Item development for a questionnaire investigating patient self reported perception, satisfaction and outcomes of a single osteopathy in the cranial field (OCF) treatment

ITEM DEVELOPMENT FOR A QUESTIONNAIRE INVESTIGATING PATIENT SELF REPORTED PERCEPTION, SATISFACTION AND OUTCOMES OF A SINGLE OSTEOPATHY IN THE CRANIAL FIELD (OCF) TREATMENT.

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ABSTRACT

Background

Osteopathy in the Cranial Field (OCF) is a treatment approach used by osteopaths in the management of a wide variety of complaints. OCF is based on the premise that the bones of the skull are mobile and that changes in the flow of cerebrospinal fluid can affect the function of the body. Patients seek this form of treatment, as it is perceived to be gentle and suitable for a range of ages. There are only a few studies assessing the effectiveness of OCF and there is no published research investigating the patients' perception of OCF as a treatment approach.

Objective

To develop items for a patient self-reported questionnaire that assesses the patients' own perceptions of OCF.

Design

Systematic literature search, item development and face validity testing.

Methods

A systematic search of the literature was undertaken to identify a measure or measures that may be suitable to assess a patient's perception of OCF. No measure of patient perception of OCF was located. Measures of patients rating of satisfaction, efficacy and outcomes of physical therapy treatment were located and reviewed. From these published measures, items that were appropriate for a measure of OCF were identified and considered as possible items to include in a new measure of patient perception of OCF. Items were developed and the face validity was investigated.

Participants

Six osteopaths who were familiar with or use OCF as part of their treatment approach, two patients who had previously been treated using OCF exclusively, and two patients who had not previously received any OCF treatment as part of their osteopathic treatment, participated in the face validity testing.

Results

A systematic literature search was conducted. Appropriate items were extracted from seven articles in the 'osteopathy' search and four additional articles from the 'manual therapy' search. Items were reworded, where appropriate, to ensure they reflected the OCF approach. Consideration of face validity identified a number of changes that were required to some of the items.

Conclusions

The Patient Perception Measure of Osteopathy in the Cranial Field (PPM-OCF) was developed to assess patients' perceptions of the OCF treatment approach. Further psychometric testing of the PPM-OCF is required prior to its application in the clinical and research settings; this is currently the subject of a further study.

INTRODUCTION

Osteopathy in the Cranial Field (OCF) was first developed by William Garner Sutherland, a student of Andrew Taylor Still, the founder of osteopathy. The basic principles of OCF were based on Sutherland's original belief "...that the intrinsic rhythmic movements of the human brain cause rhythmic fluctuations of cerebrospinal fluid (CSF) and specific relational changes among dural membranes, cranial bones, and the sacrum".[1, 2] Practitioners that use this therapeutic style propose they can manipulate parameters of the cranial rhythmic impulse (CRI) to benefit a patient's health.[3] OCF has been adopted by small numbers of other health-orientated professions such as dentists, physiotherapists and chiropractors.[4, 5] Despite OCF's apparent growth in popularity, there is little quality research into this area of osteopathic practice and the methods used by clinicians have been challenged as being unscientific.[6-9]

While there has been a shift to implement evidence based practice into osteopathic practice,[10] very few published studies have established the efficacy of OCF treatments.[12] The studies that have been published have focused on establishing whether or not movement of the cranial bones exist, and the inter- and intra-examiner reliability of palpating this movement.[7, 13] Hartman and Norton[7] proposed that there is no evidence of inter-examiner reliability in palpating the CRI or cranial dysfunction. However, they did report acceptable results for intra-reliability of CRI rate and detection. Therefore, there is considerable controversy regarding whether the subtle cranial fluctuations can be palpated or the cranial bones themselves can move.[4, 14]

Although current research is somewhat limited, OCF practitioners anecdotally report positive results for a multitude of physical conditions including excessive crying and colic in infants,[15, 16] juvenile cerebral palsy, [17, 18] migraine,[19] physical disability,[20] vertigo[21] and sleep patterns.[3] Upledger[22] proposed that OCF can be used to treat a broad range of physical and emotional conditions ranging from acute sprains and strains to visceral dysfunctions and emotional disorders (Table 1). However, the efficacy of OCF to treat these conditions has not been established in large clinical trials.[10, 23]

INSERT Table 1 here

Whilst evidence for the efficacy and effectiveness of OCF is somewhat limited, in that study samples were small and the effect size was not always reported or was low, further research is required to increase clinicians' understanding of the treatment modality.[21] Although there would appear to be insufficient evidence to support the use of OCF treatment,[6, 9] there are patients who seek OCF treatment and who are returning for subsequent treatments. Therefore it is prudent that the patient's beliefs about OCF and their experiences during and after treatment are explored.[26, 27]

Previous studies have demonstrated that patient satisfaction is an important and measurable outcome of treatment.[28, 29]. As patient satisfaction is not directly observable, indirect or subjective measurement instruments (i.e. interviews, surveys, questionnaires) are often utilised.[30-32] Satisfaction is also influenced by patient characteristics including age, sex, education, work status, race, number of previous

treatments, and the duration of the condition.[33, 34] A patient's previous health care experience(s) both positive and negative and level of health literacy also influence the patient's expectations of treatment.[35, 36] Research has also demonstrated that patient satisfaction is positively correlated with favourable treatment outcome and patient-therapist interactions, leading to the patient or their family members seeking additional care at the same facility when required, and also complying with advice provided by the therapist.[37-39]

Despite the volume of literature on patient satisfaction, there does not appear to be a *gold standard* for measuring patient satisfaction, in the physical or manual therapies.[30] Of the studies reviewed by the current researchers, four reports have focused on systematic approaches to measure patient satisfaction in manual therapy[35, 40-42] and seven studies have reported on patient perception, satisfaction and adverse events measures in osteopathic practice.[28, 43-48] A review of all the manual therapy and osteopathy patient self-report measures used in the aforementioned studies was performed. None of the measures located was considered suitable as a potential measure of patient satisfaction and perception of OCF treatment.

