

# Barriers and facilitators experienced by osteopaths in implementing a biopsychosocial (BPS) framework of care when managing people with musculoskeletal pain – A mixed methods systematic review protocol

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## Keywords:

Musculoskeletal pain

Osteopathy

Biopsychosocial approach

Clinical practice guidelines

Barriers and facilitators

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## ABSTRACT

*Background:* Musculoskeletal (MSK) pain conditions have a substantial influence on the quality of life. Psychosocial factors such as depression, anxiety and social isolation have been shown to play an important role in the development and management of MSK pain. Therefore, clinical practice guidelines commonly recommend adopting a biopsychosocial (BPS) framework by practitioners managing MSK pain. However, it remains unclear how osteopaths implement a BPS framework in the management of MSK pain. This protocol describes the objective and methods of a systematic review of barriers and facilitators experienced by osteopaths in implementing a BPS framework of care when managing people with MSK pain.

*Methods:* The following electronic databases from January 2005 to March 2019 will be searched: PubMed, AMED, EMBASE, CINAHL, Cochrane Library, Physiotherapy Evidence Database (PEDro), and SCOPUS. Two independent reviewers will review the title, abstract and full-text article retrieved from the databases to assess potentially eligible studies. Any studies (quantitative, qualitative and mixed methods) that investigated the use or application of the biopsychosocial approach in osteopathic practice will be included in the review. Data synthesis for qualitative studies will be done using the GRADE-CERQual tool. Data synthesis methods for mixed method studies will be decided after data extraction and assessment.

*Discussion:* This systematic review will provide critical insights into the barriers and facilitators experienced by osteopaths to implement the BPS framework in their practice. This may be important and timely as a BPS framework has been recommended by various clinical practice guidelines.

## Background

Musculoskeletal (MSK) pain conditions such as low back pain (LBP), osteoarthritis and tendinopathies have a substantial influence on the quality of life [1,2] and together makeup the leading causes of disability internationally [3]. The rate of disability from MSK pain conditions are on the increase globally. In New Zealand for example, an estimated 1 in 5 people are affected by chronic (persistent) MSK pain at some point in their life [4,5].

Due to their high prevalence, the economic implications (direct and in-direct costs) of MSK pain are significant. In the United States, the cost of persistent pain has been estimated to be between \$560 and \$635

billion, which is greater than cardiovascular disease, cancer and diabetes combined [6]. On the global burden of disease scale, musculoskeletal conditions are the main cause of years lived with disability (YLDs) accounting for 15.92% of the total; with back pain and neck pain taking the top two places with 7.61% and 3.35% respectively. The ageing population (aged over 65) is expected to rise over the next 50 years globally [7]. Most MSK conditions increase with age, which taken together with reduced physical activity and associated comorbidities may raise the financial burden related to MSK pain substantially [3]. Therefore, the need for a co-ordinated allied health work force may be required to make efficient use of limited health resources.

MSK pain is managed in primary care by a number of different

health care professions including medical doctors, physiotherapists, osteopaths and chiropractors [8]. Often, these practitioners adopt a similar (mainly biomedical) approach where an effort is made to identify (and diagnose) a 'patho-anatomical' structure as a cause of patient's symptoms [9,10]. However, management of MSK pain utilising the biomedical model has been shown to be inadequate where there is no clear pathophysiological explanation as in the case of chronic MSK pain, which has resulted in inappropriate/high usage of imaging and an overuse of low value care. Further, the biomedical approach has been questioned as it ignores to take into consideration some key psychological factors such as depression, anxiety, fear avoidance, social isolation and catastrophization that have been shown to play an important role in the development and management of MSK pain and disability [11–13]. Therefore, the biopsychosocial (BPS) model has been put forward that offers a more holistic evaluation of these key psychosocial factors that contribute to pain and disability [14–16]. It is important to note that the current BPS model has been criticized for being vaguely defined [17] and may in fact perpetuate a reductionist approach [18]. Nevertheless, utilising a BPS approach (where appropriate) targeting treatment based on psychosocial factors may reduce disability and may be cost effective [19].

Considering the benefits, clinical practice guidelines (CPGs) recommend that psychosocial factors be considered in addition to biological factors when managing patients with MSK pain such as chronic low back pain [20,21]. These CPGs further advocate utilising a BPS approach by practitioners when assessing and managing these patients [20]. However, adopting a BPS approach in practice may require the clinician to consider the individual patient's pain experience in relation to their particular social and psychological contexts, which may lie outside the predominantly biomechanical and physical perspective of a biomedical approach [22]. Hence the incorporation of psychosocial factors into clinical practice may be challenging for some practitioners.

