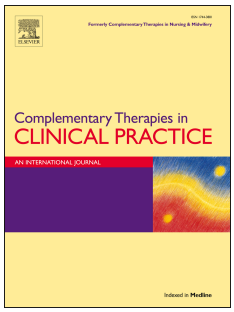
Accepted Manuscript



Evaluation of New Zealand osteopathy patients experiences of their treatment

Rochelle Judkins, Brett Vaughan, Jane Mulcahy

PII: S1744-3881(17)30118-4

DOI: 10.1016/j.ctcp.2017.07.004

Reference: CTCP 751

To appear in: *Complementary Therapies in Clinical Practice*

Received Date: 21 March 2017

Revised Date: 24 July 2017

Accepted Date: 28 July 2017

Please cite this article as: Judkins R, Vaughan B, Mulcahy J, Evaluation of New Zealand osteopathy patients experiences of their treatment, *Complementary Therapies in Clinical Practice* (2017), doi: 10.1016/j.ctcp.2017.07.004.

Evaluation of New Zealand osteopathy patients experiences of their treatment.

Rochelle Judkins MOsteo[1]
Brett Vaughan MHlthSc[2,3#]
Jane Mulcahy PhD[2]

[1] Department of Community and Health Services, Unitec Institute of Technology, Auckland, New Zealand
[2] College of Health and Biomedicine, Victoria University, Melbourne, Australia
[3] Institute of Sport, Exercise and Active Living, Victoria University, Melbourne, Australia
[#] corresponding author

Corresponding author

Brett Vaughan
College of Health & Biomedicine
City Flinders Lane Campus
Victoria University
PO Box 14428
Melbourne Victoria 8001
Australia
Phone 61 3 9919 1210
Email brett.vaughan@vu.edu.au

Funding: No specific funding was received to conduct this study

Evaluation of New Zealand osteopathy patients experiences of their treatment.

Word count: 3491

Abstract

Objectives

To investigate the experiences of patients seeking osteopathy treatment in New Zealand; and to describe their perceptions of osteopathic treatment.

Design

Survey-based research design.

Setting

Private osteopathy practices.

Main outcome measures

Demographic survey and Patient Perception Measure-Osteopathy (PPM-O).

Results

Twelve osteopaths were recruited as practitioners. Responses from 107 patients were analysed. Approximately 75% of patients reported receiving a 'mostly cranial' treatment approach. The majority of patients (96.2%) indicated that osteopathic treatment helped their condition. The most frequently experienced sensation was 'relaxed'. A positive relationship was observed between the PPM-O and demographic variables.

Conclusions

This is the first study to report on New Zealand osteopathy patient's experience of their treatment. The sensations and emotions experienced are largely consistent with previous Australian research. Predominantly positive perceptions of osteopathic treatment were reported. The current study provides some evidence of the construct validity of the PPM-O in a New Zealand patient population.

Introduction

Osteopathy is a form of manual therapy that utilises a variety of 'hands-on' treatment approaches including mobilisation, manipulation and soft tissue techniques (1). A number of systematic reviews have highlighted the role 'structural' osteopathy approaches may play in the management of a variety of musculoskeletal (2-5) and non-musculoskeletal complaints (6). Another treatment approach utilised by osteopaths is Osteopathy in the Cranial Field (OCF). OCF was conceived by Sutherland (7) who proposed a mechanism by which an inherent and involuntary rhythm within the body could be palpated through the manifestation of cranial bone movement. A number of studies have researched the validity of this involuntary rhythm's palpability (8, 9), and potential clinical uses (10-13). However, only a limited number of studies have investigated the patient experience of OCF (14-16).

A lack of data on patient perception and treatment outcomes associated with OCF lead Mulcahy et al. (16) to develop a questionnaire to collect and analyse patient experiential data. Originally intended only for patients receiving OCF (16), the questionnaire was later revised and condensed using both confirmatory factor analysis and Rasch analysis (17). The questionnaire was titled the Patient Perception Measure – Osteopathy (PPM-O) and these authors suggested that it may be useful to evaluate both 'cranial' and 'structural' osteopathic treatments (15, 17). In further work Mulcahy and Vaughan (15) also observed that the sensations patients experience during their OCF treatment may be associated with how those patients perceive their treatment. Furthermore, patient self-rated satisfaction with life also appears to be related to positive treatment perception (18, 19).

The aim of the present study was to explore the experience of patients receiving a structural treatment approach, OCF treatment approach (or both) in New Zealand osteopathy clinics. Patients' perception of treatment was explored, as well as the sensations and emotions patients experienced during and immediately after their treatment. The relationships between demographic variables, Satisfaction with

Life (SWL), the Meaningfulness of Daily Activities (MDA), and patients reported experiences of treatment were also considered.