After scrutinising the patient measures, the broad domains of patient satisfaction and perceptions of treatment identified were: practitioner skills (physical treatment), communication and interpersonal skills of practitioner (information, education and therapeutic relationship), access to treatment and the administrative and financial processes, and favourable or unfavourable treatment outcomes (ameliorate, exacerbate symptoms, adverse events) and global satisfaction with treatment. In a current review of

satisfaction with musculoskeletal physical therapy care this observation was also confirmed. In this review the most often cited reasons for satisfaction with treatment were the therapist's interpersonal attributes, skills and communication, the process and continuity of care and to a lesser extent treatment outcome. Therefore, any questionnaire developed to assess a patients' perception of osteopathic treatment should include these domains.

Satisfaction with and the effectiveness of a treatment are influenced by a patient's cognitive, emotional and behavioural factors and also how the individual patient perceives the treatment on a particular occasion.[49]. The effectiveness of a treatment cannot be determined unless the patient's perceptions of that treatment are also considered.[29, 50] To understand what happens in OCF treatment it is therefore necessary to go beyond measuring a patient's satisfaction with treatment and to explore what the patient perceived happened during the treatment.

The focus of the current research is to systematically assess patients' self-reported perception of one OCF treatment. Information collected about the level of satisfaction with an OCF treatment, the sensations and emotions experienced during and immediately after treatment, and the positive or negative cognitive, emotional and physical outcomes of the treatment will be indicative of what the patient perceived they gained from or how they were adversely affected by as a result of having OCF treatment. A global measure of patient perception of OCF was developed to gain an insight into how patients perceive their OCF treatment. In future if this measure is

reliable it may be used to inform clinicians who practice OCF and determine patient satisfaction with treatment including clinical outcomes.

METHODS

Systematic searches were conducted to locate items for inclusion in a Patient Perception Measure of Osteopathy in the Cranial Field (PPM-OCF). The literature review encompassed a systematic search available through CINAHL, SCIENCE DIRECT and MEDLINE (via Pub Med).

The relevant references from the online and database searches were reviewed, as well as relevant references cited within the identified articles.

Systematic Search 1 – Osteopathy

The first systematic search was designed to search for a measure of patient perception within osteopathy, viewed on 31 March 2009 and 13 August 2010.

Key search terms and phrases included;

1. "Patient Perception, Osteopathy, Cranial";
2. "Patient views on Osteopathy and Cranial";
3. "Patient beliefs of treatments, Osteopathy, manual medicine"
4. "Patient outcomes osteopathy and cranial treatment".

Articles were retained if they fulfilled the following criteria; included a self-report measure or description of a self-report measure of patient perception and/or satisfaction

of treatment; the measure was used with osteopathic patients; the study included patients over 18 years of age and the articles were published from 1995 to 2010.

For each of the articles retained, items in the self-report measures of patient perception and/or satisfaction of treatment where scrutinised for suitability as a measure for patient perception of OCF.

Systematic Search 2 – Manual Therapy

As the initial literature searches did not locate a measure of patient perception of osteopathy, it was decided to broaden the literature search to relate to patient perception and satisfaction of manual therapy in general as opposed to osteopathy.
The literature searches were conducted on 31st of March 2009, 13th and 24th of August 2010.

Key search terms and phrases used included:

1. The relevant references from the online and data bases “patient perception OF manual treatment”
2. “patient perception AND manual therapy”
3. “treatment satisfaction OF manual treatment”
4. “treatment satisfaction AND manual therapy”
5. “patient perception OF treatment”
6. “patient satisfaction AND treatment”
7. “patient satisfaction”, “patient perception”

Articles were retained if they fulfilled the following criteria: included a self-report measure of patient perception and/or satisfaction of treatment; included patients over 18 years of age; the articles were published from 1995 to 2010. A review of the available literature revealed that there were very few published works on patient perception.

For each of the articles retained, items in the self-report measures of patient perception and/or satisfaction of treatment were scrutinised for their suitability for inclusion in a measure for patient perception of OCF.

Item Development

Following the literature searches, items from the articles were extracted for revision and subsequently items were developed for inclusion in the questionnaire. All items included were phrased as closed ended questions relating to general concepts rather than specific individual expressions. This format facilitated the process of receiving more defined answers relating to patient satisfaction and perception, and allowing a faster survey completion time, something that may influence patients' decision to participate in the survey. All open-ended questions were excluded, for ease in measuring and interpreting results in a large clinical sample.

