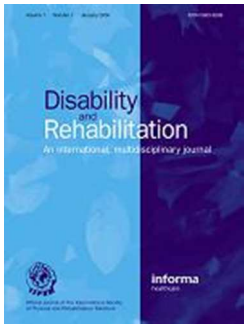

Determinants of patient satisfaction in outpatient musculoskeletal physiotherapy: A systematic, qualitative metasummary and metasynthesis.

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- Patient satisfaction in outpatient musculoskeletal physiotherapy is affected by different factors, thus reflecting a multidimensional construct;
- Single determinants are not sufficient to affect patient satisfaction;
- Patient satisfaction is influenced individual patient/provider, clinical outcomes and contextual factors;
- Further studies should be designed to investigate the relationships among these factors.

Determinants of patient satisfaction in outpatient musculoskeletal physiotherapy: A systematic, qualitative meta-summary and meta-synthesis.

Determinants of patient satisfaction in outpatient musculoskeletal physiotherapy

Article categories: review

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Determinants of patient satisfaction in outpatient musculoskeletal physiotherapy: A systematic, qualitative meta-summary and meta-synthesis

Purpose: To identify and synthesize patient-identified factors that influence satisfaction with outpatient musculoskeletal physiotherapy.

Methods: A systematic, qualitative meta-summary and meta-synthesis was conducted by accessing six electronic databases: CINAHL, Embase, MEDLINE, Scopus, Web of Science, Wiley Online Library, from inception to March 2017. Additional studies were identified by using a "berry-picking" method. Search limits were: primary studies; English language; and involving human subjects. Qualitative peer reviewed articles describing patient satisfaction in outpatient musculoskeletal physiotherapy were eligible for inclusion. Two reviewers critically appraised eligible studies independently using the Critical Appraisal of Skills Programme tool for qualitative studies. Extracted verbatim data of included studies were synthesized using the meta-summary and meta-synthesis by using a purpose-designed form.

Results: 11 studies were included in the review. Factors influencing patient satisfaction were grouped into six broad themes: 1) clinical outcomes; 2) physiotherapist features; 3) patient features; 4) physiotherapist-patient relationship; 5) treatment features, and 6) healthcare setting features.

Conclusions: These findings suggest that patient satisfaction in outpatient musculoskeletal physiotherapy is a multidimensional construct influenced by individual patient/provider, clinical and contextual factors. Future reviews should include a synthesis of findings from both qualitative and quantitative studies to establish a fully comprehensive understanding of this complex health phenomenon.

Keywords: marketing of health services; meta-synthesis; meta-summary; musculoskeletal diseases; patient satisfaction; patient reported outcome measures; qualitative research; rehabilitation; review

Introduction

Within healthcare services, there is an increased emphasis on identifying and measuring patient-reported outcomes [1]. Patient-reported outcomes are important because they offer constructs directly identified and valued by health care services users [2], thus improving our knowledge of their personal experiences within health systems [3]. Patient satisfaction, as an identified patient-reported outcome, is considered a key measure to understand the quality of care delivered [4].

Conceptually, patient satisfaction has been defined as a complex, implicit, dynamic, subjective and multidimensional construct [5, 6, 7]. Measures of patient satisfaction allow one to understand individuals' experiences with a range of dimensions of health care services, including those at the structure, process and outcome levels [5]. It involves cognitive, affective and emotional processes [5] through which the patient evaluates the congruence between the overall actual healthcare experience and his/her needs, values, desires and expectations [6]. The higher the congruence between the actual experience and the patient's expectations, the greater reported level of patient satisfaction [7].

Internationally, many governments, healthcare systems or institutions, and patient-led advocacy organizations, have established patient satisfaction as a proxy measure of care appropriateness, efficacy, quality and feasibility [1, 4, 8, 9]. An understanding of patient satisfaction provides decision-makers at all levels of the health system to thus develop policies, program, or services that reflect patient-reported needs, with the goal of improving the overall quality of care[1, 8]. At the system level, collecting and analysing data on patient satisfaction is crucial to identify gaps between actual and expected care, to design quality improvement strategies, and potentially to ameliorate health professionals' behaviour [4, 9]. Moreover, reports of high levels of

patient satisfaction can enhance the attractiveness of a given healthcare service, particularly with the delivery of private healthcare services: patients may be influenced by others' experiences regarding which service to access; there might be an increased likelihood to continue with a service for follow-up if satisfaction is high; and high levels of satisfaction with care may influence patient adherence to recommended treatments; finally, a satisfied patient may recommend the clinic or service to another individual [10, 11].

