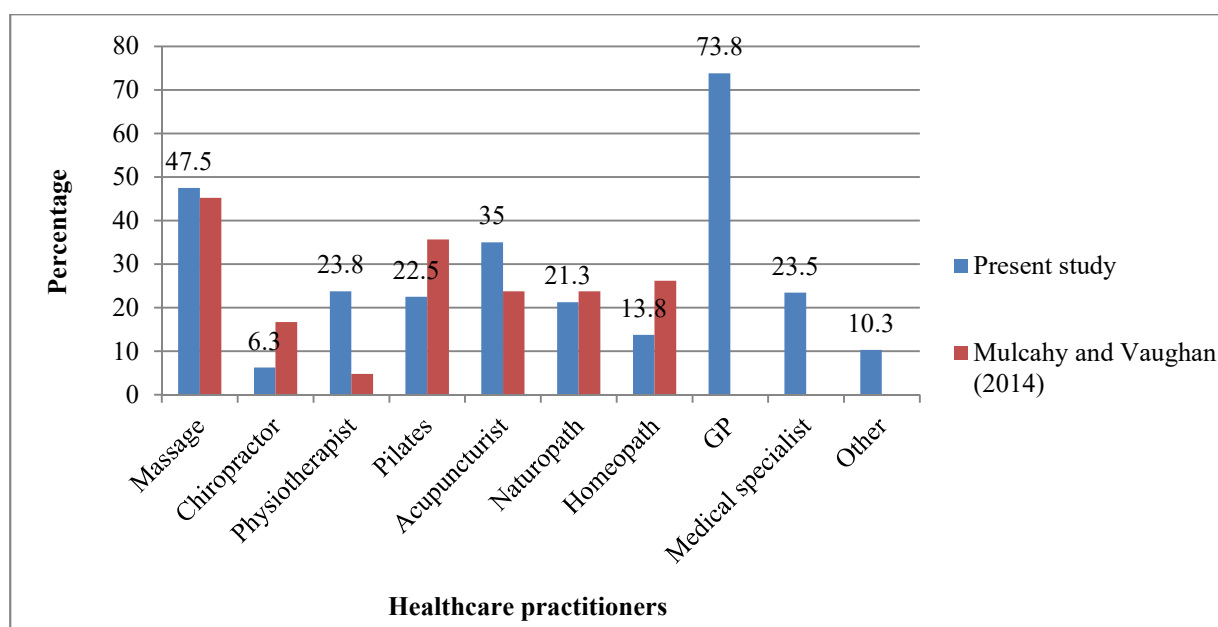


Figure 2. Percentage of OCF patients who attended other healthcare practitioners

Sensations and Symptoms Experienced During Osteopathy in the Cranial Field Treatment

The sensations and symptoms experienced by patients during (or immediately after) their OCF treatment is summarised in Figure 3. Figure 3 depicts data from both the present study, and the study by Mulcahy and Vaughan (2014), which shows a similar experience of sensations and symptoms. A number of sensations and symptoms have been added to the

¹ An internet search of the phrase 'contact care' provided a link to ConTact C.A.R.E. (2005), a therapy for releasing trapped bone pressure

PPM-O (appendix C) since Mulcahy and Vaughan's (2014) study. These are depicted on the right in Figure 3, and include the following: 'pain', 'embarrassment', 'tight', 'pulsing', 'loose', 'numb', 'frustration', 'relieving', and 'lightness'. The data labels at the top of each bar represent the percentage for each sensation experienced in the present study only.

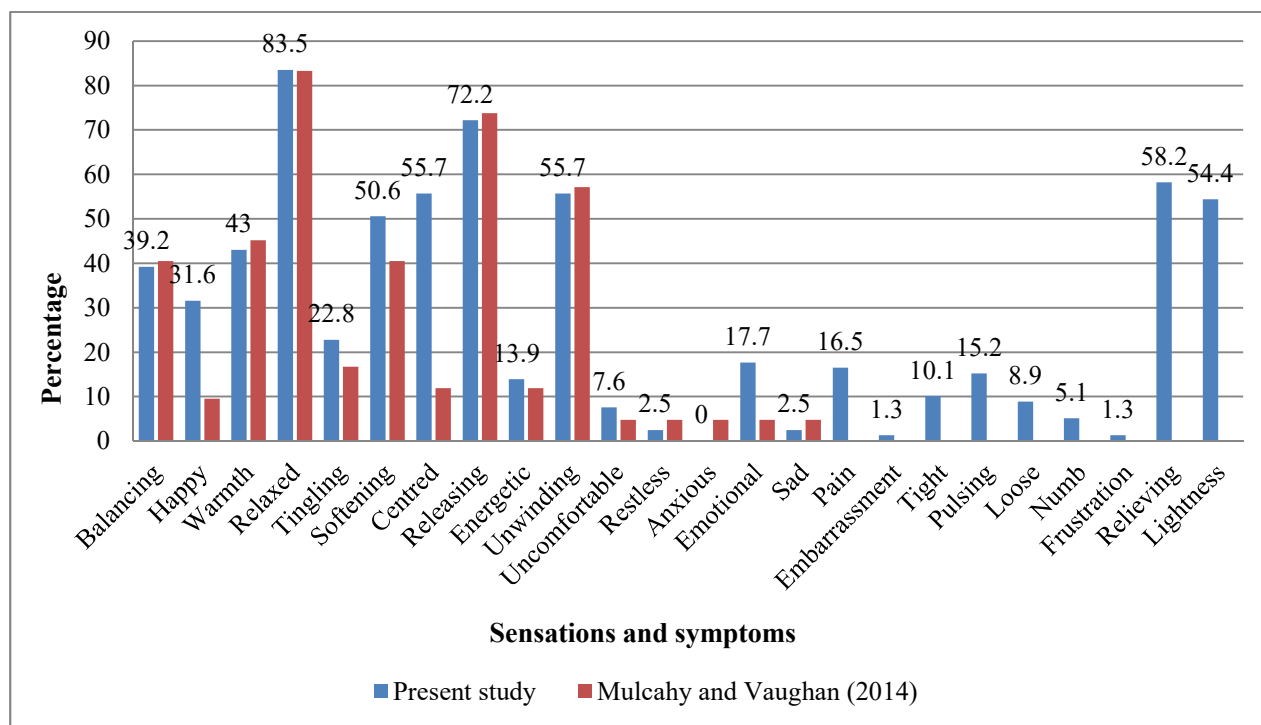


Figure 3. Sensations experienced by patients during (or after) osteopathy in the cranial field treatment

Satisfaction with Life and Meaningfulness of Daily Activities

Patients could rate their Satisfaction with Life and Meaningfulness of their Daily Activities on a scale of 0 – 5 ('not at all satisfied/meaningful' to 'extremely satisfied/meaningful'). The majority of participants rated their Satisfaction with Life between 3 -5 (96.2%), and the Meaningfulness of their Daily Activities between 3 -5 (97.4%). No participants reported a (0) on either of the scales, and no participants reported a (1) with regard to Satisfaction with Life.

Patient Perception Measure-Osteopathy

Cronbach's α was used as the reliability estimate for the two PPM-O sub-scales: 1) 'Education and information' and 2) 'Cognition and fatigue'. In a previous study (Mulcahy & Vaughan, 2014) acceptable α scores were demonstrated (Cronbach's $\alpha = .85$). However, the sub-scales in the present study were not acceptable (Education and Information: Cronbach's $\alpha = .660$; Cognition and Fatigue: Cronbach's $\alpha = .274$). Deletion of single PPM-

O items did not significantly change the Cronbach's *alpha* score for either sub-scale. Since the statistics did not support the use of creating total scores for the two PPM-O sub-scales, PPM-O items were scored and analysed individually.

The descriptive statistics for the 13 PPM-O items are summarised in Table 2.

Table 2. Descriptive Statistics for PPM-O					
PPM-O items	Number	Mean	Median	Std. Dev	Range
Q1. The way my osteopath answers all of my questions is	81	3.58	4	0.5671	2
Q2. The instructions my osteopath gives me regarding my home exercise program are	72	3.264	3	0.7505	3
Q3. Osteopathic treatment has helped my condition	80	3.438	3	0.5702	2
Q4. As a result of osteopathic treatment, my general health is	79	3.658	4	0.7318	3
Q5. During my treatment, the questions my osteopath asked were	78	3.269	3	0.6964	2
Q6. After my osteopathic treatment I felt like my whole body was treated rather than just one area	81	4.407	5	0.6667	2
Q7. Osteopaths at this clinic talk to me about the body's ability to heal itself	81	2.963	3	0.993	3
Q8. Osteopathic treatment makes me feel vague **	80	3.625	4	0.98566	4
Q9. I cannot focus on tasks after my osteopathic treatment **	81	3.7531	4	0.94248	4
Q10. I feel calmer after my osteopathic treatment	81	3.346	3	0.655	2
Q11. How helpful is osteopathic treatment in managing your condition?	81	4.185	4	0.7764	3
Q12. I feel tired after osteopathic treatment **	81	2.7778	3	0.96177	4
Q13. I find it hard to concentrate after my osteopathic treatment **	81	3.642	3	0.93953	3
* Some respondents wrote 'not applicable' (data inputted as 'missing')					
** Negatively worded items were re-scored for consistency for analysis. E.g. a score of '1' (least negative response), was re-scored as a '5' for data analysis in order for the response to be comparable to responses from positively worded items					

Association between Measures

Age had a low but significant positive correlation with Item 1 and Item 2 in the PPM-O (appendix C). The correlation coefficient for each item was 0.319 and 0.360 respectively. All other demographic correlations were 0.175 and below. Differences were observed between respondents who paid for their treatment privately, and those who paid with third party involvement (i.e. ACC, and workers compensation). Respondents who paid privately were more likely to score higher on Item 4 of the PPM-O: *'As a result of osteopathic treatment, my general health is...'* (Likert style responses ranged from 'poor' to 'excellent').

Correlations between Satisfaction with Life ('SWL'), Meaningfulness of Daily Activities ('MDA'), and individual PPM-O items are summarised in Table 3. Only correlations which were significant at the 0.20 level are included in Table 3. For a complete table depicting all the correlations, see appendix O.

PPM-O items	Q1. The way my osteopath answers all of my questions is	Q2. The instructions my osteopath gives me regarding my home exercise program are	Q4. As a result of osteopathic treatment, my general health is	Q5. During my treatment, the questions my osteopath asked were	How satisfied are you with your life?	How meaningful are your daily activities?
How satisfied are you with your life?		.320**	.408**	.356**	1.00	.558**
How meaningful are your daily activities?	.233*		.253*	0.211	.558**	1.00
** . Correlation is significant at the 0.01 level (2-tailed).						
* . Correlation is significant at the 0.05 level (2-tailed).						