Methods

Ethics approval for the study was obtained from the Unitec Institute of Technology (Auckland, New Zealand) Research Ethics Committee.

Participants

Two groups of participants were recruited: 1) registered osteopaths in New Zealand who used Osteopathy in the Cranial Field techniques regularly in practice; and, 2) their patients, 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 website (20), word of mouth, and through personal communication. Interested osteopaths were screened for their suitability using a 'practice style' survey (21). The screening tool used was a question taken from an unpublished survey, developed to determine an osteopath's practice style (21). This survey was based on work by Jette, Bacon (22) assessing the beliefs and attitudes of physical therapists toward evidence-based practice. The practice-style question from Blaser's survey (21) used in the present study, was a simple method to determine which techniques practitioners were most likely to use when treating patients. The screening tool was delivered to the osteopaths via Survey Monkey. Practitioners were selected for the study if their responses indicated a predominantly non-structural approach to theirtreatment and if selected, were sent research packs containing the questionnaires to be completed. Patients were then recruited by the participating 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 OCF techniques. Patients were each provided with the PPM-O and a demographic survey following their OCF treatment session. Patients completed the questionnaires and returned them to the primary researcher via pre-paid post.

Measures

Patient demographic survey

The patient demographic survey (Supplementary File 1) collected a range of data about the patient, including age, gender, and two single-item Likert-type scale questions to evaluate the patient's satisfaction with life (SWL) and the meaningfulness of their daily activities (MDA) (18, 19, 23, 24). Patients were also asked to identify the predominant treatment approach they received.

Patient Perception Measure-Osteopathy (PPM-O)

The PPM-O is a 13-item self-report measure (17) designed to identify patient perceptions and self-reported outcomes of osteopathic treatment. The questionnaire has been used to assess patients' experiences of both cranial and structural osteopathic treatment. Previous work (17) using both confirmatory factor analysis and Rasch analysis suggests the items load onto two 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. The PPM-O was scored as per Mulcahy and Vaughan (17) and negatively phrased items were recoded prior to the data analysis. Patients were also asked to indicate which treatment style they predominantly received (i.e. structural or cranial), for how long they had been receiving osteopathy treatment, and whether they experienced any specific sensations during or after treatment. A list of 24 sensations and responses was included on the PPM-O, and patients were asked to select which (if any) sensations or responses they experienced in relation to their treatment (15) (Supplementary File 2).

Data Analysis

Data were entered into SPSS version 20 (IBM Corp, USA) for analysis. Descriptive statistics were generated for each of the demographic and PPM-O items, and the sensations experienced.

Correlations between each of the PPM-O items and patient age, SWL and MDA were analysed using Spearman's *rho* (ρ) and interpreted according to Hopkins (25). Mann-Whitney tests (alpha set at $p < .05$) were used to evaluate differences for gender and patient-reported treatment approach for each of the PPM-O subscales and reported sensations and emotions. Effect sizes (r) were also calculated where significant differences were observed (26). This data analysis has been employed in a previous study involving the PPM-O and its precursors (15). Cronbach's *alpha* was calculated as the reliability estimate for each of the individual subscales, as per Mulcahy and Vaughan (17).

Results

Thirty-nine osteopaths were identified through the recruitment search. Of those 39 osteopaths, 12 expressed interested in the study, were screened, and recruited as practitioners. 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%). Nine questionnaires (3.9%) were confirmed as being lost through the mailing process. No responses were withdrawn by patients.

Patients

The demographic characteristics of the patients who participated in this study are summarised in Table 1.

Table 1. Patient demographic characteristics.

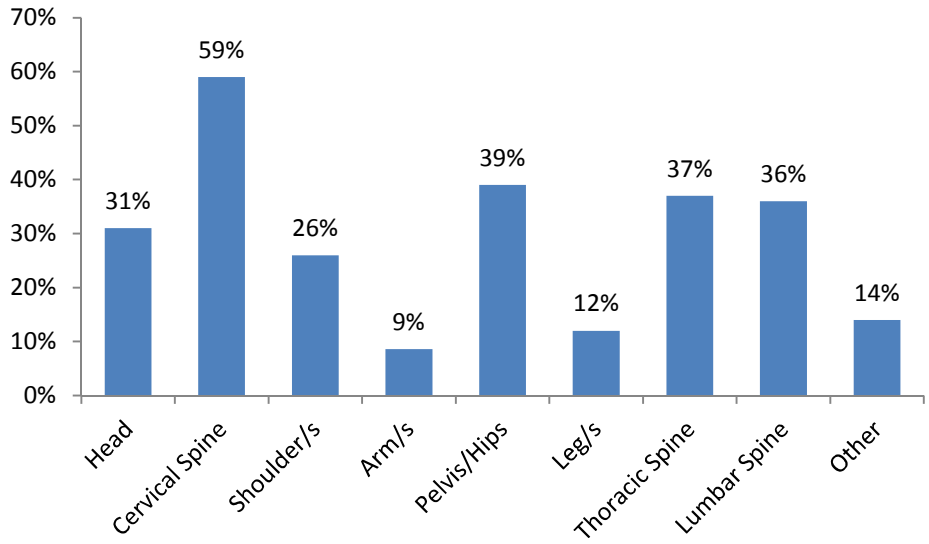
	Number (%)
Gender	
Males	10 (9.3)