Within the field of rehabilitation science, understanding individuals' experiences of care and measuring patient satisfaction has emerged as a research priority also in musculoskeletal physiotherapy [12, 13, 14]. Typically, physiotherapists provide musculoskeletal physiotherapy in one of two healthcare settings: 1) inpatient services, often provided as part of a treatment plan within an acute care hospital setting; or 2) outpatient services, typically within a stand-alone clinic [15]. Within countries that provide universal healthcare, where outpatient musculoskeletal physiotherapy (O-MSK) can be covered by insurance or paid for privately-patients often then have significant choice related to where they chose to access their services [15]. Thus, the outpatient clinic setting provides a unique opportunity to explore the concept of patient satisfaction within this context. First, O-MSK represents an increasingly requested and used service capable of responding faster to the patient's health needs [15], thus the users' experiences are essential for its development and growth [16]. Second, typically O-MSK patients are exclusively managed by a physiotherapist and, therefore, their perceptions regarding the care received can directly be attributable to the physiotherapy instead of to other healthcare [6].

Despite the research priorities set in the field and O-MKS relevance, to date only one systematic review with a meta-analysis [12] has been published to summarise the

degree of patient satisfaction with O-MSK and factors associated with patient satisfaction. In this review, Hush and colleagues reported that levels of satisfaction with O-MSK are high with a pooled estimate of 4.44 (95% confidence interval = 4.41– 4.46) on a scale of 1 (very dissatisfied) to 5 (very satisfied) [12]. While this review provides us with insight that overall levels of satisfaction with O-MSK are high, a more comprehensive understanding of the phenomena can be achieved by building on this review through conducting (a) a more recent search by reporting findings published since 2009, (b) by including a larger number of databases, and (c) by rigorously extracting and analysing qualitative findings of patients' personal experiences and perceptions. In fact, the authors [12] reported on some qualitative findings and concluded that physiotherapists' interpersonal attributes and the process of care are key determinants of patient satisfaction. Moreover, a more recent review and synthesis of the qualitative evidence [17], summarising both patients' and therapists' perceptions of factors that influence the client-provider relationship, identified that the mix of interpersonal, clinical, and organizational factors all influence the overall quality of the therapeutic alliance, yet the mechanisms enhancing these factors in daily practice require further study.

Therefore, with the intent to address the gap regarding the patient satisfaction in O-MSK, a systematic review of qualitative studies with a meta-summary and meta-synthesis was performed. This research method has been recommended as a useful approach to understand individual's experiences of healthcare services and specifically, to explore their experiences regarding service designed to address musculoskeletal issues [17, 18]. In addition, qualitative meta-summary and meta-synthesis has been established as an adequate method for the interpretation of findings across multiple studies thus enhancing the understanding of the phenomenon of interest [19, 20] and

elucidating the mechanisms contributing to satisfaction from the perspective of users [16]; furthermore, findings from meta-synthesis have been documented as capable of informing policies improving clinical practice [21]. In accordance with this rationale, the research question of this meta-summary and meta-synthesis was: "What are the determinants of patient satisfaction in patients with musculoskeletal pain who received physiotherapy treatment in an outpatient service?"

Materials and methods

Design

A systematic, qualitative meta-summary and meta-synthesis was performed using the process outlined by Sandelowski and Barroso which include: 1) developing the research question; 2) searching and extracting systematically studies to be analysed; 3) appraising the quality of the studies included; 4) classifying the studies that emerged; and 5) synthesizing data through meta-summary and meta-synthesis [22]. A meta-summary refers to the quantitative summation of qualitative research findings, while a meta-synthesis involves the integration of the qualitative results through a new interpretation of findings [22].

The research protocol was registered in the Prospero database (CRD42016049124) in November 2016 and it is reported here in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [23] and to the ENhancing Transparency in REporting the synthesis of Qualitative research (ENTREQ) [24].

Systematic search

A pre-planned search was performed in six electronic databases (CINAHL, Embase, MEDLINE -via PUBMED-, Scopus, Web of Science, and Wiley Online Library) from their inception until March 2017. Limitations applied to the search strategy included only considering for inclusion, primary studies published in English language and those that included human subjects. The search strategies adopted are reported in Supplementary Table S1. The keywords used were: patient satisfaction, outpatient setting, and physiotherapy treatment. A combination of free text terms and thesaurus or subject headings were adopted due to challenges with methodological indexing of qualitative research across the different databases [22].

As suggested by Sandelowski and Barroso [22], a "berry-picking" method was used to ensure a comprehensive search of published qualitative studies that met our inclusion criteria including: footnote chasing, citation searching, hand searching, journal run, author searching and fugitive literature (e.g. Master's theses and doctoral dissertations). A medical library health information specialist was also consulted to assist with the development and implementation of the search strategy [22].