Mann-Whitney *U* tests suggested that differences in PPM-O item responses were based on whether or not a patient reported experiencing a sensation. Of the 24 sensations listed, 14 were associated with how patients were likely to respond to items in the PPM-O. The only sensation not experienced was by patients in the study was 'anxious'. Patients who indicated that they experienced feeling 'uncomfortable' ($P = 0.015$), 'emotional' ($P = 0.004$), and/or

‘tight’ ($P = 0.023$), were more likely to score lower for Item 1 ‘*The way my osteopath answers all of my questions is*’, and Item 2 ‘*The instructions my osteopath gives me regarding my home exercise program are*’, compared to patients who did not report experiencing those sensations. Patients who experienced feeling ‘tight’ were also more likely to score lower on Item 11 ‘*How helpful is osteopathic treatment in managing your condition?*’ Table 4 provides a summary of all the significant associations between sensations experienced by patients, and their likely responses to individual PPM-O items. For a full description of each PPM-O item, see Table 2 above, ‘Descriptive Statistics for PPM-O’.

Table 4. Associations between sensations and PPM-O items		
Sensation	Likely to score	on PPM-O item (P -value)
Happy	Higher	Item 6 ($P = .031$)
Warmth	Higher	Item 4 ($P = .025$), Item 7 ($P = .006$)
Tingling	Higher	Item 10 ($P = .015$)
Softening	Higher	Item 6 ($P = .039$)
Centred	Higher	Item 3 ($P = .030$), Item 6 ($P = .010$), Item 10 ($P = .016$)
Releasing	Higher	Item 6 ($P = .015$), Item 7 ($P = .002$)
Energetic	Higher	Item 10 ($P = .042$)
	Lower	Item 9 ($P = .012$), Item 13 ($P = .011$)
Unwinding	Higher	Item 10 ($P = .000$)
	Lower	Item 8 ($P = .036$)
Uncomfortable	Lower	Item 1 ($P = .015$), Item 2 ($P = .023$)
Emotional	Lower	Item 1 ($P = .004$), Item 2 ($P = .019$), Item 8 ($P = .003$), Item 9 ($P = .007$), Item 12 ($P = .050$)
Tight	Lower	Item 1 ($P = .023$), Item 2 ($P = .035$), Item 11 ($P = .032$)
Pulsing	Lower	Item 12 ($P = .047$)
Loose	Higher	Item 7 ($P = .037$)
Relieving	Higher	Item 6 ($P = .043$)

Descriptions of Osteopathic Treatment

Three themes were identified in the qualitative descriptions of osteopathic treatment. The themes and subsequent sub-themes are summarised in Table 5. For a full table of patient responses, please see appendix P.

Theme 1	A discernible movement toward health
<i>Sub-theme 1.a</i>	Universal wellness
<i>Sub-theme 1.b</i>	Resolution: Localised and recognisable
Theme 2	Perception of the healing interface
<i>Sub-theme 2.a</i>	The therapeutic relationship
<i>Sub-theme 2.b</i>	Treatment (style/techniques) received
Theme 3	Satisfaction with the service of healthcare
<i>Sub-theme 3.a</i>	Direct benefit from treatment
<i>Sub-theme 3.b</i>	Attending to the patient as a complex whole

Where participants are quoted directly, they are referred to by their respondent number (e.g. R42), with the quote written in italics. Respondent number is separate to the participants' reference number.

Theme 1. A discernible movement toward health. Theme 1 describes a movement toward health on both a general and more localised level.

Sub-theme 1.a) Universal wellness. Participants described a move toward a general wellness within their body, with an awareness and re-connection with their body and inner self. *“I always leave these osteopathic treatments with an enhanced feeling of wellbeing”* (R84). Participants articulated that they felt grounded, centred, light, relaxed, soothed, refreshed, and restored. Some even compared their OCF treatment to an experience in meditation.

However, a minority of data also reflected that not all patients are conscious of what they experience during their treatment session. *“I felt nothing - not aware of anything happening - maybe more relaxed”* (R24). This could suggest that whilst some patients are aware of subtle changes that occur in their body (such as those claimed by OCF treatment), others are better aware of changes in their body that could be attributed to more ‘direct’ treatment approaches.

Sub-theme 1.b) Resolution: Localised and recognisable. Whilst some patients felt a more general healing toward a state of well-ness, others were more in touch with the immediate changes in their body. This was experienced through re-alignment, the release of tension in certain body areas, symptom relief, and the focus directed at reported ‘problem’ areas. *“Toe to head full body covered. Focus in key points of current pain/tension and*

general maintenance - feet, pelvis, back, shoulder, ribcage and head. Gentle release of tension and obstruction. Realignment” (R59).

Theme 2. Perception of the healing interface. An interface is a boundary or interchange, where two systems can connect or interact with one another (Merriam-Webster., n.d.). Theme 2 describes how the patient’s relationship with their practitioner and the patient’s experience of treatment (both past and present) influences how they perceive the crossing point between disease and health.

Sub-theme 2.a) The therapeutic relationship. The therapeutic relationship between a patient and his/her practitioner can play an important role in a patient’s treatment experience. Patients can feel when they are safe and being cared for, and respond to that care positively. The patients’ perception of their relationship with their practitioner was articulated through two elements: trust, and rapport. *“I have a great confidence and trust in my osteopath - the treatments are always highly effective and give great relief” (R82).* Rapport with a practitioner can play an important role in how patients respond to treatment. Whilst some patients feel a benefit from OCF treatment irrespective of their practitioner, for other patients, the relationship with their practitioner is paramount. Some patients can have what they term a ‘bad’ experience with a practitioner, and when they (the patient) find an osteopath whom they have good rapport with, they prefer to keep seeing that osteopath.

Sub-theme 2.b) Treatment style received. The present study looked only at the treatment a patient received on a single occasion. However, it is apparent that a patient’s perception of a treatment is influenced by their previous treatment experiences, and the patient’s expectations of treatment as a result of those previous treatment sessions. Patients trust that a treatment will work if they have had a similar treatment previously, from which they benefitted. Some patients also know that whilst they (personally) might not feel a benefit directly after treatment, from previous experience they have learned that the effect from their treatment usually appears later on. Past experience can even alter the opinion of some patients: *“Cranial osteopathy - I have not always been a believer of cranial osteopathy but as this is my second treatment following improvement after the first I may have to change my view point” (R102).*

Theme 3: Satisfaction with the service of healthcare. Theme 3 describes aspects of patient satisfaction in regards to healthcare. Direct benefit from treatment is a substantial factor in whether a patient feels satisfied by their treatment experience, as is the practitioner's holistic consideration of the patient's health and management.

Sub-theme 3.a) Direct benefit from treatment. Patients generally consult with an osteopath for ailments with physical manifestations. Positive physical treatment outcomes are an important factor in determining patient satisfaction with treatment. For some participants, this meant the release of their (sometimes deep-seated) areas of tension, being about to stand straighter, or generally feeling better, as described in Theme 1. *“Osteopathy has proven to be the most effective way of managing back and neck ache due to postural issues”* (R51). Participants often articulated their satisfaction with emotive words such as *“wonderful”*, or *“amazing”*, alongside their treatment experience.

Sub-theme 3.b) Attending to the patient as a complex whole. A patient's level of health is multi-faceted, and their presenting complaint can sometimes be more involved than they (the patient) think. Participants described their appreciation for how their osteopath took in to consideration their emotional stressors, injuries and ACC claims, and how their osteopath took steps to encourage different management plans. For some patients, this meant being further educated (by their osteopath) about their health and presenting complaint. Many participants articulated that being educated about what was happening in their bodies made them more aware of their health and what they could do to help themselves. *“I always come away feeling the whole of me has been treated and I get lots of interesting things to think about and help me in all other areas of my life”* (R97). Participants also described how their practitioners recognised the value in self-management and other healthcare modalities, and supported them (the patient) in making changes to better their health.

Discussion

The present study reports on the experiences of 81 patients who have received osteopathy in the cranial field (OCF) treatment. The Patient Perception Measure-Osteopathy (PPM-O; appendix C) was used to assess patients' perceptions of OCF treatment, their level of satisfaction, and self-reported outcomes related to their presenting complaint.

Patients' age, sensations experienced, Satisfaction with Life (SWL), and Meaningfulness of Daily Activities (MDA), each affected the patient's experience of their OCF treatment, as was measured by the PPM-O. These factors are worth taking in to consideration in the clinical setting, when the management of patients receiving OCF treatment is being considered. The response to SWL and MDA items was overwhelmingly positive in the current study, with 96.2% of participants scoring between 3-5 for SWL, and 97.4% also scoring 3-5 for MDA. Both items had a maximum score of (5) and a minimum score of (0). No participants reported a (0) for either item. A question which arises from this data is whether individuals who are more satisfied with their life, and consider their daily activities to be meaningful, are more likely to seek OCF treatment in the first place? Further research would be required to explore the validity of this concept, and whether it extends to other health therapies.

The patient population from the present study was predominantly female (87.5%), aged between 31 and 60 years (74.1%), married (53.1%), educated to a tertiary degree level or higher (73%), and were currently employed (71.1%). This is consistent with Pledger, Cumming, and Burnette (2010), who found that CAM users were most likely to be well-educated, middle-aged, and female. In the present study, age had a significant (though low) positive correlation with PPM-O Items 1 and Item 2 (*'The way my osteopath answers all of my questions is'*, and *'The instructions my osteopath gives me regarding my home exercise program are'*). This is in contrast to Mulcahy and Vaughan's (2014) results, which showed that age had no correlation with responses to PPM-O items, but that gender did. Gender in the present study did not seem to be significantly correlated with patient's perceptions of their OCF treatment. Of all the other health care practitioners attended by OCF patients in the present study, the most prevalent were GPs (73.8%), followed by the modalities of Massage (47.5%) and Acupuncture (35.0%). From the present study it is difficult to ascertain whether the prevalence of treatment sought with both GPs and osteopaths is due to higher rates of referral between the two health care services, or whether patients are utilizing various treatments strategies to manage their health. Participants who paid for their OCF treatment privately were also more likely score higher on their general health as a result of OCF treatment (Item 4). This could suggest that patients who privately finance their OCF treatment are more satisfied with their health outcomes due to them having full financial responsibility for their treatment. However no literature was found to support such a hypothesis.