Validity Testing

Face validity was established by acquiring expert opinions of six osteopaths who either used or were familiar with the techniques used by OCF practitioners. Practitioners were asked to provide feedback on the face validity of the PPM-OCF, clarity of items and the range of items included. Revisions were made to the PPM-OCF in accordance with practitioner feedback. Two independent OCF patients and two independent osteopathy patients who had never received OCF techniques were also asked to provide feedback on the item clarity and face validity.

RESULTS

Systematic Search 1 – Osteopathy

From the systematic search of osteopathy terms, twenty-seven (27) studies were reviewed and seven (7) of these articles were retained, the others were eliminated (Figure 1).

INSERT Figure 1 here

The OSTEOSURV-I interview[44] included 139 items with a portion of OSTEOSURV-I intended to provide data relevant to osteopathic medicine, via questions covering the following seven areas; 1) main healthcare provider type, 2) services received, 3) satisfaction, 4) quality, 5) perceptions of osteopathic medicine, 6) socio-demographic characteristics and 7) general health. Items about quality of care, interpersonal manner and overall satisfaction were noted. The OSTEOSERV-1 was deemed unsuitable for the present study, due to the style of question format and the emphasis on osteopathic manipulative treatment (OMT) rather than OCF.

The purpose of the study by Pomykala et al.[45] was to assess patient's perception of the efficacy of OMT in a hospital setting. The study used a non-validated survey consisting of ten open ended questions to evaluate patient perception. This 10-item (Hospital based) survey was not an adequate measure of patient perception of treatment,

satisfaction and outcome of OCF. However, items about pain, stress and anxiety, comfort, improved recovery and recommendation of OMT were noted.

Licciardone et al.[43] developed a 45-item survey. The survey was largely adapted from the Patient Satisfaction Questionnaire (PSQ).[32] Other clinical outcome items were included in the survey, for example; a statement on the perceived efficacy of OMT. There were also items on pain and discomfort before and after OMT and on mobility before and after OMT. The majority of the items in this survey were not considered suitable for a patient perception measure of OCF as the research involved OMT in an ambulatory specialty clinic within an osteopathic medical college. The global dimensions that were considered to be useful in the assessment of patient perception of OCF treatment were technical quality, interpersonal manner, consideration and overall satisfaction. Several subscales were considered useful for developing a measure of patient perception of OCF. These included: Doctors at this clinic do not explain my medical problems to me; Doctors at this clinic treatment me with respect; I'm satisfied with the care that I receive at this clinic; and, I would recommend that my friends and family be treated at this clinic.

Strutt et al.[28] used an unstructured questionnaire with several questions requesting free text responses about the experience of attending an osteopathic training centre in the UK. The questionnaire survey was administered by post to all 292 patients attending the clinic. The response rate was 62%. This study was a descriptive and exploratory investigation of patient perceptions of treatment at an osteopathic training clinic. The primary aim was to understand the factors contributing to patient satisfaction and

dissatisfaction. While questions from this study were regarded as not comprehensive enough for a patient perceptions measure of OCF, they did highlight several important and appropriate areas of patient perception. These included: clarity of process (education/information); therapeutic relationship and efficacy of treatment; and, overall satisfaction with treatment.

Rajendran et al.[46] developed a two-part self-assessment questionnaire to assess post-treatment adverse events. Specific descriptors regarding sensory perception of treatment including tiredness and numbness and tingling from the questionnaire were considered adequate for inclusion in the development of a measure of patient perception of treatment, satisfaction and outcome of OCF.

Westmoreland et al.[47] assessed patients' views of receiving osteopathy in contrast with usual GP care in the UK. Data was obtained by a short questionnaire followed by a semi-structured interview of twelve questions. Twenty participants with sub-acute and chronic neck or back pain were interviewed. The aim of the study, to explore patients' views of osteopathy in contrast to usual GP care was to identify patient insight into the effects of treatment. This interview was designed for a specific clinical population who had experienced back or neck pain and continual refinement of the topic guide took place as new themes emerged during the interview. Given the qualitative nature of this study it was not suitable as a patient perception measure of OCF. The aspects that were considered useful in the assessment of patient perception of OCF treatment were understanding and knowledge of osteopathic treatment, physical perception of pain and overall satisfaction.

The descriptive study of Pringle and Tyreman[48] analysed the characteristics and diagnosis of a cohort of patients attending a group of osteopaths and studied these patients' previous experiences of primary and secondary care for their illness episodes via a self report symptom questionnaire. Although the eleven-item questionnaire was deemed unsuitable as a measure of patient perception of OCF, specific items regarding sensory perception of treatment and efficacy/satisfaction of treatment were considered.

Systematic Search 2 – Manual Therapy

From the systematic search of manual therapy terms, twenty-five (25) studies were reviewed and four (4) of these articles were retained, the others were eliminated (Figure 2).

INSERT Figure 2 here

Beattie et al.[41] investigated the discriminant validity of the MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy (MRPS) to differentiate between patient satisfaction measures relating to internal factors (patient-therapist interaction) and external factors (not related to the patient-therapist interaction) in large, diverse group of patients. Although identification of items or factors which influence patient satisfaction provides a richer understanding and may provide the specific reasons for a patient's degree of satisfaction with care,[41] this measure is not comprehensive enough for a measure of patient perception of OCF. However, the study did support the

concepts of: the therapeutic relationship; clarity of process (education and information); and, overall satisfaction with treatment.

