

## Massage therapy in chronic musculoskeletal pain management: a scoping review of the literature

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**Abstract.** *Introduction.* Massage therapy with soft tissue manipulation is one of the most common used techniques in pain management. The aim of this study was to identify the numerical ratio of articles in relevant literature about massage therapy in chronic musculoskeletal pain management. *Material and Methods.* We identified articles through database, including Web of Science, PEDro, and PubMed and hand-searching strategies. Articles published in the last 10 years related through databases according to predefined inclusion criteria were identified. Relevant articles were collected by using the following key words: pain; massage; pain and massage. The articles were selected dividing into three groups: meta-analysis studies; systematic reviews; randomized controlled studies. *Results.* We identified 690175 articles for the three key words: 676638 articles regarding “pain”, 10532 articles regarding “massage”, and 3005 articles regarding “pain and massage”. Among 3005 articles, there were 1469 (48.0%) randomized controlled studies, 508 (17.0%) systematic reviews, and 78 (2.6%) meta-analysis studies, respectively. The Swedish massage was seen the most common used massage technique. *Conclusion.* The key statistic inference from this review is that massage therapy is preferred technique in chronic musculoskeletal pain management.

**Key words:** *chronic musculoskeletal pain, massage, literature.*

### Introduction

International Association for the Study of Pain (IASP) described pain as it is any of the body dislocated, depending on an organic cause with or without previous experiences of the person; related, sensory, emotional, unpleasant emotion (1,2). Pain is a common symptom of numerous medical problems, which usually indicates the occurrence of tissue damage (2-4). Pain associated with tissue damage, inflammation, or a disease process that is of relatively brief duration (days or weeks) is usually referred to as acute pain. When pain persists for extended periods of time—IASP have defined this pain as ‘chronic pain’ that which lasts for longer than 3 months (3,4). ‘Chronic pain’ is often a nociceptive and complex condition that changes the quality of life of the person, leads people to abnormal behaviors, and psychological factors play a role after the stimulant function (1,2,5,6). However, chronic pain is as much a psychosocial problem as it is a physiological one: anxiety, depression, stress, anger, loss of financial independence, disability is closely associated with long term pain (3). A ‘biopsychosocial systems model’ was developed by Jacobson and Mariano and people are viewed as living systems with multiple levels of analysis ranging from the cellular to the social in this model. Following this biopsychosocial approach, a mix of medical, physical, and psychological components must be used for management of chronic pain (2,7).

Pain management is in crisis. The prevalence of pain is high despite costly, well-intentioned responses, which rely mainly pharmaceuticals and high tech interventions (8,9). Painful conditions are common and a leading cause of morbidity (10,11). There are many treatments methods for pain conditions such as non-opioid drugs, opioids, surgery and complementary and alternative medicine modalities (manual therapy, acupuncture and mind body methods (10,12). Evidence-based non-pharmacologic (NP) approaches are more appropriate initial treatment for acute and chronic pain management (8). A NP treatment to reduce pain; can also reduce anxiety and depression and facilitate restful sleep and increase well-being of patients (8).

Massage therapy defined as patterned and purposeful manipulation of soft-tissue for therapeutic purposes to prevent or reduce pain, spasm, tension or stress and to promote health and wellness. It has a number of desirable attributes-no special equipment is needed for application and it is delivered safely (8,10,13). It was found in systematic reviews and meta-analysis studies that the massage therapy is effective for pain management (8, 14-16). Pain is an unpleasant multidimensional experience. It affects individuals not only physically but also socially and emotionally. Pain management should include methods that treat pain and related dysfunctions with a holistic view (bio-psycho-social model). Physiotherapists see many patients suffering from pain conditions especially chronic musculoskeletal pain in their work life. Actually they use many kinds of manual techniques, including massage to treat patients. We therefore aimed to determine the numerical ratio of articles related to massage therapy in pain management.

### Material and Method

*Data source and search methods.* We conducted a scoping review of the literature. The computerized databases were used to search for relevant studies about pain management. The following databases were searched from inception: Web of Science, PEDro, and PubMed. Published articles related to massage therapy in pain management in the last 10 years in Web of Science, PEDro or PubMed were collected. Two reviewers screened reports and extracted the data. Scoping review of the literature was performed between 1st and 20th of November 2018. All articles related to massage therapy in pain management were collected by using the following three key words: (1) pain; (2) massage; (3) pain and massage. The articles are analyzed by dividing into three groups as follows; meta-analysis studies; systematic reviews; randomized controlled studies.