Females	96 (89.7)
Missing	1 (0.9)
Age	
Mean (SD)	50.2 years (±13.7)
Median	49 years
Range	18-85 years
Education	
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)
Employment status	
Employed	54 (71.1)
Unemployed	7 (9.2)
Retired	10 (13.2)
Student (not working)	4 (5.3)
Student (working)	1 (1.3)
Satisfaction with Life (median, range)	4 (2-5)
Meaningfulness of Daily Activity (median, range)	4 (1-5)
First osteopathic treatment (yes)	3 (2.8)
First osteopathic treatment at the practice (yes)	12 (11.2)
Previous Osteopathy in the Cranial Field treatment (yes)	91 (85.0)

Body Regions Treated by the Osteopath

The most common body region that patients received treatment for was the neck (cervical spine) (61.7%), the pelvis or hips (40.7%), head (39.6%), and lower back (lumbar spine) (30.9%) (Figure 1). Other reasons for seeking osteopathic treatment included anxiety, "emotional stuff", general well-being, relief from stress, fertility, and pregnancy.

Figure 1. Area of the body the osteopath treated for the presenting complaint.



Note: patients could select more than one body region.

Satisfaction with Life and Meaningfulness of Daily Activities

Median values for Satisfaction with Life (SWL) and Meaningfulness of Daily Activities (MDA) were both 4 (Table 1). A SWL and MDA score of 3 or less was observed for 20.2% and 30.8% of patients respectively.

Patient Perception Measure - Osteopathy

Cronbach's *alpha* was used as the reliability estimate for the two PPM-O sub-scales (17): 1) 'Education and information' ($\alpha = 0.71$, 95%CI 0.61-0.78), and 2) 'Cognition and fatigue' ($\alpha = 0.76$, 95%CI 0.69-0.83). Deletion of single PPM-O items did not increase the Cronbach's *alpha* score for either sub-scale. The descriptive statistics for the 13 PPM-O items and subscales are summarised in Table 2.

Table 2. Descriptive statistics for the Patient Perception Measure – Osteopathy (PPM-O).

Education & effectiveness PPM-O subscale item	Number	Mean	Median	Std. Dev	Range
1. The way my osteopath answers all of my questions is (Options: Poor, fair, good, very good, excellent)	106	3.6	4	0.5	2-4
2. The instructions my osteopath gives me regarding my home exercise program are (Options: Poor, fair, good, very good, excellent	96	3.2	3	0.2	1-4
3. Osteopathic treatment has helped my condition (Options: Never, rarely, sometimes, mostly, always)	104	3.4	3	0.6	2-4
4. As a result of osteopathic treatment, my general health is (Options: Poor, fair, good, very good, excellent)	101	3.7	4	0.7	2-5
5. During my treatment, the questions my osteopath asked were (Options: Poor, fair, good, very good, excellent)	103	3.3	3	0.7	2-4
6. After my osteopathic treatment I felt like my whole body was treated rather than just one area (Options: Never, rarely, sometimes, mostly, always)	106	4.4	4	0.7	1-5
7. Osteopaths at this clinic talk to me about the body's ability to	106	2.9	3	1.0	1-4

heal itself (Options: Never, rarely, sometimes, mostly, always)					
8. I feel calmer after my osteopathic treatment (Options: Never, rarely, sometimes, mostly, always)	106	3.3	3	0.8	1-4
9. How helpful is osteopathic treatment in managing your condition? (Options: Poor, fair, good, very good, excellent)	105	4.2	4	0.7	2-5
Subscale total score (max. subscale score is 39)		32.2	3.5	32.5	23-39
Cognition & fatigue PPM-O subscale					
10. Osteopathic treatment makes me feel vague* (Options: Never, rarely, sometimes, mostly, always)	104	3.6	4	1.0	1-5
11. I cannot focus on tasks after my osteopathic treatment* (Options: Never, rarely, sometimes, mostly, always)	105	3.5	4	0.7	1-4
12. I feel tired after osteopathic treatment* (Options: Never, rarely, sometimes, mostly, always)	106	2. 8	3	1.0	1-5
13. I find it hard to concentrate after my osteopathic treatment*	105	3.6	3	0.9	2-5