Another study by Beattie et al.[40] followed on from their previous study to provide preliminary information regarding the association between longitudinal continuity and reports of patient satisfaction with physical therapy outpatient care. The primary issue addressed, related to the relationship between subject satisfaction and having one versus more than one physical therapy provider during the course of care, that is, the presence of absence of longitudinal continuity. As mentioned previously, this measure is neither comprehensive enough nor specific enough for a measure of patient perception of OCF. However, this particular study further highlighted the importance of the therapeutic relationship and overall satisfaction in relation to continuity of care between the therapist and the patient.

Goldstein et al.[35] used the five hypothesised domains of patient satisfaction cited by Nelson[51] as a guide in the generation of the items of their measure (Table 2).

INSERT Table 2 here

Goldstein et al.[35] generated items by adapting sections from the survey instruments contained in *Patient Satisfaction Instruments: A Compendium*.[31] The Compendium was compiled by the American Physical Therapy Association (APTA) in 1995. The compilation came from responses to a call for patient satisfaction.[35] This survey instrument was not considered appropriate for a measure of patient perception of OCF

as it was not comprehensive and did not capture specific OCF treatment details. However, standardisation of survey instruments, satisfaction with treatment, education, interpersonal management, continuity of care and overall satisfaction were considered.

Monnin and Perneger[42] developed a cross-sectional survey involving a structured questionnaire measuring patient satisfaction with physical therapy followed by open-ended questions. Although this specific questionnaire was not considered appropriate for a measure of patient perception of OCF, due to lack of specificity to OCF, the article did identify some important probing questions to consider for inclusion in a measure of patient perception of OCF including: therapeutic relationship; education and information; respect; recommending the centre and coming back to the centre if treatment was needed again; open-ended questions about the reasons for returning (or not returning) to the centre; and, strengths and weaknesses of the physical therapy centre.

Item Development

Of the eleven patient satisfaction and perception measures that were identified and evaluated (Figures 1 and 2) there was no single measure that was a suitable measure of patient perception of OCF, assessing (a) patient satisfaction, (b) perception of treatment and (c) outcomes of treatments in osteopathy and physical therapy, However, specific items were considered for inclusion in the final PPM-OCF.

The specific items considered for inclusion in a measure of patient perception of treatment, satisfaction and outcome of OCF from each of the eleven identified measures included;

1. Quality of care, interpersonal manner and overall satisfaction;[44]
2. Perceived benefits of treatment including, pain, stress and anxiety, comfort, improved recovery and recommendation of OMT;[45]
3. Technical quality, interpersonal manner, and overall satisfaction;[43]
4. Clarity of process (education/information), therapeutic relationship, efficacy of treatment and overall satisfaction with treatment;[28]
5. Biographical information including current health status and history/nature of their presenting complaint prior to treatment, specific items regarding sensory perception of treatment including, tiredness; numbness and tingling;[46]
6. Understanding and knowledge of osteopathic treatment, physical perception of pain and overall satisfaction of treatment;[47]
7. Sensory perception of treatment including, numbness or tingling and tiredness, efficacy/satisfaction of treatment including, improvement expected and improvement achieved;[48]
8. Therapeutic relationship, clarity of process (education and information) and overall satisfaction with treatment;[41]
9. Therapeutic relationship and overall satisfaction in relation to continuity of care between the therapist and the patient;[40]
10. Standardisation of survey instruments, interpersonal management and continuity of care;[35]

11. Probing questions in regard to future measure implementation, including: recommending the centre and coming back to the centre if treatment was needed again; open-ended questions about the reasons for returning (or not returning) to the centre; strengths and weaknesses of the physical therapy centre.[42]

Items

Based on the systematic search and critical review of the literature, thirty-seven (37) items were developed for inclusion in the PPM-OCF based on the constructs discussed under 'Item Development'. These items are listed in Figure 3.

INSERT Figure 3 here

Scaling Responses

When considering the format of scaling for the PPM-OCF it was decided to use adjectival scales with independent boxes as it is a "…common format for self reported health measures and appears to have good psychometric qualities".[52] Adjectival scales were also chosen because of their clear format and easy manner of completion and this format has also been was used by Licciardone and Gamber[43] in the PSQ-III.

For each item patients were asked to select their response by marking the box that best represents the most appropriate response. Examples of these responses are at Figure 4.

INSERT Figure 4 here.

A number of items were phrased in a ‘negative’ manner to avoid a response bias where the participant selects the same response for all items. These items included:

- Treatment makes no difference to my frame of mind
- Treatment makes me feel vague
- After or during treatment I feel cold
- I feel sad after treatment
- I feel tired after treatment
- I am anxious after treatment
- I feel alone after treatment
- I feel emotionally drained after treatment

Validity

face validity

Revision to the measures included; rephrasing and repeating certain key concepts such as items 8 and 17: “I am much calmer, relaxed person after osteopathic treatment” and “I feel calmer after my treatment.”

Bipolar keywords or phrases were used to clarify concepts and to ensure validity. This was seen in paired phrases such as items 13 and 24: “After and during treatment I feel warm”, “After and during treatment I feel cold”

content validity

The PPM-OCF items were based on eleven published measures. A list of descriptive terms was developed to describe emotional & physiological responses, based on the literature reviewed. These items were categorised into paired positive and negative phrases in order to increase sensitivity & specificity to ensure discriminate validity.

The published measures were reviewed and three areas of patient perception were identified; patient satisfaction, patient perception of treatment, and outcome of treatment (physiological & psychological).