Eligibility criteria and study selection

The following inclusion criteria were established to identified eligible studies:

1. Design: qualitative or a mixed-methods study, where the qualitative and quantitative data analyses were performed and reported separately;
2. Phenomena of interest: included a study objective to describe or identify factors influencing participants' experiences of patient satisfaction or related concept (e.g. patient's perceptions, experience, perspectives) [5];
3. Study participants: a) >18 years, b) individuals experiencing musculoskeletal pain defined as the consequence of everyday activities that repeatedly or unusually stress

the system, or due to either acute traumatic events or to chronic complaints [25] and c) who received physiotherapy treatment in an outpatient service.

Studies were excluded if they: a) were quantitative in nature or based upon a mixed-method design that did not separate the qualitative and quantitative data analysis; b) included patients with non-musculoskeletal pain; c) received a treatment not delivered by a physiotherapist, or d) received physiotherapy care in an inpatient service setting. Two authors (TL, SG) independently reviewed the studies. Titles, abstracts and then the full text of all studies (manuscript, figures and tables) were screened using Sandelowski and Barroso's guide [22]. When both reviewers agreed, the study was included. In case of uncertain eligibility, any disagreement was resolved through a discussion with the overall research group [22].

Critical appraisal

Despite the debate [26, 27, 28] around the value and the need to critically appraise qualitative studies included in a meta-summary and meta-synthesis, and the lack of recommendations regarding the most appropriate tool for appraising these studies, our research group performed the evaluation of all included studies with the intent of providing a description on the overall quality of the evidence produced in the field. Moreover, the research group agreed upon that the overall quality of each study should not be used as a criterion for exclusion [29].

The Critical Appraisal Screening Programme (CASP) tool was used [30], due to its extensive adoption in other systematic reviews in the musculoskeletal field [17, 31]. The CASP is a 10-question tool useful to examine: the aim of study, the appropriateness of qualitative methodology, the research design, the recruitment strategy, the data collection, the researcher and participant relationship, the research ethics, the data

analysis, the findings, and the contribution to knowledge. Each item is scored as "yes" (Y; score vale = 1) or "no" (N; score value = 0), depending on whether the topic has been described sufficiently. In our study, according to the literature available [32], an additional score of "Unclear" (U; score value = 0.5) was added to differentiate between those items not sufficient nor insufficient [32]. The higher the total score, the better the methodological quality was, with a maximum score of 10. Because the CASP does not offer a scoring matrix for the overall method rating, after a consensus among the overall research members we decided *a priori* to identify cut-off point for low (CASP 0-5), medium (CASP 6-8) and high levels of quality (CASP 9-10). After having read the included studies several times, two authors (GR, SJ) evaluated the quality of the studies independently, and then agreed upon the score attributed; disagreements were resolved by consensus with the overall research group [22].

Data extraction and study classification

Data extraction was performed by using a purpose-designed form by one author (DR); the form was populated and cross-checked by another author (MT) [17, 18]. Extracted data included: description of the setting, study population, sample size, gender and age, aims of the study, methods of data collection and analysis and key findings regarding patient satisfaction determinants. Any disagreement between the two researchers (DR, MT) throughout this process was again resolved through discussion and reaching consensus and updating the broader research team. Findings were classified based upon the degree of researcher transformation of the raw data, thus to guide the subsequent analysis and synthesis of findings [22]. The classification system included: thematic surveys (e.g. latent pattern of themes discerned from data), conceptual/thematic descriptions (e.g. concepts or themes developed *in situ*), or interpretive explanations

(e.g. fully integrated explanations of phenomenon) [22].

Meta-summary and meta-synthesis processes

Meta-summary and meta-synthesis processes were performed by following all the methodologically prescribed steps simultaneously rather than subsequently [22]: 1) the studies were read multiple times, line-by-line to obtain an idea of the topic; 2) the target findings of each were extracted directly from the "Result/Findings" section and separated from not-relevant data; then these were copied and pasted into a Microsoft Word (Microsoft Corp, Redmond, Washington) document; 3) the findings were edited to ensure that the original wording was captured aimed at preserving authors' original intentions; 4) similar findings were grouped according to their topical similarity to establish, when compared, if findings across studies were related to each others; 5) the grouped findings were abstracted by elimination of redundancies, refinement of statements and preservation of contradictions and ambiguities; 6) the final findings were initially coded using an inductive analysis procedure (first cycle method) and then followed by an axial coding (second cycle method) for generating categories and themes [33]; 7) findings were evaluated for similarities and differences within and between studies and synthetizes using a constant target comparison; and finally, 8) the manifest inter-study frequency effect size (e.g. prevalence rate of findings; calculated as: [number of studies containing a finding / total number of studies] * 100) and intra-study intensity effect size (e.g. concentration of findings in each report; calculated as: [number of findings in the study / total number of findings] * 100) were then estimated [34]. Three authors (TL, GR, AP) performed all phases of the meta-summary and meta-synthesis independently. Any disagreements were solved by consensus and consultation with the overall research group [22]. The meta-synthesis process is reported in

Supplementary Table S3.