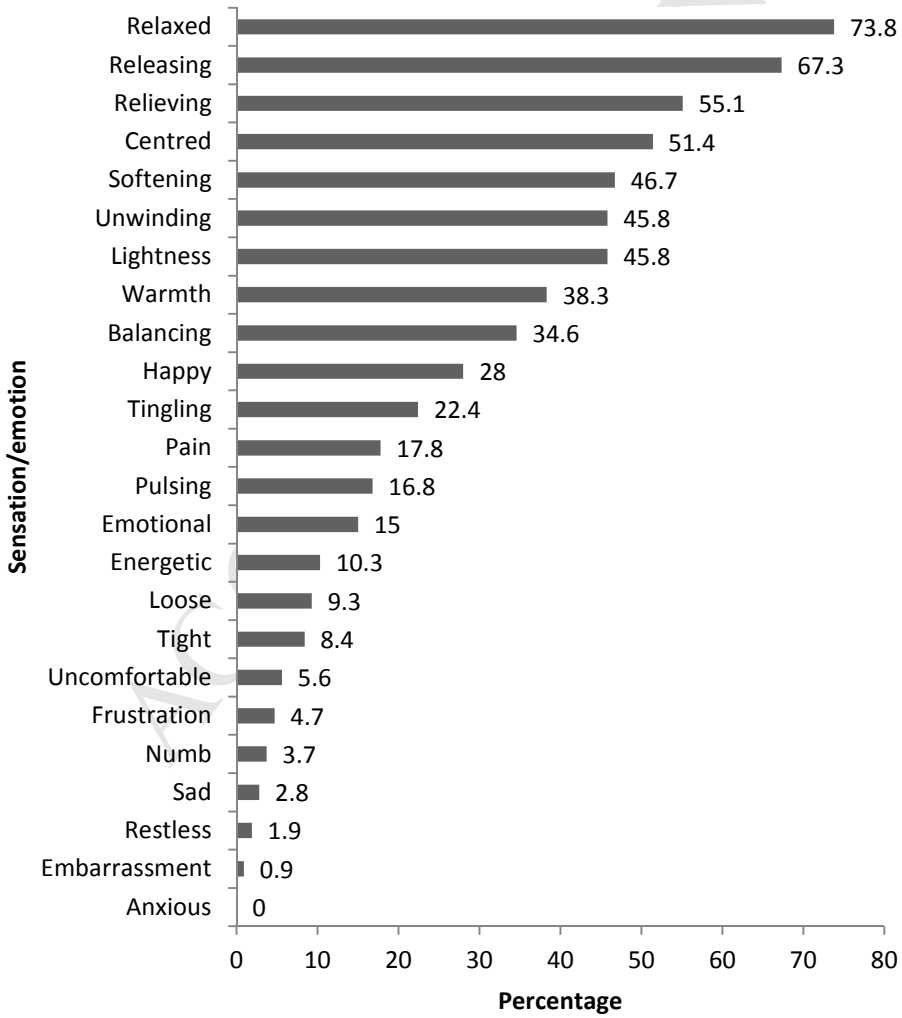
Subscale Total Score (max. subscale score is 19)	13.7	13	2.8	6-19

* 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

Sensations and Emotions Experienced During or After Osteopathy Treatment

Figure 3 depicts the sensations and emotions experienced by patients during (or immediately after) their osteopathy treatment. Of the 24 sensations and emotions available for selection, the most predominant were 'relaxed' and 'releasing', with the median number of sensations and emotions selected being 6.

Figure 3. Sensations and emotions experienced by patients during or immediately after their osteopathy treatment.



Treatment approach, patient perception, and sensations and emotions experienced

Patients who reported receiving a predominantly OCF approach to their treatment were more likely to report experiencing a 'relaxed' ($p=0.006$, $r=0.28$) or 'unwinding' ($p=0.017$, $r=0.24$) sensation compared to those patients who reported receiving a structural approach with *small* effect sizes. No significant difference between the PPM-O subscale scores was identified for patients who reported either structural or OCF treatment approach ($p>0.05$).

Patients who exhibited higher total scores for PPM-O subscale 1 Education and Effectiveness were more likely to report experience feeling 'happy' ($p=0.015$, $r=0.26$), 'centred' ($p=0.033$, $r=0.23$), 'releasing' ($p=0.013$, $r=0.29$) and 'loose' ($p=0.037$, $r=0.22$) sensations and emotions compared to those with lower Education and Effectiveness scores, with small effect sizes. For subscale 2 Cognition and Fatigue, higher scores were exhibited by those reporting experiencing the 'energetic' ($p=0.021$, $r=0.24$), 'unwinding' ($p=0.029$, $r=0.23$), and 'emotional' ($p=0.021$, $r=0.29$) sensations and emotions with small effect sizes.