Research has identified some challenges that may prevent MSK practitioners in adopting a BPS approach. In a study done on Italian physiotherapists, the participants had showed a basic knowledge of the BPS model but only partially recognised psychosocial factors and its contribution to patient's low back pain and disability [23]. Those therapists further highlighted the presence of barriers in the assessment and management of chronic low back pain and some participants displayed a lack of skills to overcome these barriers [23]. A recent study identified various factors such as reduced knowledge, skills and confidence that act as barriers for musculoskeletal physiotherapists in incorporating a psychologically informed approach in people with chronic low back pain [24]. Furthermore, the nonadherence to clinical guidelines recommendations by health practitioners may in turn be related to their own attitudes and beliefs about managing MSK pain [25–28] and conflict of guideline recommendations with the patient's values and treatment expectations. All these barriers could be similar for osteopaths [28,29].

Osteopaths are providers of manual therapy (and/or exercise therapy and self-management) with osteopathy generally considered a profession with a set of unifying theoretical and philosophical principles [30,31]. However, the osteopaths' therapeutic approaches to practice and clinical decision-making are varied [30], which are influenced by their overall conception of practice that lay on a continuum from technical rationality to professional artistry [32]. Professional identity is defined as a collection of attributes, beliefs, values and experiences in terms of which people define themselves in a professional role. Osteopath's professional identity and can be varied [33]. However, two main themes have been identified (1) osteopaths who perceive osteopathy as a philosophy and (2) osteopaths who perceive osteopathy as a manual therapy with a philosophical background [31]. These variations to clinical practice and professional identity in turn are influenced by educational factors, views regarding the philosophy of osteopathy, practitioner's perceived therapeutic role and their view of health and disease [30,33]. Recent evidence however indicates that

osteopaths may be inclined to have a greater orientation towards the biomedical rather than the BPS model of care [29]. Therefore, osteopaths may experience similar challenges and barriers (discussed previously) in adopting a BPS approach or adhering to CPGs that recommend a BPS approach [28]. In addition, some unique challenges may prevent osteopaths from adhering to treatment guidelines that encourage a BPS approach as discussed below.

CPGs consistently recommend active rather than passive interventions [34], or a combination of manual therapy with exercise therapy with or without psychological therapy [20]. This may be perceived as a threat by the osteopathic profession as it is still common practice for osteopaths to adopt a biomedical framework to treatment [35] and may be a reason for the lack of utilisation of clinical guidelines in osteopathic practice. For example, a survey of UK osteopaths revealed that two thirds of respondents did not actively seek clinical practice guidelines as applicable to them and more than half did not use guidelines in their clinical practice [36].

Being patient-centred, an interdisciplinary approach is a critical element of treatment based in the BPS framework to be both clinically effective and cost effective [37]. However, most osteopaths globally work in private practice [38] without the support associated with working within a hospital or a health organisation [39]. Therefore, osteopaths are likely to find it difficult to develop networks or channels for appropriate referrals (especially psychological) where required [40].

Despite the evidence-practice gap and ongoing challenges, there has been a global emphasis for the incorporation of a BPS approach as part of routine osteopathic practice and training/education [38,41]. However, it remains unclear what are the current practices of osteopaths in implementing a BPS approach in the management of MSK pain. Particularly, understanding the enablers and challenges towards implementing BPS approach in osteopathic practice may help toward increased uptake and usage of this framework for optimal patient outcomes. Hence a systematic review may be considered timely.

#### *Review question(s)*

- What is the usage of the BPS framework in current osteopathic practice?
- What factors enable or prevent osteopaths to implement a BPS approach into their practice?
- What types of interventions would facilitate osteopaths to implement a BPS framework into their practice?

#### *Review objective(s)*

The objectives of this review are to: (1) Summarise the literature on the current practices of the biopsychosocial model in osteopathic practice of MSK pain; (2) Synthesise the literature on enablers and challenges to implementing BPS framework in osteopathic practice.

#### *Methods*

This protocol has been reported in accordance with the preferred reporting items for systematic reviews and meta-analysis (PRISMA) checklist. The current protocol is under registration in the International Prospective Register of Systematic Reviews (PROSPERO).