The most common area for patients in the present study to be seeking osteopathic treatment was the neck (61.7%), followed by the pelvis or hips (40.7%), head (39.6%), and lower back (30.9%). These results show a somewhat greater prevalence in neck-related complaints than Harcombe, McBride, Derrett, and Gray (2009), who found that 51% of office and postal workers in New Zealand suffered from musculoskeletal disorders in the neck, as well as 52% of New Zealand nurses. Harcombe et al. (2009) also found a greater prevalence of lower back related complaints than the present study with 41% office workers, 52% postal workers, and 57% nurses suffering from musculoskeletal disorders. The present study showed that the most common health issue of patients seeking OCF treatment was musculoskeletal conditions, including arthritis (43.8%). The results of the present study did not aim to analyse the prevalence of musculoskeletal complaints in relation to occupation; however, the higher level of activity in nurses, compared to more sedentary office work, does provide a range of occupational activity which is comparable to the diverse range of participant occupations in the present study.

Mulcahy and Vaughan (2014) investigated what kind of symptoms and sensations patients experience during and after an OCF treatment. The results of the present study support Mulcahy and Vaughan's (2014) findings, that 'relaxing' (83.5%), 'releasing' (72.2%), 'unwinding' (55.7%), 'softening' (50.6%), 'warmth' (43.0%), and 'balancing' (39.2%) are the most prominent sensations experienced by OCF patients. 'Happy' was also experienced by 31.6% of participants. The present study also included new sensations which were not part of Mulcahy and Vaughan's (2014) study. Of the newly added sensations, 'relieving' (58.2%) and 'lightness' (54.4%) were the most commonly experienced sensations. The present study also showed a significant difference in the percentage of patients who experienced feeling 'centred' (55.7%) compared to 11.9% in Mulcahy and Vaughan's (2014) study. OCF patients in the present study reported experiencing positive sensations far more than negative sensations, which can be considered favourable in regards to patient health and OCF treatment outcomes. Negative sensations included the following: 'emotional' (17.7%), 'pain' (16.5%), 'tight' (10.1%), 'uncomfortable' (7.6%), 'numb' (5.1%), 'restless' (2.5%), 'sad' (2.5%), 'embarrassment' (1.3%), and 'frustration' (1.3%). 'Anxious' was not reported by OCF patients in the present study as being experienced. Negative sensations being less frequently experienced is consistent with Mulcahy and Vaughan's findings (2014).

Of all the sensations experienced, the following were correlated with patients' perceptions of their OCF treatment: 'happy', 'warmth', 'tingling', 'softening', 'centred', 'releasing',

‘energetic’, ‘unwinding’, ‘uncomfortable’, ‘emotional’, ‘tight’, ‘pulsing’, ‘loose’, and ‘relieving’. Whilst feeling ‘relaxed’ was the most prevalent sensation experienced by patients, it had no significant effect on the patient’s perception of their OCF treatment. Feeling ‘emotional’ however, had the widest impact on patient perceptions of treatment, with patients being more likely to score lower on PPM-O Items 1, 2, 8, 9 and 12. For Item 1 and Item 2, patients were more likely to score lower if they had experienced feeling ‘uncomfortable’, ‘emotional’, and/or ‘tight’. For Item 3 *‘Osteopathic treatment has helped my condition’*, patients were more likely to score highly if they had experienced feeling ‘centred’. Likewise, experiencing ‘warmth’ was associated with patients being more likely to score highly on Item 4. Item 5, *‘During my treatment, the questions my osteopath asked were’* was not correlated with any of the sensations experienced. Patients were more likely to score higher on Item 6, *‘After my osteopathic treatment I felt like my whole body was treated rather than just one area’*, if they experienced feeling ‘happy’, ‘softening’, ‘centred’, ‘releasing’, and/or ‘relieving’ sensations. For Item 7, patients were more likely to score highly if they experienced ‘warmth’, ‘loose’, and/or ‘releasing’. Patients who reported experiencing ‘unwinding’ and/or ‘emotional’ were more likely to score lower on Item 8 *‘Osteopathic treatment makes me feel vague’*, whilst lower scores in Item 9 were correlated with patients’ experiencing ‘emotional’ and/or ‘energetic’. For Item 10, *‘I feel calmer after my osteopathic treatment’*, higher scores were associated with patients’ feeling ‘centred’, ‘unwinding’, ‘energetic’ and/or ‘tingling’, whilst lower scores were associated with patients’ feeling ‘emotional’. Patients were more likely to score lower on Item 11 if they experienced feeling ‘tight’, on Item 12 if they experienced ‘pulsing’, and Item 13 if they experienced feeling ‘energetic’. The above results suggest that patients who experience positive sensations during their OCF treatment are also more likely to perceive their OCF treatment experience more positively. Positive emotions have been linked with better life satisfaction, resilience, and life outcomes (Cohn et al., 2009), which are all desirable qualities to strive for in healthcare. Similarly, negative emotions have been shown to have adverse effects on health outcomes (Gallo & Matthews, 2003). In the present study, the Satisfaction with Life and Meaningfulness of Daily Activity items were each scored by participants as being between 3-5 (96.2% for SWL and 97.4% for MDL). These scores suggest that the scaling of these measures could be revised, particularly as no participants scored a zero on either of the items. Furthermore, SWL was also positively correlated with MDA ($\rho = .558$), Item 2 of the PPM-O *‘The instructions my osteopath gives me regarding my home exercise program are’*

($\rho = .320$), Item 4 '*As a result of osteopathic treatment my general health is...*' ($\rho = .408$), and Item 5 '*During my treatment, the questions my osteopath asked were*' ($\rho = .356$).

The two sub-scales of the PPM-O, 'Education and Information' and 'Cognition and Fatigue' have been internally consistent in previous work (Mulcahy & Vaughan, 2015). However, the sub-scales were not internally consistent for the present study, and therefore total scores for the PPM-O were invalid for the studied population. However, scores for individual items in the PPM-O were consistent and able to be correlated with other items, both within the PPM-O and the demographic survey. Further testing is required to determine the validity of the sub-scales in a population receiving purely OCF treatment.

Finally, the qualitative themes extracted from participants' descriptions of their OCF treatment demonstrated significant elements of the treatment experience. The results of the present study suggest that patients' experience of OCF treatment is three-fold. Not only is the move toward health (Theme 1) an important factor, the patients' perception of the interface between disease and health is also important (Theme 2), as is the patients' satisfaction with the healthcare they have received (Theme 3). Patients seem to be aware of a wide-range of dynamics within the treatment session, which are not necessarily limited to the physical elements of a consultation. Through the collected data it is apparent that some patients experience OCF treatment more broadly in regards to their health and well-being. Participants who appeared to be particularly present to the healing changes occurring within them subsequently reflected on their experience in greater depth. Other participants described their experience with very few words, or none at all. With limited qualitative insight from such participants, it is difficult to determine whether a scarce response is indicative of the receptiveness of those participants toward the OCF treatment approach. Further research would be required to ascertain whether it is possible to formulate clinical predication rules for determining how effective OCF treatment might be for a given individual.

The content of the themes identified in the present study support Greene's (2009) findings on the therapeutic relationship and a move toward health. For optimal treatment outcomes it is vital for health care practitioners to understand the contributing factors, and methods for how they are best able to direct the treatment toward achieving outcome goals. By using the themes isolated by the present study, it may be possible for OCF practitioners to employ such knowledge in order to better predict and prepare for clinical interactions, and thereby enhance the treatment outcomes of their patients.

Limitations of the study

One of the difficulties with data collection was that patients did not always wish to complete the questionnaires directly after treatment; some wished to leave the clinic immediately following their treatment session. This feedback came from a few practitioners, who further acknowledged that they had given the questionnaires to the patients to take home. In one particular case where this had occurred multiple times, a new wave of questionnaires were sent to the practitioner because all of the patients had taken the questionnaires home, and none of those questionnaires had been mailed back. This suggests that patients are less likely to complete or return questionnaires which they take home. Practitioners were also the sole contact point for patients being recruited. Therefore, it is possible for bias to be introduced in to the study through patient selection, and through practitioner-based patient response bias.

Another limitation is patient perception of what their treatment consisted of. For example, given that the inclusion criteria for patients stated that the majority of the treatment had to involve OCF techniques, it must be assumed that each respondent received a mostly 'cranial' treatment. However, 23.54% of all respondents (n= 22) indicated that they had received a mostly 'structural' treatment. Whilst these responses were not included in the data analysis, the 'structural' responses present the question of whether or not a patient deems the amount of time being spent on 'structural' treatment to be equal to the same amount of time being spent on 'cranial' treatment.

Furthermore, this study collected data which is purely self-reported, and as a result is subject to the limitations associated with self-report measures. For example, all of the data are subjective, and cannot be quantified objectively. The data is also based on a single treatment session. Therefore it is difficult to ascertain whether the current results are representative of similar data collected longitudinally over a period of time.

Further validation may be required for the use of the PPM-O (appendix C) in a New Zealand population, as the results from previous studies in the Australian population (Mulcahy & Vaughan, 2014; Mulcahy et al., 2013) may not automatically apply to a New Zealand population.

Suggestions for Future Research

Firstly, a continuation of this project using a 'structural treatment'-based patient population would further validate the research tool that was used, and add reliability to the data that was gathered in this study.

In regards to OCF; a large, multi-phase study could be useful in order to examine all aspects of the cranial treatment in unity. For example: exploring the perceptions and experience of the patient pre/during/post-treatment, practitioner experience of the same treatment, and comparing these with the patient's presenting complaint, examination findings, and treatment received. These variables have each been explored in isolation, but not in relation to a shared treatment experience. A longitudinal study of patient's experiences post-treatment could also be beneficial, in order to ascertain whether there is a long term pattern post-treatment which was not captured in the present study.

Conclusion

In a clinical setting, patients appear to perceive osteopathy in the cranial field treatment to be a beneficial and effective treatment option. Patient's perceptions of OCF treatment can be influenced by the sensations they experience during and directly after their treatment session, and positive sensations can have a positive effect on the patients' perception of treatment. Understanding how such factors can influence treatment outcomes is a vital part of health care and patient management. Clinicians can apply such knowledge in their practice to nurture favourable interactions with their patients, and to enhance the treatment experience to further improve treatment outcomes.

The individual items of the PPM-O provide a tool with which clinician can assess patient's experiences of, and responses to, OCF treatment. However, the internal consistency of the PPM-O sub-scales merit further testing in a population receiving purely OCF treatment. Furthermore, the use of the PPM-O questionnaire (appendix C) and demographic survey (appendix B) warrant further investigation in a New Zealand population.

Chapter Summary

Chapter three has briefly explored what was known about osteopathy in the cranial field before the present study, the methods used, and the results of the present study. The chapter concluded with a discussion of the results, limitations of the present study, suggestions for future research, and a summary of how the results of the present study fit in with OCF practice and previous research. This manuscript will be submitted to the Journal of Evidence-Based Complementary and Alternative Medicine.