Association between Measures

Age demonstrated a small positive correlation with both PPM-O subscales ($\rho = 0.22$). All other correlations for demographic variables and the PPM-O items were $\rho < 0.20$. The PPM-O subscale 1 Education and Effectiveness demonstrated a small correlation between SWL ($\rho = 0.39$) and MDA ($\rho = 0.25$). Subscale 2 Cognition and Fatigue was not associated with SWL or MDA ($\rho < 0.20$). No significant difference for gender was observed for both PPM-O subscales.

Discussion

The present study is the first to report on the experiences of New Zealand patients who have received a single osteopathy treatment measured using a quantitative approach. The Patient Perception Measure - Osteopathy (PPM-O) (17) was used to evaluate patients' perceptions of their treatment.

Demographics and patient characteristics

The demographic profile of patients seeking osteopathy treatment was relatively consistent with the characteristics identified by other authors describing complementary and alternative medicine users in New Zealand and Australia (27-29). In the present study, increasing age was positively correlated with the PPM-O Education and Effectiveness subscale. These items may reflect a more positive perception of the patients' care. Older age has previously been associated with greater patient satisfaction (30, 31). No significant difference for gender was observed for any of the PPM-O subscales. The PPM-O was designed to ensure that items were not influenced by gender (17) and the current study provides further support for this psychometric property of the questionnaire.

Approximately 25% of the patients in the present study reported their SWL to be a 3 or less, and over 33% of patients reported their MDA to be a 3 or less. Lower SWL and MDA scores have previously been associated with higher Hospital Anxiety and Depression Scale scores (15) a
nd these screening items may reflect a concomitant mental health complaint at the time of the study. The results suggest that lower SWL is associated with a lower perception of their treatment with regard to the education provided and effectiveness of the treatment. A similar association has been observed in another study with patient who have received an OCF approach (32). Further research into the relationship between presenting for osteopathy treatment and mental health complaints is required as this may also influence treatment perceptions. It is not possible to ascertain whether a patient had previously suffered from, or was currently suffering from, a mental health complaint at the time of the study. This distinction could be evaluated in future research.

The correlations between MDA and the PPM-O subscales were *trivial* to *small* suggesting a limited relationship between meaningfulness of activities and responses to the PPM-O. *Small* to *moderate* positive correlations with SWL were observed for both PPM-O subscales. These PPM-O items may be a reflection of the patients' satisfaction with their care and is consistent with the notion that people who are satisfied with their life are more likely to be satisfied with their healthcare (33). Patient-centred care, by implementing approaches such as self-management (e.g. home exercises), has been demonstrated to positively relate to satisfaction with care (34, 35) , and this aspect of care may have been captured in the relationship between PPM-O subscale 1 and SWL. Satisfaction with practitioner questioning has also been associated with satisfaction with care (36). This relationship may also be captured by PPM-O subscale 1. These positive correlations identified in the present study suggest satisfaction with life may play a role in the patients' perception of their treatment. This observation has been observed in mental health diagnosis and treatment where satisfaction with life and perceived optimism towards the future is related to better mental health, and hopelessness or helplessness is associated with poorer mental health (37-40). To date this possible association between positive and negative life operation with diagnosis, treatment and outcomes manual therapy populations has not been tested.

Patients sought osteopathy treatment with the practitioners directing their treatment towards the neck (61.7%), pelvis or hips (40.7%), head (39.6%), and lower back (30.9%). There is no New Zealand osteopathy patient data currently available for comparison. Both New Zealand chiropractic data (41) and data on presentations to Australian osteopaths (1, 42) suggests that the most common presentation for complaint is the lower back. There is no clear reason for these differences, however those patients seeking osteopathy treatment in New Zealand may have a different profile to those seeking care from other musculoskeletal healthcare professionals. This assertion requires further investigation.

Self-reported sensations and emotions experienced during or immediately after treatment

Mulcahy and Vaughan (15) investigated sensations and emotions patients experienced during and after an OCF treatment. The results of the present study support Mulcahy and Vaughan's (15) findings that 'relaxing' (73.8%), and 'releasing' (67.3%) are the predominant sensations experienced. 'Relaxing' was the most prevalent sensation experienced by patients. Patients who reported this sensation demonstrated higher scores on the Education and Effectiveness subscale compared to those who did not report experiencing the sensation. This suggests that those patients who feel relaxed during and/or after their treatment are more positive about the effectiveness of their treatment and the information provided by the practitioner. Patients who reported receiving a predominantly OCF approach to their treatment were more likely to report experiencing a 'relaxing' or 'unwinding' sensation, compared to those patients who reported receiving a structural approach. Higher frequency of experiencing these sensations may reflect the words or descriptions used by the OCF practitioner during the treatment. The use of the term 'unwinding' exists in the osteopathy treatment literature (43-46) supporting the potential for the word to be used as a descriptor of the outcome of the technique being performed rather than the patient experience, however such an assertion requires further investigation.