#### *Identifying relevant studies (search process)*

A systematic search strategy will be developed to locate studies relevant to two key subject areas of our research question: concept (biopsychosocial model) and practice area (osteopathy). A combination of keywords such as 'manual therapy', 'osteopath\*', 'spinal manipulation', 'thrust', 'OMT', 'biopsychosocial', 'BPS model', 'patient centeredness', 'patient centred approach', 'facilitators', 'enablers', 'challenges',

Table 1  
Search strategy.

| Phase 1                                     | Phase 2                                 | Phase 3                             |
|---|---|-------------------------------------|
| 1. Exp. Osteopath*                          | 8. Exp. BPS Model                       | 18. Usage                           |
| 2. Exp. Manual therapy                      | 9. Biopsychosocial*                     | 19. Implementation                  |
| 3. Osteopathic Manipulative Treatment (OMT) | 10. BPS Framework/care                  | 20. Facilitator                     |
| 4. Spinal Manipulation                      | 11. Patient centeredness                | 21. Enabler                         |
| 5. Thrust                                   | 12. Patient care                        | 22. Barrier                         |
| 6. Joint mobilization                       | 13. Patient centred approach            | 23. Challenges                      |
| 7. Or/1-6                                   | 14. Clinical Practice Guidelines        | 24. Attitudes                       |
|   | 15. Musculoskeletal Pain/therapy [Mesh] | 25. Or/18-24                        |
|   | 16. Or/8-15                             | 26. Exp. Randomized clinical trial/ |
|   | 17. 7 AND 16                            | 27. Controlled clinical trial/      |
|   |   | 28. Qualitative Study               |
|   |   | 29. Mixed Methods Study             |
|   |   | 30. or/26-29                        |
|   |   | 31. 25 AND 30                       |
|   |   | 32. 17 AND 31                       |

Filters: The following filters will be applied.

Year: Jan 2005 to August 2019.

Language: English.

'barriers', 'usage' and 'implementation' will be used for this purpose. The Boolean operators "OR" and "AND" will be used to combine the search terms within and between each of the subject areas respectively. For a comprehensive search strategy, please refer to Table 1. A primary search will be conducted independently by 2 reviewers. A third reviewer will be consulted in case of any disagreement. The following electronic databases from January 2005 to August 2019 will be searched: PubMed, AMED, EMBASE, CINAHL, Cochrane Library, Physiotherapy Evidence Database (PEDro), and SCOPUS. A secondary search through 'grey literature' will also be undertaken on ProQuest (Dissertations and Theses), Ethos, open grey, clinical trial registries such as ANZCTR and systematic review protocol registries such as PROSPERO. Further, forward and backward citation searches from included articles or relevant reviews will be undertaken to retrieve additional articles [42].

#### Study selection

Any studies (quantitative, qualitative and mixed methods) that investigated the use or application of the biopsychosocial approach in osteopathic practice will be included in the review. Relevant thesis or dissertations that meet the inclusion criteria will be included. Studies could have taken place in any setting (private practice, hospital or multi-disciplinary clinic). To ensure relevancy for current clinical practice, only studies published since January 2005 will be included for two reasons: (1) There has been a global consensus/thrust for the use of a BPS framework in clinical practice for managing LBP such as the ACC (New Zealand) guidelines [21], European Guidelines [43] and Dutch guidelines [44]; (2) With regards to osteopaths, the emphasis for early identification and management of psychosocial factors in improving clinical outcomes for patients with LBP also emerged at around that time [45,46].

Exclusion criteria: studies will be excluded if: (1) not conducted in an osteopathic setting; (2) the study design is one of the following: previous reviews (systematic, scoping and narrative), expert opinion commentary and (3) published in any language other than English.

Articles obtained by the systematic search will be exported and saved into reference management software (EndNote X7). Titles of the retrieved articles will be screened for relevance after removing the duplicates. Relevant abstracts will then be screened followed by retrieval of full-text of articles that meet the inclusion criteria. The screening procedure will be conducted independently by two reviewers.

Disagreements will be resolved by discussion; if no agreement can be reached, a third reviewer will be consulted.

#### Data extraction

The research team will collectively decide which data/variables to extract. A data charting table/form will be used to standardise this procedure. Data will be extracted by two independent reviewers and a third review will be consulted in case of any disagreement. Data that may be extracted from each included study may include: study's aim; study design; study population; and study findings and author's conclusions. For qualitative data, the authors' interpretations (presented through themes and categories) will be retrieved. The charting form will be piloted on five studies to determine if the data extraction approach is consistent with the research question and purpose.