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APPENDICES

Appendix A: Unitec Institute of Technology – Policy regarding osteopathy in the cranial field



Unitec Osteopathy Department: Policy on Osteopathy in the Cranial Field

Background

Osteopathy in the cranial field (OCF) has previously been taught in the programme to a limited extent, up to 24h in total. In recent years there has been increasing concern about the inclusion of OCF within the curriculum, most notably, the paucity of clinically oriented evidence of effectiveness, doubts about the models underpinning OCF and the validity and reliability of any assessment of learning.

Our focus is to graduate students eligible to register and practice according to the graduate profile, with an emphasis on critically reflective practice. We recognise that OCF has been a part of the culture and heritage of osteopathy and is widely practiced by osteopaths in NZ and is accepted within the OCNZ defined scope of practice. However, no single technique system, including OCF, is necessary to fulfil the graduate profile, the OCNZ Core Competencies, nor the accreditation standards for the 3+2 programme. It has therefore been agreed that OCF will not form a significant part of the curriculum and should be limited to the post-registration environment (through continuing professional development) for those graduates who wish to include OCF in their repertoire of treatment systems.

Policy

Statement

The curriculum is designed to achieve the competencies expected of entry level graduates by the professional registration body (OCNZ). Whilst the competencies do not specify particular treatment systems, there is an expectation that students develop a professional awareness, including the history of osteopathy. OCF is therefore included in the curriculum insofar as students are made aware of a wide series of treatment systems, not all of which are actually taught within the programme.

1. First year “Introduction to Osteopathy” provides a background contextualisation of the profession, including historical and philosophical perspectives and principles. Within this

course, OCF will be introduced, alongside many other technique systems. There will be no OCF included in the practical element of this course.

2. In the third year of the undergraduate degree, students develop critical thinking skills through an exploration of different health care claims. This can include topics across many fields of health, including osteopathy, and may include an exploration of the claims and putative benefits of OCF.

3. There is no clinical or practical training in OCF within either the Bachelors or Masters programmes and OCF is not incorporated into clinical management within the clinical services offered through the Dept.

4. This policy does not affect staff and thesis student research related to OCF.

5. On the basis that Unitec's academic staff development policy defines "Educational Professional Development" as including those activities which extend the educational knowledge, pedagogy, skills and attitudes of the academic staff and which inform their curriculum development, teaching and/or research, support for attendance at OCF courses will not normally be approved.

Effective date: 1st June 2014, with a transition period of one month to redevelop treatment and management plans with existing patients, as necessary

Endorsements: PMC for discussion and approval

Due for review: June 2015

Appendix B: Patient demographic survey (New Zealand version)

The original demographic survey was designed for an Australian population. A few of the items did not convert readily for use in New Zealand, therefore the current study revised the survey to better reflect the demographics of a New Zealand population. Within the Australian version for example, languages spoken at home included Italian, Greek and Cantonese. For a New Zealand population, Maori, NZ sign language and Samoan were deemed most appropriate. English and Mandarin were included in both the New Zealand and Australian versions, as was the option for 'other'. Furthermore, payment options for Australian participants included 'Workers compensation', 'Transport accident' and 'Veterans affairs', as well as 'Private'. For this item, New Zealand participants were given the option of 'ACC', as well as 'Private' or 'Workers compensation'. During the data analysis process, these options were amalgamated into 'Private' and 'Third party' payments (see data coding, under qualitative analysis p.33).

Thank-you for taking part in this study investigating the patient's perception of osteopathic treatment. This survey will take you approximately 10 minutes to complete.

Once you have completed the survey, please hand it back to reception.

Please complete the following questions, along with the attached survey.

Age: _____ **Gender:** Male Female

What is your current relationship status?

Single Married Divorced / Separated Defacto Widowed

Which language(s) do you speak at home?

English Maori NZ Sign Language Samoan Mandarin

Other (please list):

What is your current occupation?

What is your employment status:

Employed Unemployed Retired Never employed
 Student (not currently working) Student (employed part-time or casual)

What is the highest current Level of completed education?

Year 12 Vocational Training Bachelor degree Honours degree
 Graduate Certificate Graduate Diploma Masters PhD

Is this your first osteopathic treatment? Yes No

Is this your first osteopathic treatment at this practice? Yes No

Have you received cranial treatment in the past? Yes No

Which of the following areas are you predominantly receiving treatment for?

Head Neck Shoulder/s Arm/s
 Pelvis/Hips Leg/s Back Lower back
 Disease/Illness
 Other (please state):

Do you suffer from any of the following health problems?

- Cardiovascular (heart) disease Yes No
- Cancer Yes No
- Mental health disorder (including depression & anxiety) Yes No
- Diabetes Yes No
- Chronic respiratory complaints (including asthma) Yes No
- Musculoskeletal complaints and/or arthritis Yes No
- High blood pressure Yes No
- High cholesterol Yes No

Are you currently taking any medications? Yes No

If yes, please list the medication(s):

Which other health practitioners have you attended in the past 12 months?

- Massage Chiropractor Physiotherapist Pilates Acupuncturist
- Naturopath Homeopath GP Medical Specialist
- Other (please list):

<p>Overall, how satisfied are you with your life?</p> <p>(please circle)</p> <p>(Not at all satisfied) 0 1 2 3 4 5 (Extremely satisfied)</p>	<p>Overall, how meaningful are your daily activities?</p> <p>(please circle)</p> <p>(Not at all meaningful) 0 1 2 3 4 5 (Extremely meaningful)</p>
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How is your osteopathic treatment being paid for?

Private Workers Compensation ACC

How would you describe the osteopathic treatment you had today?

Are there any other comments you would like to make about today's osteopathic treatment?

Appendix C: Patient Perception Measure-Osteopathy (PPM-O)

The following questions are designed to understand your opinion of your osteopathic treatment. Please select the most appropriate response (one only) for each of the questions below.

1. The way my osteopath answers all of my questions is

POOR FAIR GOOD VERY GOOD EXCELLENT

2. The instructions my osteopath gives me regarding my home exercise program are

POOR FAIR GOOD VERY GOOD EXCELLENT

3. Osteopathic treatment has helped my condition

NEVER RARELY SOMETIMES MOSTLY ALWAYS

4. As a result of osteopathic treatment, my general health is

POOR FAIR GOOD VERY GOOD EXCELLENT

5. During my treatment, the questions my osteopath asked were

POOR FAIR GOOD VERY GOOD EXCELLENT

6. After my osteopathic treatment I felt like my whole body was treated rather than just one area

NEVER RARELY SOMETIMES MOSTLY ALWAYS

7. Osteopaths at this clinic talk to me about the body's ability to heal itself

NEVER RARELY SOMETIMES MOSTLY ALWAYS

8. Osteopathic treatment makes me feel vague

NEVER RARELY SOMETIMES MOSTLY ALWAYS

9. I cannot focus on tasks after my osteopathic treatment

NEVER RARELY SOMETIMES MOSTLY ALWAYS

10. I feel calmer after my osteopathic treatment

NEVER RARELY SOMETIMES MOSTLY ALWAYS

11. How helpful is osteopathic treatment in managing your condition?

POOR FAIR GOOD VERY GOOD EXCELLENT

12. I feel tired after osteopathic treatment

NEVER RARELY SOMETIMES MOSTLY ALWAYS

13. I find it hard to concentrate after my osteopathic treatment

- NEVER RARELY SOMETIMES MOSTLY ALWAYS

In your treatment today, what treatment style did you predominantly receive?

- Structural (massage, manipulation, mobilisation, stretching) Cranial treatment

For how long have you been receiving osteopathic treatment?

- Less than 3 Months 3-6 months 7-12 months
 13-18 months 19-24 months More than 2 years

During or after your osteopathic treatment, did you experience any of the following sensations? (please select all of those sensations that apply)

- Balancing Happy Warmth Pain Embarrassment
 Tight Relaxed Tingling Softening Pulsing
 Centred Releasing Loose Energetic Unwinding
 Uncomfortable Restless Numb Frustration Anxious
 Emotional Sad Relieving Lightness

Thank-you for completing the questionnaire.

Appendix D: Practitioner recruitment letter

Dear [Osteopathic Practitioner]

My name is Rochelle Judkins, and I am a postgraduate osteopathy student at Unitec Institute of Technology. As part of my postgraduate studies, I am undertaking a project to contribute to current osteopathic research. Since it is a contentious topic within our profession, I have decided to explore further in to aspects of cranial osteopathy, specifically patient perceptions, satisfaction, and self-reported outcomes of a single cranial treatment.

In order to succeed in this investigation, I am in need of your assistance: I am looking for osteopaths who are experienced in functional osteopathic treatment, particularly those who often treat patients cranially. I am writing to you because an internet search has identified that you practice cranial osteopathy. I would therefore like to formally invite you to take part in my study, which is a collaborative project with Brett Vaughan and Jane Mulcahy from Victoria University in Melbourne, Australia.

The study involves patients filling out short questionnaires about their perceptions of their treatment. The questionnaire has been developed and tested in Australia by Brett and Jane and this New Zealand study will contribute to their on-going study.

I will contact your clinic via email early next week to follow up on your interest. A practitioner information sheet will be attached to that email to provide you with further information. Should you wish to communicate with me at an earlier time, you will find my contact details at the end of this letter.

Kind regards,

Rochelle Judkins

Postgraduate Osteopathy Student
Unitec Institute of Technology
Auckland
New Zealand

Phone: 0211689369

Email: rmjudkins@xtra.co.nz

Appendix E: Practitioner recruitment follow-up email

Dear [Osteopathic Practitioner]

My name is Rochelle Judkins, and I am a postgraduate osteopathy student at Unitec Institute of Technology.

Last week you may have received a letter in the post inviting you to take part in my project investigating patient perceptions, satisfaction, and self-reported outcomes of a single cranial treatment. I have attached an information sheet for you, in case you would like to know more.

I am writing to you now to follow up on your interest in this project. By return email, could you please indicate which of the following options applies to you?

- 1) I am interested in this study and I would like to know more about it

- 2) I am not interested in this study OR I'm not able to participate in this study right now

If you are interested in participating in this study, could you please also indicate which method of communication suits you best (e.g. email, phone call, txt), and when is a good time to make contact, if applicable.

Kind regards,

Rochelle Judkins

Postgraduate Osteopathy Student
Unitec Institute of Technology
Auckland
New Zealand

Phone: 0211689369

Email: rmjudkins@xtra.co.nz

Appendix F: Practitioner recruitment initial email

Dear [Osteopathic Practitioner]

My name is Rochelle Judkins, and I am a postgraduate osteopathy student at Unitec Institute of Technology. As part of my postgraduate studies, I am undertaking a project to contribute to current osteopathic research. Since it is a contentious topic within our profession, I have decided to explore further in to aspects of cranial osteopathy, specifically patient perceptions, satisfaction, and self-reported outcomes of a single cranial treatment.