The other sensations and emotions that were significantly different for subscale 1, 'happy', 'centred' and 'loose', may also provide an indication as to the perceived effectiveness of the treatment. The PPM-O subscale scores were not significantly different for those who reported a 'releasing' sensation compared to those who did not, suggesting that whilst the sensation or emotion may occur during or after treatment, it may not be related to the perceived effectiveness of the treatment. The Cognition and Fatigue subscale scores were significantly higher for those patients who reported experiencing the 'energetic', 'unwinding', and 'emotional' providing some evidence for the validity of the subscale.

Psychometrics of the Patient Perception Measure – Osteopathy

The two sub-scales of the PPM-O, 'Education and Information' and 'Cognition and Fatigue' have been shown to be internally consistent in previous work (17) and the results of the present study support this. Although the PPM-O was originally developed for an OCF patient population (16), further refinement of the measure was undertaken with patients seeking predominantly structural osteopathy approaches to care (17). The outcomes of the current study in New Zealand osteopathy patients suggest the PPM-O may be valid for use in a patient population seeking predominantly OCF treatment. Mulcahy and Vaughan (16, 17, 47, 48) have argued that the PPM-O can be used to evaluate patient perceptions of osteopathy treatment, regardless of the treatment approach, and this assertion appears to be supported in the present study.

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, and it is not possible to identify those patients where this occurred in the present study. In one particular case where this had occurred multiple times, a new wave of questionnaires were sent to the practitioner because of the questionnaires that had been taken home for completion, none had been mailed back. This suggests that patients may be 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. The patients may have also perceived patient may have perceived completing the questionnaire was providing feedback to the practitioner, and therefore may not have wanted to undertake survey completion at the time of the consultation.

Another limitation is patients' perception of what their treatment consisted of. Where a patient indicated that they received a mostly 'cranial' treatment, the response is based on their understanding

of what does and does not constitute a 'cranial' treatment. However, this may be different to what actually occurred in the consultation. Some of the manual techniques employed during the consultation may not be considered 'cranial' techniques however the patient may perceive them as such. This could be addressed by having the practitioner indicate on the patients form the predominant treatment type used.

Furthermore, this study collected data which is 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.

Further validation is required for the use of the PPM-O in a New Zealand population, as the results from previous studies in Australian populations (15, 16) may not be generalizable. A continuation of the current study evaluating a 'structural treatment' patient population is currently underway. This study will further the use of the PPM-O in order to evaluate the measures' psychometric properties. In regards to OCF; a large, multi-phase study could be useful in order to examine a patients' perception of OCF treatment. For example: exploring the perceptions and experience of the patient pre/during/post-treatment, practitioner experiences of the same treatment, and comparing these observations with the patient's presenting complaint, examination findings, and treatment received. These variables have previously been explored in isolation, but not in relation to a shared treatment experience. A longitudinal study of patients' experiences post-treatment could also be beneficial, in order to ascertain whether there is a long-term post-treatment pattern which was not captured in the present study.

Conclusion

The present study is the first to report on the experience of patients seeking osteopathy treatment in New Zealand. Further, there is no data on the profile of the patient seeking osteopathy treatment in New Zealand and the current study provides a basis for further work into this area. These patients report similar sensory experiences to those patients seeking OCF treatment in Australia. Understanding how patient perceptions can influence treatment outcomes is a vital part of health care and patient management. Clinicians can apply such knowledge in their practice to enhance the treatment experience to further improve treatment outcomes. The PPM-O is potentially a measure clinicians can use to assess patients' experiences and perceptions of their treatment. The use of the PPM-O questionnaire and demographic survey warrant further investigation with patients seeking osteopathy care in New Zealand before it can be reliably used in clinical practice. Consideration of how a patient's perception may be influenced by their satisfaction with life also warrants further exploration.

References

1. Burke SR, Myers R, Zhang AL. A profile of osteopathic practice in Australia 2010–2011: a cross sectional survey. BMC Musculoskeletal Disorders. 2013;14(1):1-10.

2. Licciardone JC, Brimhall AK, King LN. Osteopathic manipulative treatment for low back pain: a systematic review and meta-analysis of randomized controlled trials. BMC Musculoskelet Disord. 2005;6(1):43.