*Criteria for considering studies and study selection.* Studies investigating participants with chronic pain and using therapeutic massage were included. Studies were eligible if they were meta-analysis, systematic reviews or randomized controlled trials. A published full text of the study was required. Case studies, reviews, theses, and abstracts were excluded. Studies were excluded when measures of effect of intervention were not statistically analyzed or data were not available. Two reviewers (NE and UC) screened titles and abstracts obtained from the searches to identify potentially relevant studies, and then screened full reports of studies against the eligibility criteria. The number (n) and their percentages (%) of the articles were calculated.

### Results

Until November 2018, when we searched using the following the three keywords; (1) pain, (2) massage, and (3) pain and massage, we identified 690175 articles through database and hand-searching strategies: in PubMed (N: 344913), in Web of Science (N: 331102), and in PEDro (N: 623). There were 676638 articles regarding “pain”, 10532 articles regarding “massage”, and 3005 articles regarding “pain and massage”, respectively. Distributions of all published articles, which met our inclusion criteria are shown in Figures1, 2, and 3.

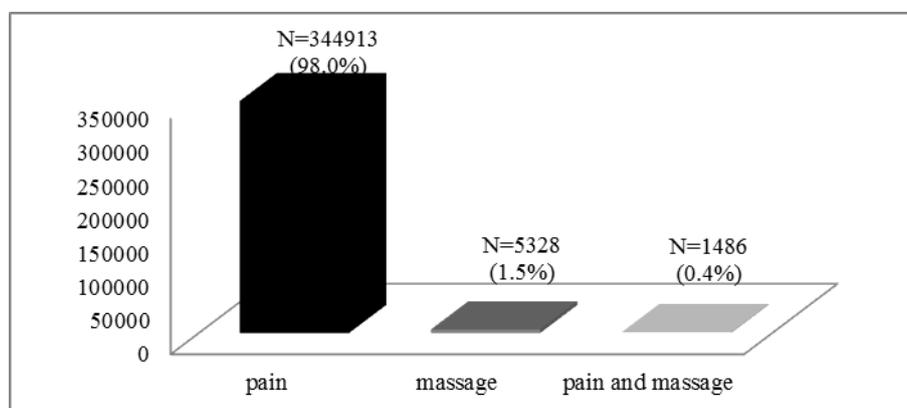


Figure 1. Numbers (N) and Percentages (%) of the published articles in PubMed until November 2018

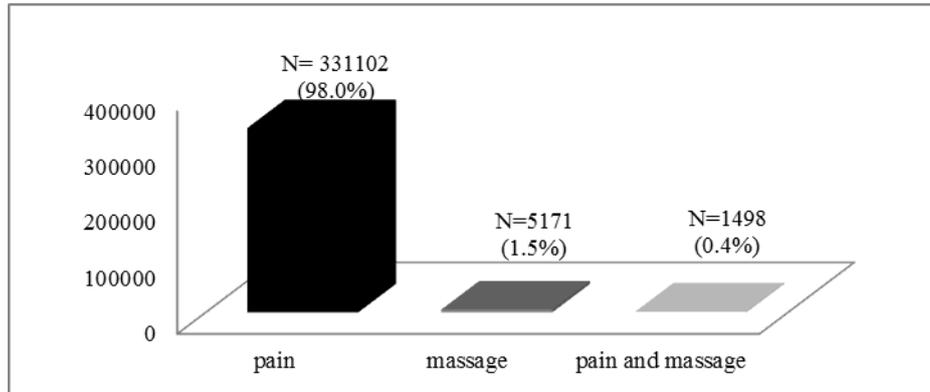


Figure 2. Numbers (N) and Percentages (%) of the published articles in Web of Science until November 2018