In order to succeed in this investigation, I am in need of your assistance: I am looking for osteopaths who are experienced in functional osteopathic treatment, particularly those who often treat patients cranially. I am writing to you because you practice cranial osteopathy, and I would therefore like to formally invite you to take part in my study, which is a collaborative project with Brett Vaughan and Jane Mulcahy from Victoria University in Melbourne, Australia.

The study involves patients filling out short questionnaires about their perceptions of their treatment. The questionnaire has been developed and tested in Australia by Brett and Jane and this New Zealand study will contribute to their on-going study. Further information can be found in the information sheet attached.

By return email, could you please indicate your level of interest in taking part in this study?

- 1) I am interested in this study and I would like to know more about it
- 2) I am not interested in this study OR I'm not able to participate in this study right now

If you are interested in participating in this study, could you please also indicate which method of communication suits you best (e.g. email, phone call, txt), and when is a good time to make contact, if applicable.

Kind regards,

Rochelle Judkins

Postgraduate Osteopathy Student
Unitec Institute of Technology
Auckland
New Zealand

Phone: 0211689369

Email: rmjudkins@xtra.co.nz

Appendix H: Practitioner-style survey – Author Permission

Email communication with Pia Whittwer-Blaser asking to use her questionnaire as a screening tool.

From: Rochelle Judkins
Sent: Thursday, 15 May 2014 3:42 PM
To: pia@attuned.co.nz
Subject: Re: New Zealand Osteopaths' Attitudes to 'Evidence-Based Practice' Questionnaire

Dear Ms Wittwer-Blaser

My name is Rochelle Judkins, and I am a student in the Master of Osteopathy program at Unitec Institute of Technology (Auckland, New Zealand). As part of our Master degree we have to do a research project and I would like to investigate patient self-reported perception, satisfaction and outcomes of a single 'osteopathy in the cranial field' (OCF) treatment, in New Zealand. This project will be in collaboration with Brett Vaughan and Jane Mulcahy from Victoria University (Melbourne, Australia), who originally developed the *Patient Perception Measure of Osteopathy (PPM-O)* questionnaire which I plan to use in order to collect data.

During my study of evidence-based medicine I came across your thesis, *New Zealand Osteopaths' Attitudes to 'Evidence-Based Practice' – Development of a Questionnaire and Preliminary Results*. I found it to be very interesting and educational. There is one question in particular which I would like to incorporate in to my study, with your permission. Question 10: "How would you describe your practice style?"

I would use this question to screen interested OCF practitioners, in order to determine their practice style and their eligibility as participants in my study. I will then recruit the patients of suitable practitioners, and ask them complete the PPM-O questionnaire.

As the author, you would of course be acknowledged in any communication, including publication.

If you have any questions, or if you would like to know more about my research project, please feel free to contact me (rmjudkins@xtra.co.nz), or my principal supervisor Elizabeth Niven (eniven@unitec.ac.nz).

Sincerely,

Rochelle Judkins

Dear Rochelle

Thank you for your email. I give permission for you to use question 10 from my questionnaire. If you use the question for your final write-up, could you please reference it accordingly.

Good luck with your thesis

Kind Regards
 Pia Wittwer

Appendix J: Practitioner information sheet

INFORMATION TO OSTEOPATHIC PRACTITIONERS INVOLVED IN RESEARCH

You are invited to be involved in a research project entitled:

An investigation in to patient self-reported perception, satisfaction and outcomes of a single 'osteopathy in the cranial field' treatment in New Zealand.

The project is being conducted by Rochelle Judkins from the Faculty of Social and Health Sciences at Unitec Institute of Technology (Auckland, New Zealand), and Brett Vaughan and Dr. Jane Mulcahy from the College of Health & Biomedicine at Victoria University (Melbourne, Australia).

Project explanation

This study aims to explore patients' perceptions of cranial osteopathic treatment. Patients will complete a demographic survey and a self-report measure (the Patient Perception Measure of Osteopathic Treatment – PPM-O) of their perception of treatment, after their osteopathic treatment.

What will I be asked to do?

You will be asked to invite your patients to participate in this study, following a usual treatment. To be eligible to participate, and to respond to a single treatment session, cranial techniques must be used in the majority of the treatment. The techniques you use are at your discretion. It is not necessary for you to change your treatment plan, or your choice of technique/s in order to make a patient suitable for participation in this study. Patients must be 18 years of age, or older, to participate.

How will this research be conducted?

Following treatment, patients who are eligible and wish to participate in this study will collect a 'research package' from reception when they pay for their treatment. This package will include a patient information sheet, copies of the demographic and PPM-O questionnaires, and paid-return envelopes. Patients will fill out the questionnaires in the reception area. Once completed, they will place their questionnaires in the paid-return envelopes provided, seal them, and return them to reception. The information sheets are theirs to take home. At weekly or fortnightly intervals, the completed questionnaires will be mailed back to the researchers.

What will I gain from participating?

The potential benefit of volunteering for this study is an increase in knowledge of how cranial osteopathic treatment affects patients. Whilst you will not receive information on individual patients, you will receive a report of the general results obtained from this study following its conclusion. In due course, the results of this study will help to inform osteopathic educators and clinicians.

You will also be sent a formal letter of thanks, which you can file in your portfolio or CV.

Who is conducting the study?

Rochelle Judkins BAppSci(HB)
Student Osteopath
Faculty of Social and Health Sciences
Unitec Institute of Technology
Phone: 0211689369
Email: rmjudkins@xtra.co.nz

Brett Vaughan BSc, MHlthSc(Osteo)
Clinic Coordinator (Osteopathy)
College of Health & Biomedicine
Victoria University
Phone: 03 9919 1210
Email: brett.vaughan@vu.edu.au

Dr. Jane Mulcahy PhD, BA, DipEd, MAPS
Lecturer
College of Health & Biomedicine
Victoria University
Phone: 03 9919 1140
Email: jane.mulchay@vu.edu.au

If you have any queries about this study, please contact the researchers.

This study has been reviewed and approved by the Unitec Research Ethics Committee. If you have any queries or concerns, you may contact the primary supervisor for this project, Elizabeth Niven (Ph: 021 654 935, email: eniven@unitec.ac.nz), or the Unitec Ethics Administrator, Kath Bridges (Ph: 815-4321 ext: 8551, email: ethics@unitec.ac.nz).

Appendix K: Participant information sheet

INFORMATION TO PATIENT PARTICIPANTS INVOLVED IN RESEARCH

You are invited to participate in a research project entitled:

An investigation in to patient self-reported perception, satisfaction and outcomes of a single 'osteopathy in the cranial field' treatment in New Zealand.

The project is being conducted by Rochelle Judkins from the Faculty of Social and Health Sciences at Unitec Institute of Technology (Auckland, New Zealand), and Dr. Jane Mulcahy and Brett Vaughan from the College of Health & Biomedicine at Victoria University (Melbourne, Australia).

Project explanation

This study aims to explore patients' perception of cranial osteopathic treatment. Patients will complete a demographic survey and a self-report measure (the Patient Perception Measure of Osteopathic Treatment) of their perception of treatment, after their osteopathic treatment.

What will I be asked to do?

You will be asked to complete the demographic survey and Patient Perception Measure of Osteopathic Treatment after your osteopathic treatment. Completing the questionnaire and survey will take approximately 5-10 minutes.

What will I gain from participating?

The potential benefit of volunteering for this study is an increase in knowledge and perception of cranial osteopathic treatment and informing osteopaths of how you perceive treatment. In due course your responses will inform osteopathic educators and clinicians.

How will the information I give be used?

- The information you provide in this study will be used to determine patient perceptions of cranial osteopathic treatment.
- The information collected from this study will be used in this project, as well as anonymously used in the overall project (over Australia and New Zealand) in conjunction with information collected from Australia. Your information will only be available to the researchers listed below and you will not be able to be identified in any way.
- Your information will be analysed in the same way as similar information collected from previous studies using these questionnaires.
- All material collected in this study is confidential and the identification of a participant will not be possible in any published material.

- The clinic from which a participant is recruited will not be given feedback on the data collected from individual volunteers, nor will any third parties be provided with individual results or research material; this includes treating osteopaths.

What are the potential risks of participating in this project?

Whenever therapeutic techniques are applied, there is an associated risk to the patient. The researchers have taken the factors that increase any risks into account and put in place several measures to reduce the likelihood of complications.

Risks will be minimised by:

- Ensuring that all treating osteopaths are currently registered with the Osteopathic Council of New Zealand, and have professional indemnity and public liability insurance.
- All participants will be screened by an osteopath, prior to commencing any clinical treatment.
- Osteopaths will provide their usual osteopathic treatment and are not required to perform any additional therapeutic techniques.

Please note that participation in this project is strictly voluntary and that you retain the right to withdraw from the study at any time within three weeks of submitting your questionnaire without providing reason.

If you wish to withdraw in this time, please contact the researchers and quote the reference number at the bottom of this information sheet. This reference number corresponds with your survey number.

Who is conducting the study?