Validity, rigor and trustworthiness of meta-summary and meta-synthesis

The validity, rigor and trustworthiness of this meta-synthesis and meta-summary was ensured by different strategies [22]. A multidisciplinary panel of experts were involved and chosen for their specific expertise (see authors). As suggested by Sandelowski and Barroso an expert represents a person with a specific clinical, field, methodological, researcher, and personal expertise capable of entailing a different contribution to a project [22]. In our study, experts were clinicians and academic researchers with a range of different professional backgrounds and experiences on qualitative research methods (physiotherapy, nursing and marketing). Their involvement was aimed at continually scrutinize and criticize the study procedures and outcomes [22].

They were involved in multiple debriefing sessions and processes of negotiations to achieve consensual validity [35]. During regular meetings, they discussed their methodological choices, data analysis, procedures and interpretations by using a "think aloud" strategy [36], thus negotiating and resolving any discrepancy throughout consensus. Moreover, an audit trail (Supplementary Table S4) was developed to document each phase of the project, the rationale behind the choices, as well as the adoption, creation or leaving of specific strategies [37]. Specifically, during the revision process, 10 meeting sessions were held (Supplementary Table S4). Using a "think aloud" strategy, experts negotiated and resolved all discrepancies by a consensus process by adopting a highly iterative and collaborative process. The above-mentioned strategies as well as the reflexivity of the all group members involved, helped to enhance the transparency of the process and the findings [38].

Results

Study selection

The search resulted in 21,972 records. After the removal of duplicates, 20,068 records remained. Once the study inclusion and exclusion criteria were applied, 19,537 studies were eliminated. Out of the remaining 531-screened articles, 69 were considered potentially relevant and the full texts were retrieved. Then, 58 studies were excluded as reported in Supplementary Table S2. Finally, after having achieved the agreement among authors, 11 articles [39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49] describing findings of 9 original studies were included: 2 studies produced 2 unique articles [42, 43, 45, 46] presenting findings on the same samples for different study aims. The inclusion process is shown in figure 1.

Please insert figure 1 here

Characteristic of the studies

A total of 362 participants (193 females; 169 males) were included in the studies ranging from 10 [49] to 57 [41, 45, 46] per study, with a range of age between 18 [40] and 82 [42, 43, 49] years. Studies were performed in Spain [41, 45, 46], Australia [47, 48, 49], and England [42, 43, 44] by including patients cared for different musculoskeletal complaints [41, 42, 43, 45, 46, 47, 49]. A range of qualitative study designs were used, as conceptual/thematic description [39, 41, 44, 45, 46], thematic surveys [43, 47, 49], and interpretive explanations [40, 42, 48] as reported in table 1. With regard to the extraction data and data analysis processes, it was required to achieve the agreement by discussing in the case of two studies and in the classification of two studies.

Please insert table 1 here

Quality appraisal of the included studies

Following appraisal of all studies with the CASP tool, one study [49] was determined to be of high quality; the remaining studies were rated as being of moderate quality, with scores ranging from 6 to 8. Some items (1, Clear research statement; 2, Qualitative methodology; 7, Ethical considerations; 9, Clear statement of findings and 10, Value of the research) have reported satisfactory quality in all studies; differently, the third item (Research question appropriate) was ranked as unclear in all studies included, as reported in table 2. During the quality appraisal process, the agreement among authors was requested and debated for three studies included.

Please insert table 2 here

Meta-summary and meta-summary outcomes

A total of 237 target findings were extracted, edited, grouped and abstracted, thus resulting in 123 final statements. The first cycle method of coding outlined 178 codes. After the second cycle method, the initial codes were reduced to 66 codes, which were condensed in to 13 categories and then summarised into 6 themes: 1) clinical outcomes; 2) physiotherapist features; 3) patient features; 4) physiotherapist-patient relationship; 5) treatment features, and 6) healthcare setting features as reported in figure 2.

Please insert figure 2 here

The categories with the highest inter-study frequency effect size were: organization of care (82%), education (82%) and human competence of the physiotherapist (73%). The studies of Ali and May (69%) [39], Cooper and colleagues (69%) [40] and Hills and Kitchen (64%) [42, 43] reported the highest intra-study intensity effect size, while Del Baño-Aledo et al. [41] and Medina-Mirapeix et al. [46] revealed the lowest (23%) (table 3). Overall, the agreement was required for the determination of the frequency and intensity effect sizes of three studies and the creation of 14 codes, three categories and one theme.

Please insert table 3 here

Theme 1: Clinical outcome

Result of treatment

Following treatment, the primary desired outcomes for some patients included complete recovery or pain control [39, 42]. A secondary desired outcome of treatment for others was to receive information about effective coping strategies as well as self-care management processes over the long-term [39, 43, 44]. In general, patients were satisfied by any treatment capable of achieving their desired outcome(s) [39, 43]. Moreover, also the clinical conditions were reported to influence the desired outcome [42]: specifically, satisfaction among patients with an acute injury were influenced by the continuity of treatment and the progressive improvement of daily activities between physiotherapy sessions, while satisfaction of those with a chronic complaint/injury were influenced by improvements in range of motion or pain relief [43].