3. Franke H, Franke J-D, Fryer G. Osteopathic manipulative treatment for nonspecific low back pain: a systematic review and meta-analysis. BMC Musculoskelet Disord. 2014;15(1):286.

4. Franke H, Franke J-D, Belz S, Fryer G. Osteopathic manipulative treatment for low back and pelvic girdle pain during and after pregnancy: A systematic review and meta-analysis. J Bodyw Mov Ther.

5. Franke H, Franke J-D, Fryer G. Osteopathic manipulative treatment for chronic nonspecific neck pain: A systematic review and meta-analysis. Int J Osteopath Med. 2015;18(4):255-67.

6. Müller A, Franke H, Resch K-L, Fryer G. Effectiveness of Osteopathic Manipulative Therapy for Managing Symptoms of Irritable Bowel Syndrome: A Systematic Review. The Journal of the American Osteopathic Association. 2014;114(6):470-9.

7. Sutherland W. The Cranial Bowl. Minnesota: Free Press Company; 1939.

8. Moran R, Gibbons P. Intraexaminer and Interexaminer Reliability for Palpation of the Cranial Rhythmic Impulse at the Head and Sacrum. J Manipulative Physiol Ther. 2001;24(3):183-90.

9. Hartman S, Norton J. Interexaminer Reliability and Cranial Osteopathy. Scientific Review of Alternative Medicine. 2002;6(11):23-34.

10. Milne K, Moran R. Physiological effects of a CV4 cranial osteopathic technique on autonomic nervous system function: A preliminary investigation. Int J Osteopath Med. 2007;10:10-7.

11. Haller H, Lauche R, Cramer H, Rampp T, Saha F, Ostermann T, et al. Craniosacral Therapy for the Treatment of Chronic Neck Pain: A Randomized Sham-controlled Trial. Clin J Pain. 2015;32(5):441-9.

12. Müller T, Pietsch A. Comparison of gait training versus cranial osteopathy in patients with Parkinson's disease: A pilot study. NeuroRehabilitation. 2013;32(1):135-40 6p.

13. Berkowitz M. Application of osteopathy in the cranial field to treat left superior homonymous hemianopsia. Int J Osteopath Med. 2013;17(2):119-22.

14. Greene D. An Investigation Of Patient Experiences Of Treatment In The Cranial Field Of Osteopathy [Masters thesis]: Unitec Institute of Technology; 2009.

15. Mulcahy J, Vaughan B. Sensations Experienced and Patients' Perceptions of Osteopathy in the Cranial Field Treatment. Journal of Evidence-based Complementary & Alternative Medicine. 2014;19(4):235-46.

16. Mulcahy J, Vaughan B, Boadle J, Klas D, Rickson C, Woodman L. Item development for a questionnaire investigating patient self reported perception, satisfaction and outcomes of a single osteopathy in the cranial field (OCF) treatment. Int J Osteopath Med. 2013;16(2):81-98.

17. Mulcahy J, Vaughan B. Exploring the construct validity of the Patient Perception Measure–Osteopathy (PPM-O) using classical test theory and Rasch analysis. Chiropractic & Manual Therapies. 2015;23(1):6.

18. Cohn MA, Fredrickson BL, Brown SL, Mikels JA, Conway AM. Happiness unpacked: Positive emotions increase life satisfaction by building resilience. Emotion. 2009;9(3):361-8.

19. Mulcahy JC. Meaningful daily activity and chronic pain. Melbourne, Australia: Victoria University; 2011.

20. The Sutherland Cranial Teaching Foundation of Australia and New Zealand. New Zealand practitioners 2014 [Available from: http://www.sctfanz.org.au/new_zealand_practitioners.html.

21. Blaser P. New Zealand Osteopaths' Attitudes to 'Evidence-Based Practice' – Development of a Questionnaire and Preliminary Results [Masters thesis]: Unitec Institute of Technology; 2009.

22. Jette DU, Bacon K, Batty C, Carlson M, Ferland A, Hemingway RD, et al. Evidence-based practice: beliefs, attitudes, knowledge, and behaviors of physical therapists. Physical therapy. 2003;83(9):786-805.

23. Compton WC. Meaningfulness as a mediator of subjective well-being. Psychol Rep. 2000;87(1):156-60.

24. Jason LA, Timpo P, Porter N, Herrington J, Brown M, Torres-Harding S, et al. Activity logs as a measure of daily activity among patients with chronic fatigue syndrome. J Ment Health. 2009;18(6):549-56.

25. Hopkins W. A Scale of Magnitudes for Effect Statistics 2002 [Available from: http://www.sportsci.org/resource/stats/effectmag.html.