DISCUSSION

The final version of the Patient Perception Measure (PPM-OCF) covers a number of domains identified through the systematic search of the literature. The measure attempts to identify the patients' perception of the whole osteopathic consultation and their perception of the outcomes of the treatment and management where an OCF approach has been used. Six items in the PPM-OCF also address the communication element of the patient-practitioner interaction, something which most questionnaires related to patient satisfaction and addressed in a limited way, often only incorporating one or two items in a questionnaire.

A common domain canvassed by the measures identified through the systematic search of the literature in osteopathy was overall treatment satisfaction. This theme was also predominant in the systematic search of the manual therapy literature, therefore an item or items that addressed overall satisfaction with OCF treatment was essential for the PPM-OCF. Other common themes identified in measures located include treatment efficacy, patient education and sensory perception of treatment.

Table 3 provides an overview of the PPM-OCF items related to the items or domains identified in the systematic search of the *osteopathy* literature.

INSERT Table 3 here

Patient satisfaction is reported to impact on the outcomes of treatment and it could be reasonably argued that patient satisfaction and perception of treatment are intimately linked. In a systematic search of the '*osteopathy*' literature, overall satisfaction was canvassed in a number of studies.[28, 43, 47] This indicates that it is important to assess the patient's overall satisfaction with treatment, because this is likely to impact on the patient's overall perception of treatment.

It is widely recognised that the patient's perception of the efficacy of treatment has an effect on overall patient satisfaction and this may, in turn, impact on the patient's perception and outcomes of the treatment. Treatment efficacy was assessed in a number of studies[28, 45, 48] in the assessment of patient satisfaction with osteopathic treatment in a variety of settings and in different patient and practitioner populations. The PPM-OCF addresses the physiological and psychological components of treatment efficacy through the use of multiple items. These PPM-OCF items utilise the patient's global assessments of the efficacy of osteopathic treatment for their complaint (item 5) and also the effect on general health (item 6) and quality of life (item 7).

Patient education was also assessed in a number of studies identified in the literature review.[28, 43, 47] Educating the patient about their condition and management may empower them to take on a greater role in their healthcare and reduce the reliance on the healthcare professional. It may also improve treatment outcomes as well as the patient's perception of their treatment. Items 4 and 6 of the PPM-OCF address the patient education issue.

Sensory perception of treatment[46-48] is an area that a number of studies have identified as being relevant to patient perception. This is particularly relevant in osteopathy and osteopathic treatment given the 'hands-on' approach used by osteopaths. Within the PPM-OCF, items 13, 16-22, 24-29 and 31 address the sensory perception element of treatment. Rajendran et al.[46] identified specific items regarding sensory perception of treatment in their measurement including tiredness, numbness and tingling. Further items also drew on phrases and elements that patients describe as experiencing during and after osteopathic treatment.

The global dimensions that were considered to be useful in the assessment of patient perception of OCF treatment from the measure by Licciardone et al.[43] were technical quality, interpersonal manner, consideration and overall satisfaction. Variations of several subscales were also included; "Doctors at this clinic do not explain my medical problems to me", "Doctors at this clinic treat me with respect", "I'm satisfied with the care that I receive at this clinic", and "I would recommend that my friends and family be treated at this clinic". The wording of these subscales was modified to reflect an Australian clinical practice setting (i.e. changing the word *Doctor* to *Osteopath*).

Table 4 presents the PPM-OCF items matched to the items and dimensions indentified in the systematic search of the *manual therapy* literature.

INSERT Table 4 here

The therapeutic relationship has been generally regarded as an important element of patient satisfaction.[40-42] A therapeutic relationship covers aspects such as the patients perception of the communication by the practitioner and the rapport established between patient and practitioner.[35]

Overall satisfaction was identified in the search of the *manual therapy* literature as a component that requires assessment in any questionnaire related to patient satisfaction, and therefore patient perception of treatment. All four relevant studies[35, 40-42] included an item or items that assessed this satisfaction construct. Beattie et al.[40] highlighted the importance of the therapeutic relationship and overall satisfaction in relation to continuity of care between the therapist and the patient.

As observed in the *osteopathy* literature, patient education[35, 41, 42] was also a common theme identified in the *manual therapy* literature search and therefore a construct that was required to be investigated by the PPM-OCF.

Beattie et al.[41] investigated the discriminant validity of the MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy (MRPS), in particular, the concepts of the therapeutic relationship; clarity of process (education and information) and overall satisfaction with treatment.

Goldstein et al.[35] used the five hypothesised domains of (i) patient standardisation of survey instruments, (ii) satisfaction with treatment, education, (iii) interpersonal management, (iv) continuity of care and (v) overall satisfaction was considered.

Monnin and Perneger[42] assessed patient satisfaction with physical therapy in a survey followed by open-ended questions. This study identified some important probing questions to consider for inclusion in a PPM-OCF, including: therapeutic relationship; education and information; respect; recommending the centre and coming back to the centre if treatment was needed again; open-ended questions about the reasons for returning (or not returning) to the centre; strengths and weaknesses of the physical therapy centre.

It was observed during the study that many items that can be included in a PPM-OCF would be equally as well placed in a general measure of patient perception of physical therapy, manual therapy or osteopathy. The major differences being that some sensations and outcomes previously reported as outcomes associated with OCF treatments, and not being readily identified as being outcomes of osteopathic treatment, have been included and would subsequently need to be removed in further versions of the questionnaire. To test this observation the PPM-OCF may also be administered to non-OCF patients to identify the different perceptions of OCF and non-OCF patients as measured on the PPM-OCF.