Theme 2: Physiotherapist features

Human competence

In general, patients described high levels of satisfaction of being treated by physiotherapists that were friendly, respectful, confident, clean, and capable of creating a pleasant and welcoming environment in clinical practice [39, 40, 41, 42, 44, 47]. In addition, patients appreciated an empathetic, good listener, as well as a physiotherapist who expressed a genuine interest in the patient's concerns and disease [39, 40, 41, 43, 44, 47, 49]. They valued engaging with physiotherapists who were non-judgmental, not egoistical, and who provided emotional support during the rehabilitation process [41, 47]. In two studies, participants also identified valuing physiotherapists who demonstrated sensitivity to patients' functional and emotional status changes, who were capable of identifying patient-specific modifications and then who could quickly revise the plan of care to adopt new therapeutic strategies tailored to patient needs [41, 44].

Professional competence

Overall, patients appreciated competent and skilled physiotherapists who were knowledgeable on the most effective treatment, aware of current best practices and capable of prioritizing the patient's needs and identifying the most appropriate therapies for each individual patient [39, 40, 41, 44, 47]. Furthermore, patients desired a physiotherapist who used detailed notes, who was reliable, punctual and who demonstrated strong organizational abilities [47]. They further appreciated physiotherapists who demonstrated the capacity to work as a part of a larger inter-disciplinary health care team, those who were able to establish and maintain professional-client boundaries during the rehabilitation sessions and those who treated the patient as an individual [39, 47]. Finally, patients were satisfied with physiotherapists who were passionate about their work, honest and aware of their limits

[39, 47].

Gender

The gender of the physiotherapist, as a factor influencing overall patient satisfaction, was identified as a key influence in one study, conducted in Egypt [39]. However, while study participants expressed a high level of satisfaction related to receiving care from a physiotherapist of the same gender, they expressed a higher level of preference for receiving care from a therapist with a higher level of expertise or who they perceived to be more competent, regardless of gender [39].

Theme 3: Patient features

Expectations

Patients' expectations of physiotherapy constituted a key factor in O-MSK satisfaction [40]: patient satisfaction was reported to increase when physiotherapists were able to meet patients' expectations [49] which had been informed by patients' previous positive or negative experiences with physiotherapy and their treatment of their clinical condition [42]. The symptom relief, the adequate management and prognosis information, were all elements capable of modifying patients' expectations, especially when they were unrealistic to more realistic ones [43]. Patients with acute treatment needs were generally naïve about the nature and purpose of physiotherapy and generally started treatment with a high level of optimism that there would be a positive resolution of their problem [43]. In comparison, individuals with chronic conditions were not always optimistic because they had previous experience with physiotherapy, and they were interested in the amount of problem reduction they could obtain [43]. In general, patients were satisfied when their expectations to be helped were met or exceeded by

the treatment [42]. Sometimes patients' expectations of recovery were excessive, but they could be modified during the course of treatment, thus influencing the outcome, through a careful explanation of the conditions and how to cope with the problem [39, 43].

Theme 4: Physiotherapist-patient relationship

Communication

Patients considered tailored communication that addressed specific, individual needs and feelings as an important element affecting satisfaction [40, 42, 43, 49]. Effective communication requires adequate time spent with a patient, specific interpersonal communication skills including the ability to actively listen and be receptive to patient's input, and being respectful of the patient's point of view [40, 47, 48]. Patients also appreciated non-verbal communication elements that contributed to the establishment of trust between the provider and the patient, including: open body language, direct eye contact and orientation of the provider's body and face towards the patient [47]. Moreover, they appreciated the use of verbal communication providing adequate explanations, understandable to a lay person, that included the use of language that accurately reflected the health condition, as well as the encouragement of the patient's participation in the communication process from both parties, and the use of simple and clear questions [40, 47, 49].

Partnership of care

For patients, one of the most important elements influencing overall satisfaction was the establishment of a therapeutic alliance with the physiotherapist, where the patient felt that the physiotherapist was genuinely engaged and viewed the patient as a partner in

the care provision [45, 48]. Specifically, patients appreciated when physiotherapists took the time to holistically learn about their patient, including the individual's values, preferences and lifestyle and consider the patients' experiences, abilities and life circumstances in developing a plan of care [40, 48]. Ultimately, patients wanted to be respected as individuals [49]. They expressed a need for mutuality and appreciated the development of symmetrical and consultative relationships that enhanced the patients' sense of connection with care, their efforts in the care plan and the trust in their physiotherapist [40, 43, 45, 48, 49].