26. Yatani K. Mann-Whitney's U test 2016 [Available from: http://yatani.jp/teaching/doku.php?id=hcistats:mannwhitney.

27. Pledger MJ, Cumming J, Burnette M. Health service use amongst users of complementary and alternative medicine. The New Zealand Medical Journal (Online). 2010;123(1312).

28. Xue C, Zhang A, Lin V, Da Costa C, Story DF. Complementary and alternative medicine use in Australia: A national population-based survey. J Altern Complement Med. 2007;13(6).

29. Xue CCL, Zhang AL, Lin V, Myers R, Polus B, Story DF. Acupuncture, chiropractic and osteopathy use in Australia: a national population survey. BMC Public Health. 2008;8(105).

30. Rahmqvist M. Patient satisfaction in relation to age, health status and other background factors: a model for comparisons of care units. Int J Qual Health Care. 2001;13(5):385-90.

31. Jackson JL, Chamberlin J, Kroenke K. Predictors of patient satisfaction. Soc Sci Med. 2001;52(4):609-20.

32. Mulcahy J, Vaughan B. Sensations experienced and patients' perceptions of osteopathy in the cranial field treatment. J Evid Based Complementary Altern Med. 2014:2156587214534263.

33. Weiss GL. Patient Satisfaction with Primary Medical Care Evaluation of Sociodemographic and Predispositional Factors. Med Care. 1988;26(4):383-92.

34. Rathert C, Wyrwich MD, Boren SA. Patient-Centered Care and Outcomes. Med Care Res Rev. 2013;70(4):351-79.

35. McMillan SS, Kendall E, Sav A, King MA, Whitty JA, Kelly F, et al. Patient-Centered Approaches to Health Care. Med Care Res Rev. 2013;70(6):567-96.

36. Li HZ, Desroches NG, Yum Y-O, Koehn C, Deagle G. Asymmetrical Talk between Physicians and Patients: A Quantitative Discourse Analysis. 2007. 2007;32(3).

37. Puvill T, Lindenberg J, de Craen AJM, Slaets JPJ, Westendorp RGJ. Impact of physical and mental health on life satisfaction in old age: a population based observational study. BMC Geriatr. 2016;16(1):194.

38. Gallagher MW, Lopez SJ. Positive expectancies and mental health: Identifying the unique contributions of hope and optimism. The Journal of Positive Psychology. 2009;4(6):548-56.

39. Leamy M, Bird V, Le Boutillier C, Williams J, Slade M. Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. The British Journal of Psychiatry. 2011;199(6):445-52.

40. Conversano C, Rotondo A, Lensi E, Della Vista O, Arpone F, Reda MA. Optimism and its impact on mental and physical well-being. Clinical Practice & Epidemiology in Mental Health. 2010;6(1).

41. Holt KR, Beck RW. Chiropractic patients presenting to the New Zealand College of Chiropractic teaching clinic: A short description of patients and patient complaints. Chiropractic Journal of Australia. 2005;35(4):122.

42. Orrock PJ. Profile of members of the Australian Osteopathic Association: Part 2–The patients. Int J Osteopath Med. 2009;12(4):128-39.

43. Anderson RE, Seniscal C. A Comparison of Selected Osteopathic Treatment and Relaxation for Tension-Type Headaches. Headache: The Journal of Head and Face Pain. 2006;46(8):1273-80.

44. King HH. Osteopathic Manipulative Therapy Affects the Position of Internal Organs in Humans. The Journal of the American Osteopathic Association. 2013;113(7):577-9.

45. Wiegand S, Bianchi W, Quinn TA, Best M, Fotopoulos T. Osteopathic Manipulative Treatment for Self-Reported Fatigue, Stress, and Depression in First-Year Osteopathic Medical Students. The Journal of the American Osteopathic Association. 2015;115(2):84-93.

46. Tozzi P, Bongiorno D, Vitturini C. Low back pain and kidney mobility: local osteopathic fascial manipulation decreases pain perception and improves renal mobility. J Bodyw Mov Ther. 2012;16(3):381-91.

47. Mulcahy J, Vaughan B. Exploring the construct validity of the Patient Perception Measure – Osteopathy (PPM-O) using classical test theory and Rasch analysis. Chiropr Man Therap. 2015;23(1):6.

48. Mulcahy J, Vaughan B, Boadle J, Klas D, Rickson C, Woodman L. Item development for a questionnaire investigating patient self reported perception, satisfaction and outcomes of a single osteopathy in the cranial field (OCF) treatment. Int J Osteopath Med. 2012;In press.

Highlights

- Patients receiving osteopathy treatment self-report positive perceptions of the treatment experience
- The demographic profile of patients presenting for OCF treatment in New Zealand is consistent with public health data
- The current study provides some evidence for the construct validity of the Patient Perception Measure – Osteopathy