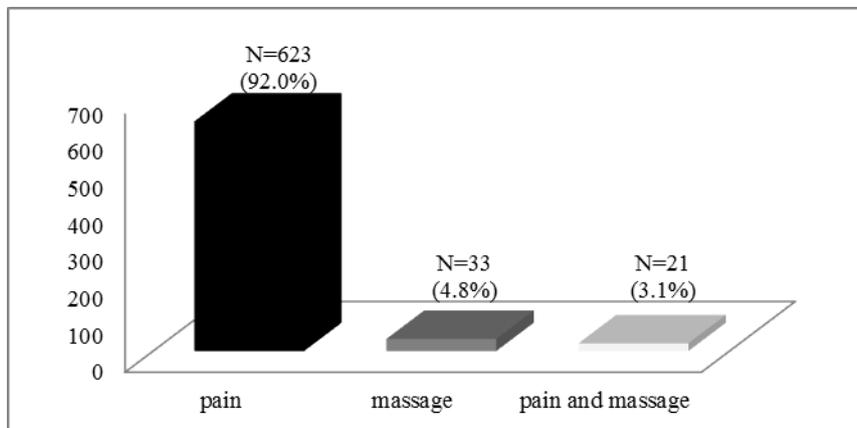


Figure 3. Numbers (N) and Percentages (%) of the published articles in PEDro until November 2018

Related to pain, there were 344913 (50.9%) articles in PubMed, 331102 (48.9%) articles in Web of science, 623 (0.09%) articles in PEDro (Fig.4). Related to massage, there were 5328 (50.5%) articles in PubMed, 5171 (49.0%) articles in Web of science, 33 (0.3%) articles in PEDro (Fig.5).

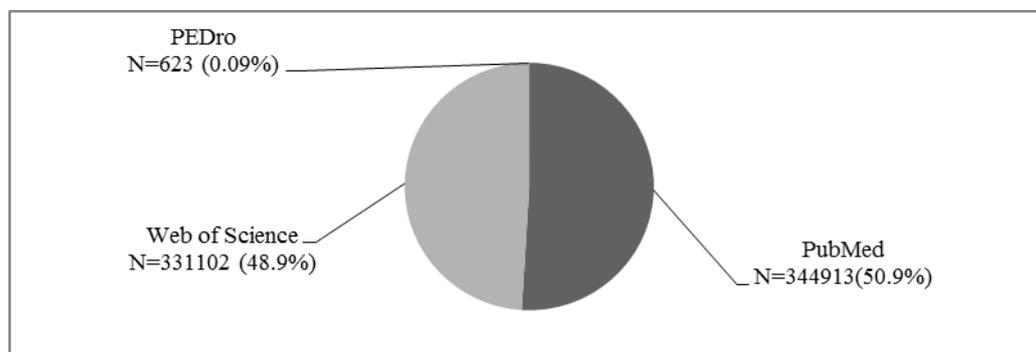


Figure 4. Numbers (N) and Percentages (%) of the articles related to "pain" in all databases

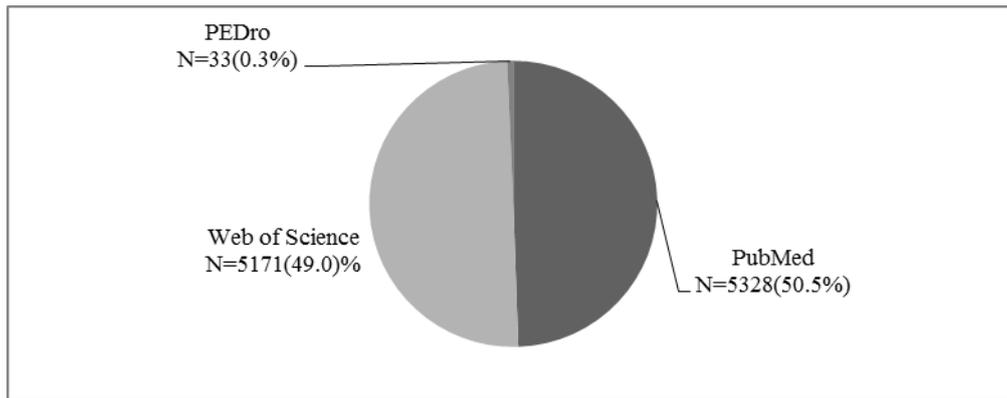


Figure 5. Numbers (N) and Percentages (%) of the articles related to “massage” in all databases