Theme 5: Treatment features

Patient education

Active engagement of the physiotherapist in providing patient education also influenced overall satisfaction [39, 40, 41, 44, 48]. Education was not a passive transmission of knowledge from physiotherapist to patients, but a more active process through which patients obtained a deeper understanding and reassurance about their dysfunction, thus influencing their mindset and increasing their self-management, motivation and responsibility in the long-term [39, 43, 44]. Patients appreciated information received in the beginning of the treatment [41, 43], in form of accurate, understandable, free of jargon-free explanations [48] or charts, drawings, written information and models [44, 47, 48]. They desired to know the cause of their problem [39, 41, 42, 43, 47, 48], and they appreciated getting anatomical and biomechanical explanations [39, 44]. Patients were satisfied with specific advice on movement, position, ergonomics, activities of daily living to follow or avoid, and information about the treatment plan, its rationale, positive effects and side-effects [39, 42, 43, 44, 45, 47]. Moreover, they appreciated information regarding patients' active role in the management of the dysfunction as well

as regarding the prognosis of the condition, the long-term consequences and limitations [39, 42, 44, 45].

Organization of care

Patients most appreciated a positive service organization that was conveniently located with easy access for injured or disabled individuals, flexible payment plans, precision in data management and the ability to schedule appointments through a simple booking system [39, 40, 42, 43, 44, 47]. Also, patient satisfaction with the care delivery organization was increased when treatment sessions were scheduled so they started on time, when there was a short waiting list to access services, when they could directly access an appointment to manage a "flare-up," a wait time not longer than 5-10 minutes, and the consistent offer of an appointment to follow up or contact to the service again if problems occurred [39, 40, 42, 43, 44, 46, 47, 49]. Moreover, patients were pleased to be treated by the same physiotherapist in one-to-one individualized sessions and to be re-evaluated by experienced physiotherapists [39, 40]. A proper clinical contact time, the absence of interruption, an adequate amount of time spent with the physiotherapist and a reasonable frequency of sessions were elements identified to influence patient satisfaction [39, 40, 44, 46, 49]. Moreover, to be guided and supervised during manual therapy and exercises contributed to overall patient satisfaction [46]. Also, when treatments were provided as a part of a multi-professional rehabilitation team, the consistency of information and care across providers, enhanced the satisfaction with the overall rehabilitation process [45].

Treatment typology

Patients appreciated a treatment derived from an adequate clinical evaluation and

imaging view [40, 43]. Some patients did not have a specific preference between passive (e.g. manual therapy, physical therapy modalities) or active (e.g. therapeutic exercises) treatments [42]; others gave great emphasis to exercise [40, 48]. Exercise was considered an element of active self-help management and involvement [47], through which patients improved their feeling of empowerment, their knowledge of their body's functioning and their response to pain and activities [48]. To increase compliance with a prescribed treatment plan, patients appreciated receiving exercises tailored to their preferences and lifestyle [40, 47]. Moreover, a physiotherapist's flexibility in adapting treatment to patients' functional needs [45], and the creation of an individual plan of care have been reported to be important elements that ultimately increase patient satisfaction in O-MSK [40].

Decision-making

An individualized approach to decision-making about treatment represented the best strategy to increase patient satisfaction [40]. Patients desired to be listened to, and asked about, their involvement in the plan of care through a democratic-participatory rather than a prescriptive process [39, 44, 45]. Some patients expressed the desire to participate after the physiotherapist's explanation about the importance of their input to develop a customized therapy for their needs [39]. Others preferred that their physiotherapist did not seek collaboration or explicitly request it [45], thus suggesting the need to consider and explore the patient's expectations about his/her degree of involvement in decision-making [40]. Several patients preferred to not participate or to delegate the choice to the expert physiotherapists, but each decision needs to be explained and justified to patients during the process [39, 40].

Theme 6: Healthcare setting

Physical environment

The physical environment where the treatment was provided was important for patient comfort and safety. Patients valued being treated in a facility where the office design and the ambient conditions created a healing environment [39]. It is essential to provide single or private rooms both for changing clothes and for the receipt of treatment [46]. Moreover, maintaining an appropriate room temperature and using strategies to control odours, also represented important elements related to overall satisfaction [46].

Social context

A social environment that facilitated positive interactions with other patients, especially during in-group therapy, have been reported as increasing patient satisfaction [46]. This positive environment was perceived as motivational because patients could support each other in their efforts and share similar stories concerning their disability [46].

Discussion

Overview of evidence

This meta-summary and meta-synthesis included data extracted from 11 peer-reviewed publications, representing findings from 9 qualitative studies that explored various aspects of patient-identified factors that influence satisfaction in O-MSK. The clinical outcome, patient and physiotherapist features, the treatment features, the patient and physiotherapist relationship, and the healthcare setting were identified as overall determinants of patient satisfaction in O-MSK.