With the items developed, further psychometric testing is required to ascertain whether any items are redundant or the PPM-OCF requires further modification. The current measure may also be compared with another measure of patient perception and tested on various clinical populations with a range of osteopaths to establish the validity, reliability and establish population norms of the measure.

CONCLUSION

The published measures were reviewed and three areas of patient perception were identified; patient satisfaction, patient perception of treatment, and outcome of treatment (physiological & psychological).

The PPM-OCF items were based on eleven published measures. A list of descriptive terms was developed to describe emotional and physiological responses, based on the literature reviewed. These items were categorised into paired positive and negative phrases in order to increase sensitivity and specificity and to ensure discriminate validity. Further psychometric testing is required prior to clinical application of the measure.

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- Headache syndromes relating to fluid congestion, migraine, and hormone related syndromes
- Pain syndromes including myofascial, neuromuscular and radicular
- Acute sprains and strains
- Autonomic nervous system imbalance
- Conditions that arise from birth trauma
- Emotional disorders (e.g. depression, anxiety)
- Visceral dysfunction (e.g. peptic ulcers, ulcerate bowels, tachycardia,)
- Visual disturbances such as strabismus

Table 1. Conditions reported to be amenable to Osteopathy in the Cranial Field techniques.[22]

1. **Access:** Physical location of facility, hours of operation, telephone access, appointment waiting time, waiting time in waiting room

2. **Administrative Technical Management:** Ambience of facility, parking, payments/claims processing, quality assurance programs.

3. **Clinical Technical Management:** Qualifications of staff, including clinical skills of physical therapists, technical skills of physical therapist assistants, technical skills of any others on staff providing care, explanation of care given.

4. **Interpersonal Management:** Responses to complaints or suggestions, warmth/friendliness of physical therapist(s), warmth/friendliness of other staff members, appropriate amount of time spent with each patient, respect for patient privacy.

5. **Continuity of Care:** Intent to continue to have condition managed by provider, knowledge of patients history by the therapist, patients recommendation of the therapist to others, general satisfaction with intervention received. These last 2 items infer that the patient will continue care with the same therapist if he or she is satisfied with the intervention received.

Table 2. Nelson's Dimensions of Patient Satisfaction.

Measure/STUDY	Sample Size	Clinical Sample	No of Items	Response Rate	Mean Age Years	DIMENSION/ ITEMS
Paitent Perepctions of Osteoapthic Manuipulative Treatment OMT in a hospital setting [1]	160	Hospitalized Patients	10	82%	NR	Improved Recovery (Question 1) Helped Pain (Items 2 & 3) Reduced Stress and Anxiety (Item 8) Helped with Overall Comfort (Item 9) Recommendation of OMT (Item 10)
OSTEOSERV-I [2]	1106	General Population	Satisfaction 11 Perception 9	36%	44.8	Access Convenience Emergency Care Cost of Care Continuity of Care Quality of Care Interpersonal Manner Overall Satisfaction Patient Perception of Osteopathic Medicine (9Items)
Patient Satisfaction with Osteopathic Manipulative Treatment [3]	459	Manipulative Medicine Student Clinic	45	60.4	50.5	Technical Quality Interpersonal Manner Consideration Overall Satisfaction
Patients Perception and satisfaction with Treatment in a UK training clinic [4]	181	Osteopathy Student Clinical	6	62.0	NR	Reason Attending Clinic (Item 1) Changes in Health Status (Item 2) Satisfaction with Treatment (Item 3) Satisfied with Explanations (Item 4) Comfortable with Manner Treated (Item 5) Anything that Should be Changed (Item 6) Therapeutic Relationship & Efficacy Treatment (Item 5)

						Overall Satisfaction with treatment (Item 3)
Patient Self-Report of Adverse Events in a UK osteopathic training clinic [5]	52	Osteopathic Student Clinic	15	83.0	43.5	List of Adverse Events that were the result of receiving treatment (15 Items) Pain & Discomfort (7 Items) Tiredness (1 Item) Dizzy/Vertigo (1 Item) Numbness/Tingling 2 Items) Weakness (1 Item) Disturbed Vision (1 Item) Tinnitus (1 Item) Nausea/Vomitting (1 Item)
Patients Views of Receiving osteopathy in contrast with usual GP care spinal pain [6]	20	Private Osteopathic Practice	11	44.0	NR	Pain (2 Items) Previous Treatment Knowledge of osteopathy Treatment Expectations (4 Items) Access and Service Provision (3 Items)
Which diagnosis responds better to intervention by an osteopath? [7]	491	Private Osteopathic Clinics	11	98.6	NR	Pain (Items 1 & 2) Numbness/Tingling Stiffness Tiredness Impact Work & Chores (Items 6&7) Impact Social Life & Relationships (Items 8 & 9) Anticipated Improvement Achieved Improvement

NR - Not Reported

Table 3. PPM-OCF item dimensions identified during the systematic search 1 - Osteopathy.