Related to pain and massage; there were 1486 (49.5%) articles in PubMed, 1498 (49.5%) articles in Web of science, 21 (0.6%) articles in PEDro (Fig.6). Totally there were 3005 articles related to the pain and massage: 1469 (48.0%) randomized controlled studies, 508 (17.0%) systematic reviews, and 78 (2.6%) meta-analysis studies, respectively (Fig.7). In PubMed, there were 56 (63.6%) meta-analysis studies, 249 (49.0%) systematic reviews and 330 (22.4%) randomized controlled studies related to pain and massage. In Web of science, there were 22 (28.2%) meta-analysis studies, 252 (49.6%) systematic reviews and 1125 (76.5%) randomized-controlled studies related pain and massage. In PEDro, there were no any meta-analysis studies, 7 (1.3%) systematic reviews and 14 (0.9%) randomized-controlled studies related to pain and massage (Fig.8).

The results obtained from this analysis, Swedish massage was seen the most common used technique by the researches to manage chronic musculoskeletal pain conditions.

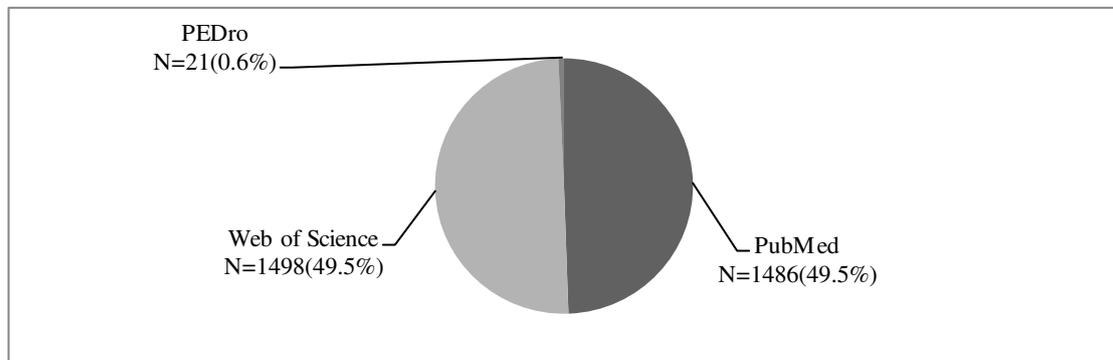


Figure 6. Numbers (N) and Percentages (%) of the articles related to “pain and massage” in all databases

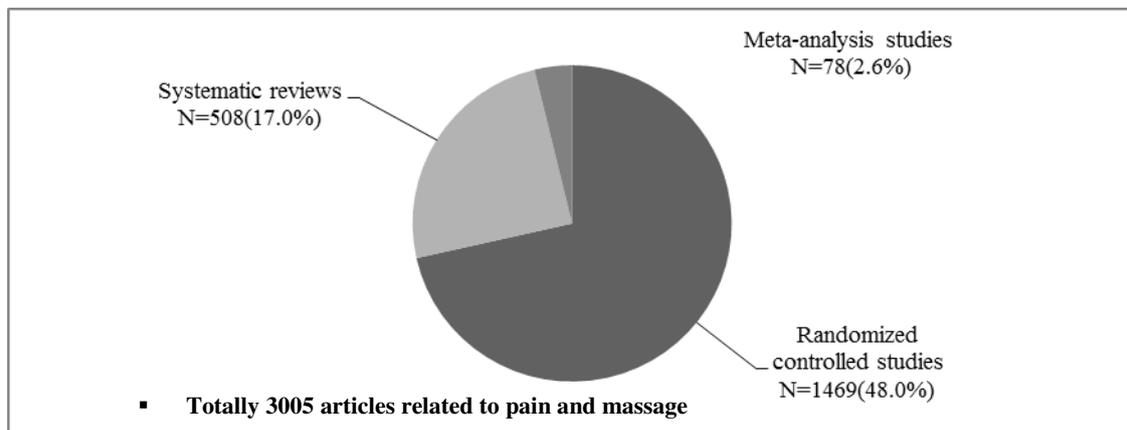


Figure 7. Total numbers (N) and Percentages (%) of types of the articles related to “pain and massage”