According to our findings, patient satisfaction in physiotherapy is a multidimensional phenomenon where clinical and contextual determinants, inseparably,

influence its manifestation as proposed in the contextual factors theory [50]. As a consequence, improving only the clinical outcomes (e.g. range of motion) [12, 51, 52] or meeting a singular contextual factor such as transforming features of the healthcare setting features [40, 41, 44, 46], are both useful but not sufficient to fully affect patient satisfaction, thus indicating that the outcome of each therapeutic intervention is linked to the interdependence among the different determinants of patient satisfaction [5]. From a translational perspective, our findings suggest to physiotherapists a conscious adoption of contextual factors in delivering specific evidence-based physiotherapy treatments to improve the overall patient satisfaction in O-MSK.

Based on the synthesis of patient perspectives from the extracted study findings, patients' active role in the process of care at multiple levels is also an important determinant of satisfaction in O-MSK. It is crucial during the clinical assessment to rise their expectations about what should occur during physiotherapy sessions, aimed at tailoring the required treatment and, ultimately, at meeting their satisfaction, as already documented in previous studies in physical rehabilitation [17, 53] and in general health care field [54]. During the decision-making process, patients desire to be involved to freely choose their participation or not in healthcare decisions, thus highlighting the importance of a patient-centered approach in O-MSK [12]. Patient-centered approaches to care have been extensively described and advocated for across multiple health care fields and settings [1, 51, 52, 55, 56] as well as in the provision of physical rehabilitation care [13, 17, 57] field; according to our findings, it can shape also the degree of patient satisfaction.

The physiotherapist's role has emerged as a moderator of patient satisfaction thus confirming the findings reported by the first systematic review in the field [12]. Patients are satisfied by different physiotherapist's traits such as personality, leadership,

competence, flexibility and critical thinking. Previous studies in general health care [51, 52, 54, 58, 59] and physical rehabilitation care [13, 17, 60] sectors have established the key role of the provider's interpersonal and technical care in influencing patient satisfaction as well as his/her competence in providing education and information [17, 51, 54, 55].

With respect to the function and structure of the health care organization within which the physiotherapy care is provided, our findings further corroborate the role of effective, efficient, well-organized and coordinated O-MSK services as mediators of patient satisfaction [12]. In accordance with previous systematic reviews in general health care [51, 52, 54, 58, 59] and in physical rehabilitation sectors [13, 17], different elements of caring process such as continuity, accessibility, availability and affordability of the services have been positively associated with patient satisfaction and contribute to increase their attractiveness and magnetism in the contemporary competitive healthcare context. In these contexts, a pleasant atmosphere, room comfort, noise level, temperature and lighting as physical environmental determinants capable of influencing overall patient satisfaction.

Moving away from the previous systematic review [12], this qualitative meta-summary and meta-synthesis adds innovative findings in O-MSK. In one study [39], the physiotherapist gender has emerged as a factor influencing satisfaction and patient's engagement directly in the care plan. Our findings also highlight the importance of the therapeutic alliance and the partnership of care, of the verbal and non-verbal elements of communication capable to affect the quality of interaction between physiotherapist and patient, thus functioning as determinants of patient satisfaction in O-MSK as previously reported in general physical rehabilitation care [13, 17, 61, 62, 63].

Another interesting novel finding concerns patients' desires to acquire coping strategies and self-treatment tools (e.g. therapeutic exercises) to better manage their problems in daily life. This could be enhanced also by the social context as a space that develops supportive relationships between patients, offers an opportunity for reflection and increases the sharing of individual experiences.

Strength and limitations

To our best knowledge, this is the first meta-summary and meta-synthesis summarising the determinants of patient satisfaction with O-MSK [22], thus meeting the recent call to action regarding the health service research in rehabilitation [14]. We have included only qualitative studies suggesting the opportunity to perform mixed-method systematic reviews by including also quantitative primary studies. In addition, the calculation of effect size was performed as a novelty, achieving an intra-study intensity ranging between 29% to 69%, and an inter-study frequency, ranging between 9% to 82%. The effect size was considered in order to establish the finding weight as a determinant of patient satisfaction in O-MSK [22], thus guiding clinicians to undertaken decisions regarding those determinants that should be addressed when designing evidence-based interventions [64].

Despite conducting an extensive search of the literature, across six databases augmented by a "berry-picking" method [22], some relevant studies may have been missed for inclusion in this synthesis. Although a specialist librarian was consulted throughout the systematic search process [22], the decision to not include the free text word "exercise" could have introduced a publication bias. Moreover, the limitation of studies regarding adult patient satisfaction towards outpatient O-MSK, published in English, may threaten the generalization of findings in patients experiencing other

health problems, in different settings (e.g., inpatient), with < 18 years and with different cultural and language references [21]. Inpatient physiotherapy differs from O-MSK among a variety of constructs including the coexistent clinical conditions (e.g. orthopaedic and neurological) [65], the patients' expectations, recovery times and treatment goals [66]. Moreover, inpatients are managed by a healthcare team thus their satisfaction is not directly attributable to the physiotherapy [6].