1. Pomykala M, McElhinney B, Beck B, L, Carreiro J, E. Patient perception of osteopathic manipulative treatmnet in a hospitalized setting: A survey-based study. *J Am Osteopath Assoc* 2008;**108**(11):665-8.
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7. Pringle M, Tyreman S. Study of 500 patients attending an osteopathic practice. *Br. J. Gen. Pract.* 1993;**43**:15-8.

Measure/STUDY	Sample Size	Clinical Sample	No of Items	Response Rate	Mean Age Years	DIMENSIONS/ ITEMS
MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy [9]	4065	Outpatient Physical Therapy Clinic	Total 12	40%	55.2	
						Therapeutic relationship (Question 4, 6 and 7)
			7			Patient Therapist Relationship – Internal (Items 4,5,6,7,8,& 9)
			3			Administrative Processes – External (Items 1,2,3,)
			2			Global Satisfaction (Items 11& 12).
MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy Care (MRPS) [10]	1502	Outpatient Physical Therapy Clinic	Total 10	41%	55.3	
			7			Patient Therapist Relationship- Internal (Items 4,5,6,7,8,& 9)
			3			Administrative Processes – External (Items 1,2,3,)
			Not Reported			Global Satisfaction (Items 11& 12).
Satisfaction with Physical Therapy [11]	289	Private Physical Therapy Practices	Total 26	Not Reported	45.78	
				5		Treatment (Items 11,17,19, 20 & 21)
				1		Privacy (Item 7)
				2		Convenience of Appointment Time (Items 15 & 18)
				2		Cost (Items 24 & 25)
				1		Billing (Item 16)
				1		Ease & Scheduling of Appointment (Items 10)
				2		Scheduling (Items

						12 &13)
				1		Wait Time (Item 14)
				1		Courteous Staff (Items 9)
				1		PT Courteous (Item 8)
				3		Overall Satisfaction (Items 22,23 & 26)
Probing Patient Opinions About Physical Therapy [12]	522	Inpatients and Outpatients Hospital Physical Therapy Department	Total 14	52%	58.6	
			3			Admission Processes (Items 1,2 & 3)
			5			Treatment (Items 4,5,6,7 &8)
			4			Logistics of Treatment (Items 9,10,11 &12)
			2			General Evaluation (Items 13 & 14)

NR - Not Reported

Table 4. PPM-OCF item dimensions identified during the systematic search 2 - Manual Therapy.