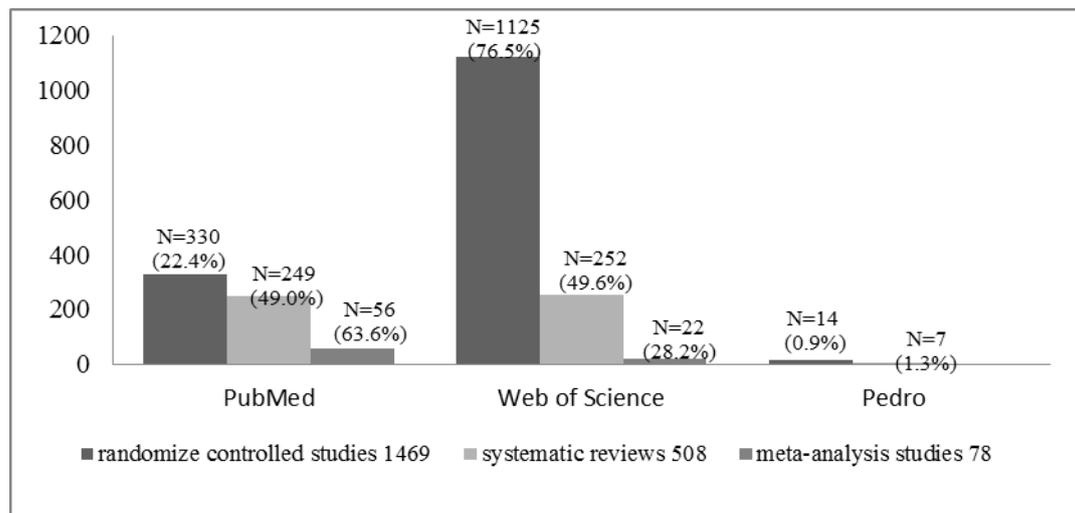


Figure 8. Numbers (N) and Percentages (%) of the articles types related to “pain and massage” by databases

## Discussion

This is the first study showing the numerical ratio of evidence-based articles about massage therapy in chronic pain management. The results of this analysis showed that Swedish massage is one of the most used massage therapy techniques. Most of the published articles just analyzed in this study have been published in PubMed. On the other hand, a few articles about the chronic musculoskeletal pain management have been published in PEDro, which is the Physiotherapy Evidence Database, a free database of over 43,000 randomised trials, systematic reviews and clinical practice guidelines in physiotherapy.

In literature, there are many the articles studied the morbidity and the level of disability caused by pain. Pharmacological management of pain such as opioids and other pain killers’ usage and surgery techniques have also been investigated.

Recently, the number of the articles reporting the effectiveness of the non pharmacological treatments, including acupuncture therapy, dry needling, massage therapy, mind-body direction and so on increased (3,8,10). Since chronic musculoskeletal pain is a bio-psycho-social problem and is very costly condition (8), all treatment techniques have been used in pain management.

The number of individuals suffering from chronic musculoskeletal pain increases very fast. It also leads increasing morbidity, disability and expenses. Chronic pain is risk for comorbid problems, including depression, anxiety and stress disorders (8,17). That’s why, health providers prefer the most suitable and cheapest techniques, such as therapeutic massage to relief pain. Massage therapy is one of the NP treatment method leading positive impact on pain intensity (16,18-23). Therapeutic massage plays important role to activate enkephalin and beta endorphins in the treatment of human blood by binding to opiate receptors. It is also known that the massage increases the level of serotonin (15,16). We therefore selected this topic to show the usage of therapeutic massage to relieve pain.

78 meta-analysis studies reported that there were 508 systematic review and 1469 randomized controlled studies showing the positive effects of massage therapy in pain management of many diseases (post-operative pain, chronic pain, cancer pain). It was seen that massage therapy can be used to treat patients suffering from chronic pain conditions with no any adverse effects (8,24,25). Namely, it can be used safely in pain management and it is a cheap (8, 26).

In our literature analysis study about usage of manual massage to manage chronic pain, Swedish massage was the most common used method in pain management (10,15). This result can be seen clearly in the databases just used in our study.

Massage therapy has many effects pain management, the number of articles regarding “pain and massage” was low compared the other techniques used in pain management in three mentioned databases. Although physiotherapists can use massage therapy time to time in pain management, we have determined that there

are very few evidence-based studies conducted by physical therapists. Namely, the number of the articles related to “pain and massage” is low in PEDro.

Moreover, there is not any meta-analysis study related to “pain and massage” in PEDro in last ten years. So we thought physiotherapists should consider this situation in future.

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Received: March 7, 2019    Accepted: May 26, 2019