Rochelle Judkins BAppSci(HB)
Student Osteopath
Faculty of Social and Health Sciences
Unitec Institute of Technology
Phone: 0211689369
Email: rmjudkins@xtra.co.nz

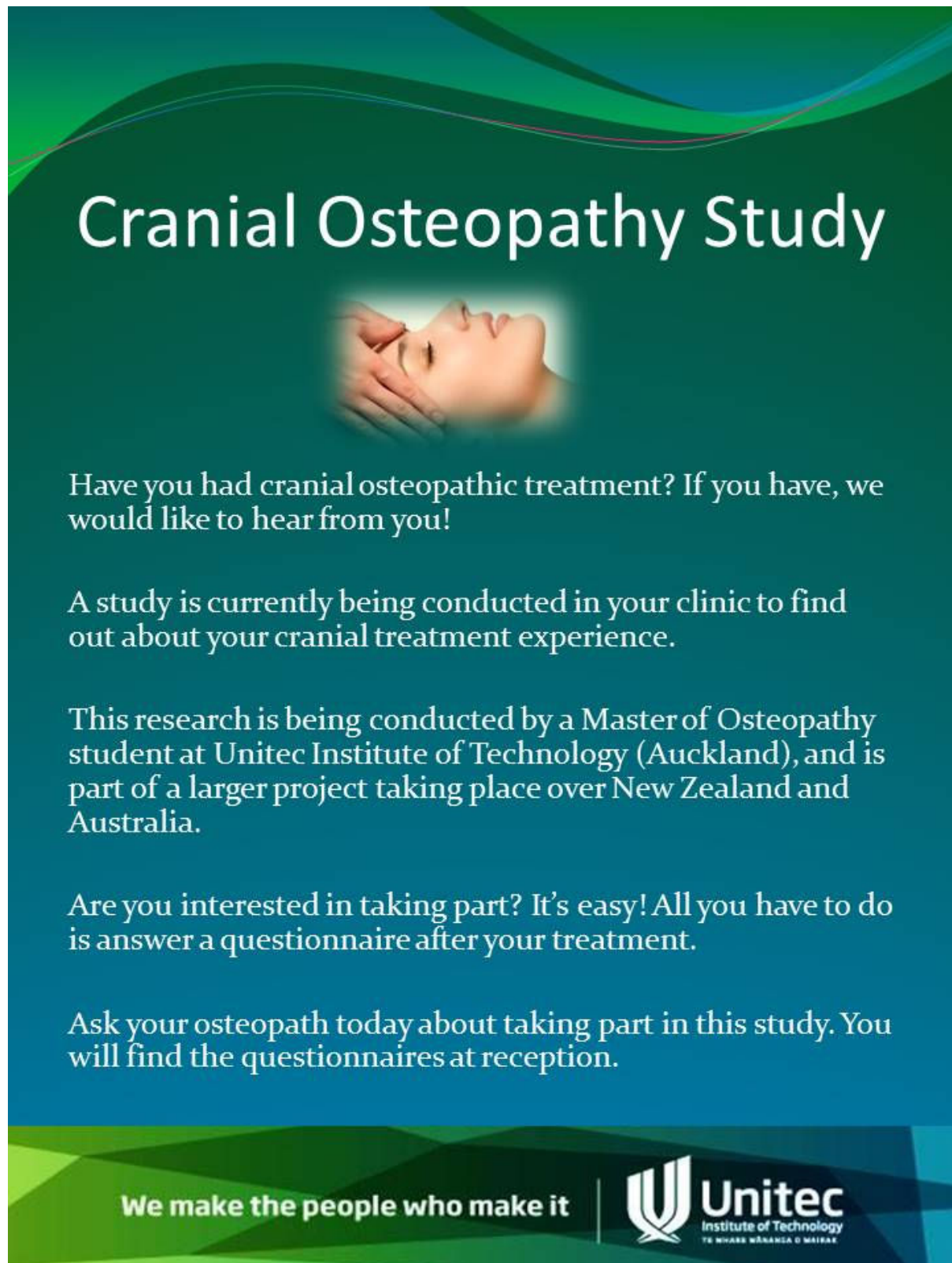
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Brett Vaughan BSc, MHIthSc(Osteo)
Clinic Coordinator (Osteopathy)
College of Health & Biomedicine
Victoria University
Phone: 03 9919 1210
Email: brett.vaughan@vu.edu.au


If you have any queries about participating in this study, please contact the researchers.

This study has been reviewed and approved by the Unitec Research Ethics Committee for the period 26/6/14 to 26/6/15. If you have any queries or concerns, you may contact the primary supervisor for this project, Elizabeth Niven (Ph: 021 654 935, email: eniven@unitec.ac.nz), or the Unitec Ethics Administrator, Kath Bridges (Ph: 815-4321 ext: 8551, email: ethics@unitec.ac.nz).

Appendix L: Patient recruitment poster



Cranial Osteopathy Study




Have you had cranial osteopathic treatment? If you have, we would like to hear from you!

A study is currently being conducted in your clinic to find out about your cranial treatment experience.

This research is being conducted by a Master of Osteopathy student at Unitec Institute of Technology (Auckland), and is part of a larger project taking place over New Zealand and Australia.

Are you interested in taking part? It's easy! All you have to do is answer a questionnaire after your treatment.

Ask your osteopath today about taking part in this study. You will find the questionnaires at reception.

We make the people who make it |  **Unitec**
Institute of Technology
TE WHARE WĀHANGA O MAIRĀE

Appendix M: Journal of Evidence-Based Complementary and Alternative Medicine – submission guidelines (for authors)

Aims and Scope

Journal of Evidence-Based Complementary & Alternative Medicine (JEBCAM) is an interdisciplinary single-blind peer-reviewed biomedical journal publishing hypothesis-driven and evidence-based articles concerning observations or studies (both positive and negative) in all fields of healing practices encompassed by the terms complementary, alternative, and integrative medicine, including (but not limited to) dietary limitation and supplementation, traditional Chinese medicine (herbalism and acupuncture), naturopathy, body manipulation and massage, ayurveda, unani, siddha, mind-body medicine, energy therapies, and homeopathic medicine. Through utilizing the rigorous scientific method, *JEBCAM* will disseminate authoritative information on complementary and alternative medicine to health professionals and to the public. Categories of submission include editorial comments, original articles (studies with either positive or negative results), brief communications (observations or case reports that generate hypotheses for testing), topical reviews, historical vignettes, commentaries/special articles, correspondence, and book reviews. Average time from submission to first decision: 12

General Instructions

All submissions (including invited material) are subjected to peer review. Authors are invited to submit original articles of all types for consideration. Case reports can be submitted as brief communications. All material must be submitted online at the SAGETRACK ScholarOne website (<http://mc.manuscriptcentral.com/jebcam>). New authors should use the “Create Account: New users click here” button at the submission website. After entering the website, go to the “Corresponding Author Center” to submit manuscripts, using the “Click here to submit a new manuscript” button. Manuscript text and tables must be prepared and submitted only in Microsoft Office Word (MSWord 2003) document format (saved as “.doc” files). Files to be uploaded should be complete final versions of text of the article (including abstract and keywords), tables, and figures (photographs, art work, or line drawings); do not insert figures into an MSWord document file. At the completion of the upload of each file, a confirmation window will appear asking for a description of the file (for the main document, use language such as “article text” or “main document”; for figures, indicate a figure number, such as “Figure 1”; and for other supporting materials, indicate clearly what the file is). After completion of the upload of all materials, authors should confirm the proper order of the material and that the PDF version created by the website accurately reflects all the submitted material.

Text

Manuscripts should follow the usual format for biomedical sciences articles as well as material recently published in *JEBCAM*. Authors must assure that manuscripts conform to the style guidelines described in the *AMA Manual of Style* (<http://www.amamanualofstyle.com/>). Authors whose native language is not English must have manuscripts carefully proofread and corrected for proper American English spelling, grammar, and syntax by a professional

English editor or colleague who is a native English speaker. Manuscript pages should be double-spaced and numbered consecutively with the appropriate subheadings used to designate different sections (for example, original articles should have the sections in order: title page, abstract, keywords, text, acknowledgments, author contribution/roles, declaration of conflicting interests, financial disclosure/funding, ethical approval, references, tables, and figure legends). Do not use any abbreviations or acronyms unless the abbreviation or acronym itself has become a word (for example: DNA). Only generic names of drugs should be used. Clinical laboratory data (including normal ranges) should be expressed in conventional units rather than SI (Système International) units, although SI units can be provided in parentheses. Authors should retain for their own files a complete copy of all material submitted. Additional information on general principles of manuscript preparation can be obtained from the website <http://www.icmje.org/> or from the following references:

1. *AMA Manual of Style: A Guide for Authors and Editors*. 10th ed. New York, NY: Oxford Press; 2007.
2. Brumback RA. Success at publishing in biomedical journals: hints from a journal editor. *J Child Neurol*. 2009;24:370-378.
3. Brumback RA. ABRV (or Abbrevobabble Revisited). *J Child Neurol*. 2009;24(12):1477-1479.
4. Young DS, Huth EJ. *SI Units for Clinical Measurement*. Philadelphia, PA: American College of Physicians; 1998.
5. Council of Science Editors, Style Manual Committee. *Scientific Style and Format: The CSE Manual For Authors, Editors, and Publishers*. 7th ed. Reston, VA: The Council; 2006.

Title page. The title should be brief and meaningful. Following the title, there should be a listing of first and last names of all authors, along with highest academic or medical degrees and affiliations. Authorship should be limited to direct participants. List the complete name, postal address, telephone number, fax number, and e-mail address for the corresponding author (authors who do not have an e-mail account can obtain one from among the free sites such as “gmail.com,” “hotmail.com,” or “yahoo.com”). List the word count for the manuscript [generally 2000 words in a manuscript equal 3 printed journal pages].

Abstract. An unstructured abstract of no more than 150 words should be provided on a separate page and should be factual, presenting the reason for the study, main findings, and conclusions. A list of 3 to 5 keywords should be included at the end of the abstract.

Body. The manuscript should be divided by subheadings (for example: introduction, methods, case summary, results, and discussion). The hypothesis or reason for publication of the material must be clearly described.

References. Authors are responsible for correctness and completeness of reference citations. The reference list should be double-spaced and begin on a separate page. Reference citations should be arranged according to their order of appearance in the text, and indicated by superscript numbers in the text. References should generally be typed in accordance with the style of the *AMA Manual of Style* (examples shown below). Only the first four authors should be listed; when there are more than four authors, list only the first three followed by “et al.” Abbreviations of journal names should conform to the style in the US National Library of Medicine MEDLINE[®] (PubMed[®]: <http://www.ncbi.nlm.nih.gov/sites/entrez>). Abstracts of

presentations should be noted as such. Citation of websites should list the complete URL address and the date and month accessed. Sample references are given below.

1. Liptak GS, Bloss JW, Briskin H, et al. The management of children with spinal dysraphism. *J Child Neurol*. 1988;3(1):3-20.
2. Benson DF. The role of frontal dysfunction in attention deficit hyperactivity disorder. *J Child Neurol*. 1991;6(Suppl):S9-S12.
3. Christoferson LA, Leech RW. Animal models of hydrocephalus. In Leech RW, Brumback RA, eds. *Hydrocephalus: Current Clinical Concepts*. St. Louis, MO: Mosby-Year Book; 1991:71-76.
4. Volpe JJ. *Neurology of the Newborn*. 5th ed. Philadelphia, PA: Saunders; 2008.

Personal communications, unpublished manuscripts submitted but not yet accepted, and similar unpublished items should not appear in the reference list, but can be noted parenthetically in the text. If reference managers (such as EndNote) are used, the author must assure that the submitted manuscript has the references provided in the same plain text manner as the rest of the manuscript.