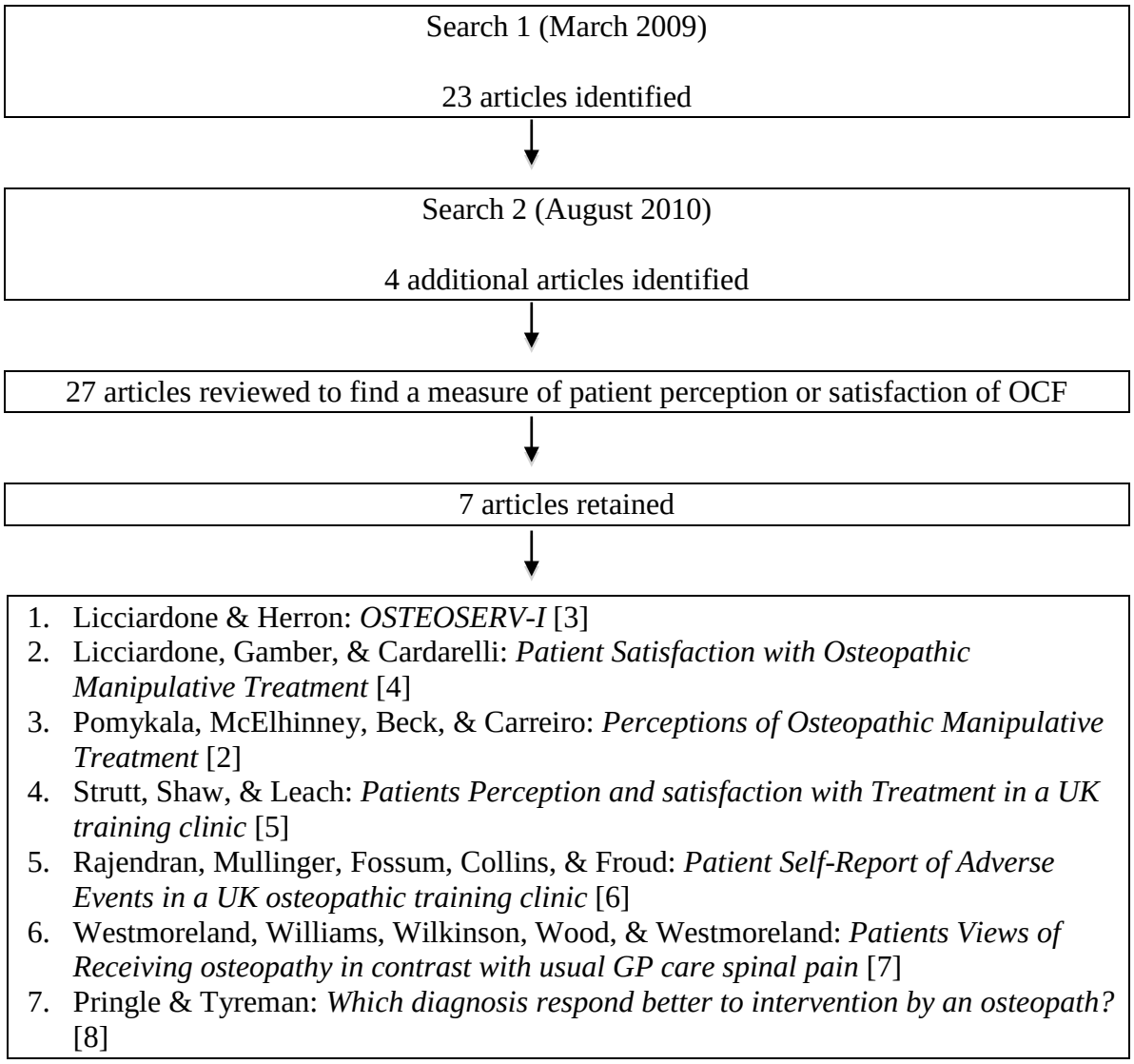

Figure 1. Search Strategy to Identify a Patient Perception Measure of OCF (Osteopathy).

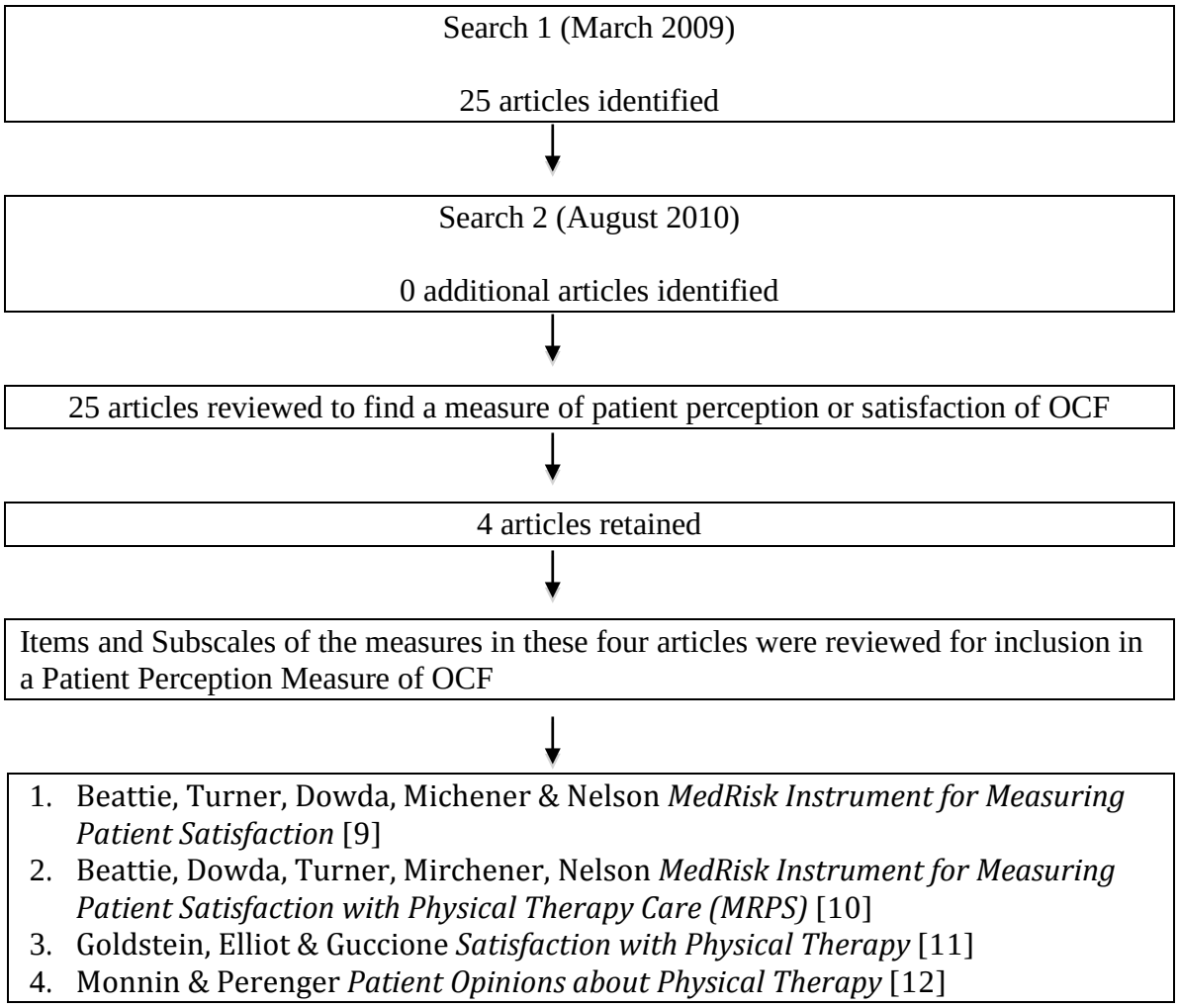

Figure 2. Search Strategy to Identify a Patient Perception Measure of OCF (Manual Therapy).

AUTHORSHIP STATEMENT

The authors undertook the following in relation to the manuscript:

JM – item development, assisted with literature review, assisted with development of the manuscript
BV – assisted with literature review, developed manuscript
JB – developed initial idea for the study, undertook literature review, item development, assisted with the development of the manuscript
CR - developed initial idea for the study, undertook literature review, item development
DK - developed initial idea for the study, undertook literature review, item development
LW - developed initial idea for the study, undertook literature review, item development