#### Quality assessment (including risk of bias)

The quality of the studies will be assessed by two independent reviewers. Both reviewers will record the rationale for study scores to enable comparison. A third reviewer will be consulted in case of any disagreements.

The critical appraisal skills program (CASP) for qualitative studies will be used to appraise the quality of qualitative studies [47]. CASP is comprised of nine closed questions (e.g. 'Was there a clear statement of the aims of the research?' Yes/Can't tell/No) and one open-ended question ('How valuable is the research?'). This tool assesses clarity of research aims, research design, recruitment methods, data collection, relationships between participants and researchers, ethical issues, analyses, description of findings and valuableness of the research. For each question, there is the option to add comments to explain the reasoning for each rating.

The Quality Assessment Tool for Quantitative Studies (QATQS) will be used to assess all clinical studies with or without randomisation and control groups, including quasi-experimental studies [48]. The QATQS has been shown to be a valid tool and is comprised of 22 closed questions and an overall rating of strong, moderate or weak in eight sections: selection bias; study design; confounders; blinding; data collection; withdrawals and dropouts; intervention integrity; analysis.

The Mixed Methods Appraisal Tool (MMAT) [49] will be used to appraise any mixed methods studies for this review. This tool consists of five closed questions assessing the research question, research design, integration of qualitative and quantitative methods, integration of qualitative and quantitative data and consideration of methodological limitations in mixed methods studies.

#### Data synthesis

For quantitative studies, if at least two studies with similar interventions, assessment methods, and adequate homogeneity are identified, then the feasibility of a meta-analysis [50] will be explored (although it is unlikely that many included studies will be quantitative). For qualitative studies, there are several approaches that could be taken for data synthesis. Some of the most commonly used methods to synthesise qualitative health research include thematic analysis [51], grounded theory and meta-ethnography [52].

If included studies are a combination of quantitative and qualitative studies, data integration (the process of bringing qualitative and quantitative approaches together) may be necessary and may include convergent or sequential synthesis designs [53]. In convergent synthesis, the quantitative and qualitative evidence is collected and analysed during the same phase of the research process in a parallel or a complementary manner. In sequential synthesis, a two-phase approach where the data collection and analysis of one type of evidence occur after [53].

If included studies are a combination of quantitative, qualitative

and mixed methods studies, meta-integration for synthesizing data will be done [54].

Given the wider possibilities, a final decision on data synthesis will be made after selecting and quality assessing the included articles, as recommended by the Cochrane Qualitative and Implementation Methods Group [55]. Though unlikely, there is a possibility that no studies meet our inclusion criteria. In such a scenario, the review will be reported as an 'empty review' as recommended by the Cochrane group [56].

As recommended by the Cochrane Qualitative and Implementation Methods Group, the GRADE-CERQual [57] (Confidence in the Evidence from Reviews of Qualitative research) will be used to summarise the level of confidence in synthesised qualitative findings. The GRADE-CERQual is made up of four key components such as: methodological limitations of included studies, coherence of the review finding, adequacy of the data contributing to a review finding and relevance of the included studies to the review question. After assessing each of the four components, overall confidence will be graded as high, moderate, low or very low.

## Discussion

This systematic review will be the first to synthesise and report barriers and facilitators experienced by osteopaths to implement the BPS model in their practice. This may be important and timely as a BPS framework has been recommended by various clinical practice guidelines [21,34,58] in the management of MSK pain. Therefore, the findings from this systematic review could result in key clinical recommendations/guidelines that may have direct clinical implications for osteopathic practice. The current review findings will also be used to inform our ongoing work to develop an online survey that will further explore the attitudes, beliefs and current usage of the BPS framework by osteopaths.

On the other hand, our data synthesis could be limited by the dearth and heterogeneity of the included studies, which may use qualitative, quantitative or mixed-methods approaches. As explained previously, if no studies meet our inclusion criteria, the review will be reported as an 'empty review'. Such an 'empty review' may still be important to identify gaps in the literature, summarise key messages from excluded studies and make recommendations for future research in this area [59].

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## Ethical approval

None required (not applicable).

## Declaration of competing interest

The authors confirm that they have no financial affiliation (including research funding) or involvement with any commercial organisation that has a direct financial interest in any matter included in this manuscript. No other conflict of interest (ie, personal associations or involvement as a director, officer, or expert witness) are known.

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