Artwork Submissions (Figures)

Artwork includes charts and graphs, maps, photographs, and line art. Electronic (computer generated) art should be prepared as sharp, clear, high-quality computer images with a minimum width of 2100 pixels and saved in uncompressed TIFF or JPEG file formats as grayscale or CMYK images. Microsoft application files are acceptable for vector art (line art). Graphs should be submitted as figure files and should be finished drawings, not requiring further artwork (line art is preferable). All patient identifiers must be removed from pictures of radiographs or other imaging modalities. Recognizable photographs of patients must be accompanied by written permission for publication. Reproduction of any previously published illustration must be accompanied by written permission from both the original author and the publisher. Figure legends should include full explanations of the figures with numbers corresponding to those on the figure files themselves. Abbreviations appearing in figures must be fully identified in the legend. All figures must be specifically referred to in the text and numbered in order of appearance in the text. Color photographs or illustrations will be published in the online version at no cost to the authors; however publication of color images in the print version will be charged to the author at a cost of \$800 for the first figure and \$200 for each additional figure.

Tables

Each table should be prepared on a separate page at the end of the text document (after the reference list) and preferably should be no larger than a single page. Include a brief descriptive title of the table and a footnote with explanation of any abbreviations. All tables must be specifically referred to in the text and numbered in order of appearance in the text.

Peer Review Policy

JEBCAM operates a conventional single-blind reviewing policy in which the reviewer's name is always concealed from the submitting author.

As part of the submission process you will be asked to provide the names of peers who could be called upon to review your manuscript. Recommended reviewers should be experts in their fields and should be able to provide an objective assessment of the manuscript. Please be aware of any conflicts of interest when recommending reviewers. Examples of conflicts of interest include (but are not limited to) the below:

- The reviewer should have no prior knowledge of your submission
- The reviewer should not have recently collaborated with any of the authors
- Reviewer nominees from the same institution as any of the authors are not permitted

Please note that the Editors are not obliged to invite any recommended/opposed reviewers to assess your manuscript.

Acknowledgements

Authors should identify where the work was performed, the meeting, if any, at which the material was presented, and any assistance in writing the manuscript or other help that did not merit authorship.

Author Contribution (Roles)

Details of the contribution of each author to the study leading to the article and to the preparation of the manuscript (including who wrote the first draft of the manuscript) must be specified, including description of any “ghost author” or other writing assistance. Guidelines for authors and contributors are available at the website of the International Committee of Medical Journal Editors (ICMJE; <http://www.icmje.org/>). For multi-authored submissions, up to three authors can be designated as “first authors who contributed equally to this work” if the contributions of those individuals constituted the majority of the work on the project. In addition, “mentors who contributed equally to this work” can be used to define a category of authorship for senior investigators, clinicians, or directors who provided equal support and mentorship necessary for the success of the work.

Declaration of Conflicting Interests

Authors must disclose any conflicting or competing interests that could potentially affect the conduct of the study, interpretation of results, or preparation of the manuscript. This should include disclosures of commercial, financial, or other associations not only by the manuscript authors, but also by any collaborators who contributed to the study but did not merit article authorship.

Funding

To comply with the guidance for Research Funders, Authors and Publishers issued by the Research Information Network (RIN), *JOURNAL* additionally requires all Authors to acknowledge their funding in a consistent fashion under a separate heading. Please visit [Funding Acknowledgements](#) on the SAGE Journal Author Gateway to confirm the format of the acknowledgment text in the event of funding or state in your acknowledgments that: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Research ethics

All papers reporting animal and human studies must include whether written consent was obtained from the local Ethics Committee or Institutional Review Board. Please ensure that you have provided the full name and institution of the review committee and an Ethics Committee reference number.

We accept manuscripts that report human and/or animal studies for publication only if it is made clear that investigations were carried out to a high ethical standard. Studies in humans which might be interpreted as experimental (e.g. controlled trials) should conform to the Declaration of Helsinki <http://www.wma.net/en/30publications/10policies/b3/index.html> and typescripts must include a statement that the research protocol was approved by the appropriate ethical committee. In line with the Declaration of Helsinki 1975, revised Hong Kong 1989, we encourage authors to register their clinical trials (at <http://clinicaltrials.gov> or other suitable databases identified by the ICMJE, http://www.icmje.org/publishing_10register.html). If your trial has been registered, please state this on the Title Page. When reporting experiments on animals, indicate on the Title Page which guideline/law on the care and use of laboratory animals was followed.

Patient consent

Authors are required to ensure the following guidelines are followed, as recommended by the International Committee of Medical Journal Editors, Uniform Requirements for Manuscripts Submitted to Biomedical Journals. Patients have a right to privacy that should not be infringed without informed consent. Identifying information, including patients' names, initials, or hospital numbers, should not be published in written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives written informed consent for publication. Informed consent for this purpose requires that a patient who is identifiable be shown the manuscript to be published.

Identifying details should be omitted if they are not essential. Complete anonymity is difficult to achieve, however, and informed consent should be obtained if there is any doubt. For example, masking the eye region in photographs of patients is inadequate protection of anonymity. If identifying characteristics are altered to protect anonymity, such as in genetic pedigrees, authors should provide assurance that alterations do not distort scientific meaning and editors should so note. When informed consent has been obtained it should be indicated in the submitted article.

Copyright

Submission of a manuscript to *JEBCAM* is taken as evidence that the materials have not been submitted simultaneously elsewhere and that no part of the text or any of the figures has been copyrighted, published, or reproduced elsewhere unless information regarding previous publication is explicitly cited and permission obtained (a copy of such permission must be provided with the manuscript). Once a manuscript is accepted for publication, the corresponding author will be required to complete an electronic copyright transfer form on the “Corresponding Author Center” of the SAGETRACK website. At the website, the correct manuscript should be chosen from “Manuscripts with Decisions” and from the ACTION box on the far right side, choose “Contributor Form.” After reading the form and completing the appropriate boxes, clicking the “I accept” box will confirm appropriate copyright transfer.

Checklist for Authors

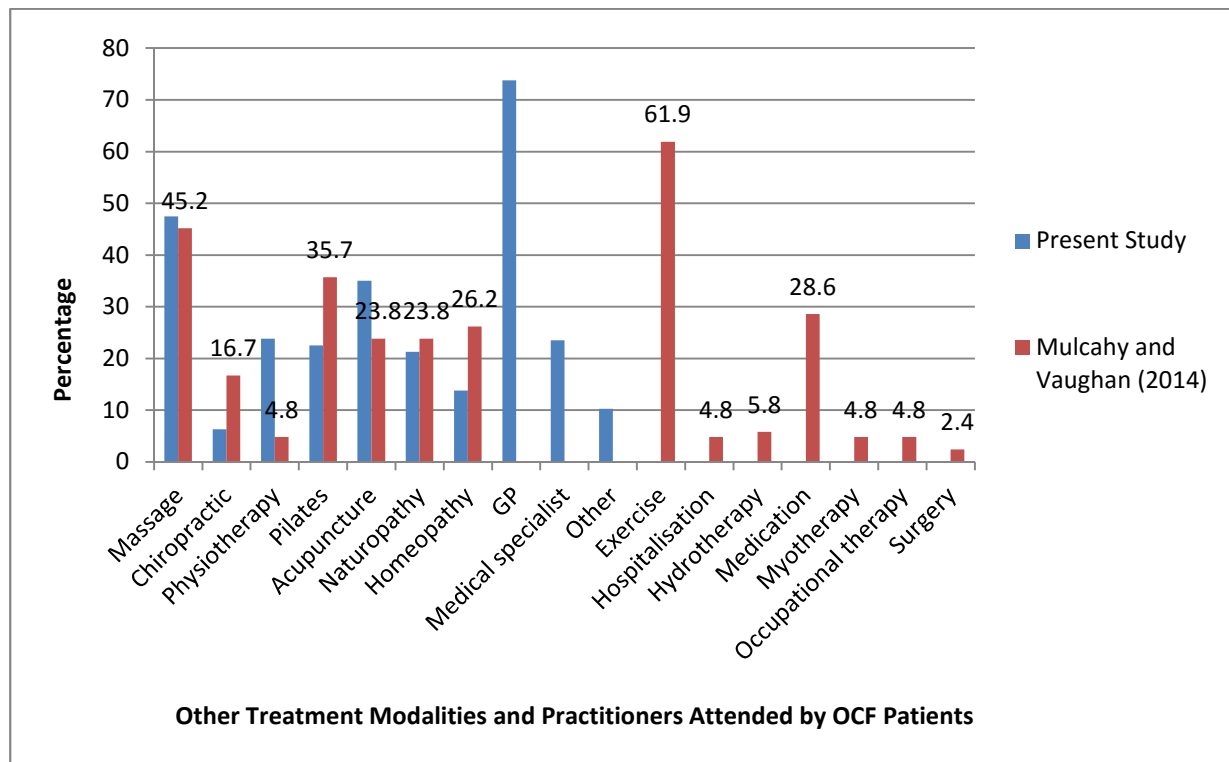
A checklist for authors is available [here](#). Authors should use this list to ensure they have followed all guidelines for submitting to the journal.

This journal is a member of the Committee on Publication Ethics (COPE).

For any question regarding manuscript submission please feel free to contact Brinda Sharma(Brinda.Sharma@sagepub.in).

Appendix N: Manuscript, Figure 2 - percentage of OCF patients who attended other healthcare practitioners

The figure below is an extension of Figure 2 from Chapter 3 of this thesis. A full comparison between the present study and Mulcahy and Vaughan (2014) of the percentage of OCF patients who attended other healthcare practitioners. The data labels at the top of each bar represent the percentage for each sensation experienced in Mulcahy and Vaughan's (2014) study only.



Appendix O: Manuscript, Table 3 - Correlations between 'Satisfaction with Life', 'Meaningfulness of Daily Activities', and Patient Perception Measure-Osteopathy items

The figure below is an extension of Table 3 from Chapter 3 of this thesis. A full depiction of correlations between between 'Satisfaction with Life', 'Meaningfulness of Daily Activities', and Patient Perception Measure-Osteopathy items

Table 3. Correlations between 'SWL', 'MDA', and PPM-O items		
	How satisfied are you with your life?	How meaningful are your daily activities?
	Correlation Coefficient	Correlation Coefficient
Q1. The way my osteopath answers all of my questions is	0.17	.233 [*]
Q2. The instructions my osteopath gives me regarding my home exercise program are	.320 ^{**}	0.172
Q3. Osteopathic treatment has helped my condition	0.094	0.073
Q.4 As a result of osteopathic treatment, my general health is	.408 ^{**}	.253 [*]
Q5. During my treatment, the questions my osteopath asked were	.356 ^{**}	0.211
Q.6 After my osteopathic treatment I felt like my whole body was treated rather than just one area	0.129	0.143
Q7. Osteopaths at this clinic talk to me about the body's ability to heal itself	0.102	0.139
Q8. Osteopathic treatment makes me feel vague ^{**}	-0.013	-0.02
Q9. I cannot focus on tasks after my osteopathic treatment ^{**}	0.051	-0.029
Q10. I feel calmer after my osteopathic treatment	-0.212	-0.013
Q11. How helpful is osteopathic treatment in managing your condition?	0.152	0.05
Q12. I feel tired after osteopathic treatment ^{**}	0.055	0.061
Q13. I find it hard to concentrate after my osteopathic treatment ^{**}	0.152	0.059
How satisfied are you with your life?		.558 ^{**}
How meaningful are your daily activities?	.558 ^{**}	

Appendix P: Descriptions of osteopathic treatment

Below is a table of participants' responses to qualitative questions within the demographic survey. In some cases it may appear that respondent numbers are missing (e.g. R3). Only those responses which were analysed in the current study have been included; those which belong to participants who received a mostly 'cranial' treatment (75.7%). The responses of participants who received either a mostly 'structural' treatment (15.9%), both 'cranial' and 'structural' treatment (4.7%), or indicated neither (3.7%), have been omitted from this appendix. In cases where participants elected not to respond to one or both of the questions, '(Blank)' has been inserted en lieu of a response.

Respondent Number	Q1. How would you describe the osteopathic treatment you had today?	Q2. Any other comments?
1	Balancing - re-aligning. Very gentle. Could feel subtle changes. Usually have more cranial rather than concentrating on pelvic, but trust that treatment is applicable	N/A
2	Very good. Felt calm and relaxed. Areas that were being treated responded well	(Blank)
4	Very relaxing. Feel like my body relaxes, and I go very deep inside myself, body ends up feeling very light	Would recommend to all to experience deep relaxation
5	Healing through manually changing the tissues and vessels. Energetically balancing and creating a newer more functional equilibrium of the body processes	No
6	Amazing. Felt quite dizzy at first after getting up. I feel a sense of total calmness afterwards and relief from anxiety. My body feels comfortable.	[Practitioner] is an extraordinarily gifted practitioner. Being with her is like doing an intense meditation.
7	Gentle, good to treat area not treated before. No immediate noticeable difference at treatment. Effect usually appears later on. Complex issues require more treatment but cranial osteo is one of the most useful and effective treatments I have had	(Blank)

8	Gentle but targeted. Instant re-alignment of the spine. Positive	(Blank)
10	Peaceful, relaxing, educational - really increased my body awareness of pelvic anatomy. Rejuvenating.	I am never really clear about what happens in my body, from the osteopathic perspective, during treatment. Wish I understood the work more.
11	Gentle. Effective	
12	Very thorough - took into account my ACC injury plus various other health issues e.g. lungs oesophagus, cataract surgery etc.	Felt very safe, could feel impact during treatment.
13	Gentle, reassuring. Mostly subtle pressure on back and shoulders.	(Blank)
17	Similar to what I've had before. Mostly working on jaw.	(Blank)
18	Absolutely wonderful. Very relaxing, soothing and healing.	Always makes me feel better after each session. Definitely works.
19	Helpful for pain relief. Relaxing.	(Blank)
20	It's amazing how little movement can make a difference in treatment.	(Blank)
21	Satisfying - cranial treatment after 2 sessions that were more about manipulation. Felt calming and centering.	(Blank)
23	Non-invasive. Calming. Great assessment skills.	I have been seeing [Practitioner] for nearly 3yrs - I only need 1 treatment a year to maintain pain free. Whatever he does works.
24	I felt nothing - not aware of anything happening - maybe more relaxed.	(Blank)
25	Very pleasant, calm, not forceful.	(Blank)
28	Wonderful, gentle, worked very well.	After treatment I often feel spaced out like I have just come out of a deep sleep and I need to wake up, it's very relaxing. I find cranial osteopathy like magic, it's very, very good. Had it on and off for 15yrs. It cured my chronic back

		problem totally.
30	Excellent - always effective for me.	I often recommend cranial osteopathy to friends with neck and back problems.
31	Painless but effective.	(Blank)
32	Helpful, relaxing, restorative, comforting	Very professional, skilful, holistic
33	A regular (every 6 weeks - 2 months) re-alignment rather than addressing an acute issue	(Blank)
34	Very helpful and relaxing	(Blank)
35	As well as easing the tightness around my back, neck and hips I feel more grounded and centred in my body. Moving towards this more overall feeling of health is a very relaxing, enjoyable experience	I feel relationships between different areas of my body while being treated and sometimes experience feelings similar to meditation - connectedness, better breathing etc
36	It was a strong treatment. I have been having some digestive issues and immediately during the treatment I could feel shifting and circulation in abdomen. The treatment also released emotions regarding family issues	My state of energy changed a lot during treatment. Stress related to aging parents was significantly eased
37	Very good, gentle	Osteopath is very calming, has a lot of knowledge and valuable information
39	Probably very helpful	I have a good relationship with my osteopath
40	Wonderfully restorative	Fabulous
41	Relaxing and always beneficial	I've been receiving cranial treatment for over 10 years and did find following the initial treatment a reaction akin to jet-lag and I certainly wouldn't have wanted to make important decisions. Over the years that response has diminished
42	Perfect for what I needed. I fell off my bike 2 weeks ago and it was the follow up appointment. It was gentle because I was sensitized after being to a meditation workshop 4 days prior.	Cranial osteopathy is preventative medicine for me. I maintain my health and well-being with it and it has been incredible for my recovery from

		chronic fatigue syndrome
43	Excellent, relaxing, fruitful	(Blank)
44	Very good	(Blank)
45	Based on my experience on previous times, I trust today's treatment to assist with my healing process	I trust my osteopath's expertise and advise
46	Wonderful - as if very deep seated tensions were being eased and released	It feels as though I am being cared for at a deep level. Very intelligent and sympathetic tuned in to what is really needed
47	Caring, relaxing, calming, encouraging/suggestive about self-help measures	Provider is always highly professional - provides encouragement across all facets of life. I recommend her frequently.
48	Relaxing and tension released throughout arm which was the main reason for treatment	(Blank)
49	Relieving built up tension in arms and shoulders	[Practitioner] "talks" to my body in a way I can't
50	Fantastic. Relieved severe pain in mid back from a fall - hadn't been able to breathe deeply	Practitioner finds the problem area immediately
51	Grounding.	Osteopathy has proven to be the most effective way of managing back and neck ache due to postural issues. I use it as maintenance. Unfortunately, every time I try and cut the frequency of my session back, it doesn't work out particularly well. So I need treatment every 4-6wks. It can be difficult to get an appointment with my current osteo, but I don't like to change as I have had a bad experience with others in past and like that she knows my history.
53	Good	(Blank)
54	Great. As I had quite a few issues to sort out, the practitioner took extra time to treat there.	The osteopath also gives good advice on things I can do outside of treatment, such as pilates exercises, nutrition
55	Relaxing, refreshing, invigorating.	(Blank)

57	Relieving of discomfort. Overall relaxing, refreshing and progressive toward greater well-being.	(Blank)
58	Relaxing.	(Blank)
59	Toe to head full body covered. Focus in key points of current pain/tension and general maintenance - feet, pelvis, back, shoulder, ribcage and head. Gentle release of tension and obstruction. Realignment.	I enjoy understanding how all parts of the body are connected, it makes it easier to relax into the change and feel the shift.
61	Relaxing, informative, rehabilitation.	(Blank)
62	Exactly what I'm used to.	No.
63	Helpful, relaxing, took away pain, informative.	Today's treatment brought awareness of my issues and helped my body relax
64	Relaxing, non-invasive, yet changed my physical perception of my complaints.	Effective.
65	Very interesting! Re-centering my whole body.	No.
66	(Blank)	(Blank)
67	Grounding. A relief and release. Back in my body. Heart opening.	Felt a bit vague after.
68	Satisfying.	(Blank)
70	Caring and helpful.	(Blank)
72	Revitalising. Helps to re-align the body and mind.	(Blank)
73	Great!	(Blank)
76	Tune up, sort out lower back and head.	They always work well for me. I find a good cranial osteopath beats all others forms of body work

77	Amazing! I can finally stand straight after a long time.	Amazing!!!
79	Excellent.	No.
80	Very thorough, deep and relaxing.	(Blank)
82	Excellent treatment. Highly skilful, sensitive and intuitive, non-invasive.	I have a great confidence and trust in my osteopath - the treatments are always highly effective and give great relief.
83	Gentle, meaningful, restful and energising.	(Blank)
84	Wonderful because of the sensation of release of pain - the treatment as focused on the area of pain	I always leave these osteopathic treatments with an enhanced feeling of wellbeing.
85	Very affirming in terms of putting new skills for management of pain in place, and allowing the body to behave as it should!	(Blank)
87	Excellent, as always!	No
90	30 minutes of mostly cranial treatment. Very gentle, soothing. Has helped eased headache somewhat.	I had 15 minutes alone after the treatment to let it settle - that really helped (compared to previous sessions).
92	(Blank)	(Blank)
93	Good, helps relax my back.	(Blank)
94	(Blank)	(Blank)
95	Interesting.	(Blank)
96	Peaceful, and personal. As I have been seeing this osteopath for some years we tend to talk about some matters of importance - usually about the mind and body and how those two operate in sync. Today was no different. I enjoy these conversations alongside the treatment.	I find cranial osteopathy a 'profound' treatment as it seems to connect with my 'wiring' on a physical/mental level. I would like to add that before my long-term osteopathic relationship with the practitioner I saw today, I had cranial osteopathy treatment with another practitioner for some years. We talked far less and had a different kind of rapport - but the effect of cranial treatment was just the same.
97	I always come away feeling the whole of me has been treated and I get lots of interesting things to think about and help me in all other areas of my life, today is no different.	The clinic is so restful and has such an amazing feeling, always a pleasure to come to, would love it if I didn't get so tired afterwards, sometimes lasts nearly

		a week.
98	Painless, feeling safe as not fast or strong manipulations of the body. Fell asleep during the treatment	(Blank)
99	(Blank)	(Blank)
102	Cranial osteopathy - I have not always been a believer of cranial osteopathy but as this is my second treatment following improvement after the first I may have to change my view point.	This is my second treatment of this kind that I have received in the past two weeks. I did notice an improvement after the first treatment so am hoping this second visit will resolve the problem altogether.
103	GENTLE yet POWERFUL. Very relaxing - physically it felt like cranial not "doing much" - just gentle holding, but felt great amount of releasing occurring in my thoracic area - went home and relaxed/meditated and this continued for several hours.	Definitely helped with an old spinal injury - the 'process' as such was beyond my ken, but just let it happen and the cranial treatment seemed to allow my body to start to heal itself.
104	Relieving and comfortable. Went home feeling good.	Walk away feeling smiling and happy. She radiates positiveness and happiness.
105	Effective, relaxing, energy changing, restorative relief/release of pain/discomfort. Uplifting and healing.	(Blank)
107	Great.	(Blank)