Furthermore, our findings should also be analysed considering the different approaches used and the variety of analytical methods (e.g. framework analysis, grounded theory) as well which can have introduced potential differences in the study findings; moreover, the interpretation of findings both by the original authors and by the experts involved in this review, can have been influenced by their experiences [16]. According to a recent meta-analysis, up to 12% of the original variation in patient satisfaction has been explained by confounding variables such as method of treatment delivery, and the age of patient and not by the actual variation in satisfaction [67]. However, the methodological approach combining a multidisciplinary team of experts served to prevent this potential bias, improving the validity, rigor and trustworthiness of the findings [22]. Finally, we have used the CASP tool [32] and, in accordance with the uncertainty in the field of quality appraisal of meta-synthesis and meta-summary [33, 34, 35] we have decided to include all studies without taking into consideration their methodological quality. However, all studies were ranked as with medium quality and the lack in some items suggest future improvements in quality studies reporting.

Conclusion

Patient satisfaction has been established as a proxy measure of care appropriateness,

efficacy, quality and feasibility, capable also to inform policy-makers regarding required plans aimed at increasing the quality of healthcare service. According to its relevance, summarising determinants of patient satisfaction in O-MSK was the main intent of this qualitative meta-summary and meta-synthesis.

Patient satisfaction in outpatient musculoskeletal physiotherapy is a multidimensional construct influenced by individual patient/provider, clinical and contextual factors. These findings suggest that at the undergraduate and postgraduates' levels, physiotherapists should be educated in recognising these determinants and appropriately design and manage them aimed at maximising their effectiveness in increasing patient satisfaction; moreover, managers and health care centres should also consider these determinants aimed at designing quality improving projects affecting patients' satisfaction. Furthermore, healthcare services institutions, should consider patient satisfaction as a fundamental indicator of quality care, thus stimulating its continuous assessment and critical evaluation at different levels from the clinicians to the managerial levels.

Future qualitative and quantitative research should be combined to investigate the evidence produced in the field by different study design methodologies; moreover, similarities and differences in patient satisfaction determinants across different clinical conditions and settings (e.g. rehabilitation services) and across the care continuum are strongly recommended. Finally, further studies should also evaluate the effectiveness of interventions in their capability of improving patients' satisfaction.

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Conflicts of interest

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Legends to Figures

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses

(PRISMA) Flow Chart [23]

Figure 2. The determinants of patient satisfaction towards O-MSK

Table 1. Characteristic of the included studies

Study (year)	Country (setting)	Diagnosis	Aim	Participant	Data collection	Data analysis	Determinants of patient satisfaction
Ali & May (2015) [39]	Egypt	Non-specific low back pain	To explore patients' expectation and satisfaction with physiotherapy in Egyptian patients attending for low back pain treatment	N = 18 M/F = 9/9 Age = 19-81	Focus group Semi-structured interviews	Framework analysis	- decision-making - outcome - patient education - service provision - therapist
Cooper et al. (2008) [40]	Scotland	Chronic low back pain	To define patient's perspective about patient-centeredness in the context of physiotherap	N = 25 M/F = 5/20 Age = 18-65	Semi-structured interviews	Framework analysis	- communication - decision-making - individual care - information sharing - organisation of care - physiotherapist

			y for chronic low back pain				
Del Baño-Aledo et al. (2014) [41]	Spain	Musculo-skeletal disorders (fractures, soft tissue injuries, amputation)	To identify elements of the physiotherapist-patient interaction considered important by the patient when evaluating the quality of care	N = 57 M/F = 33/24 Age = > 18	Focus group	Modified grounded theory approach	- interpersonal manners - providing information and education - technical expertise
Hills & Kitchen (2007a) [42]	England	Acute and chronic musculoskeletal disorders (fracture, trauma, degenerative spinal or peripheral joint disease)	To identify factors leading to patient satisfaction To explain the relationship between expectations and	N = 30 (acute n=14; chronic n=16) M/F = 9/21 Age = 36-82	Focus group	Interactive model of analysis	- communication/information/explanation - expectations of physiotherapy - perceptions of the therapist - process/content of treatment - result of treatment

			satisfaction as a basis for patients' evaluation of physiotherapy care				
Hills & Kitchen (2007b) [43]	England	Acute and chronic musculoskeletal disorders (fracture, trauma, degenerative)	To explore the factors that affect patients' satisfaction with musculoskeletal outpatient physiotherapy	N = 30 (acute n=14; chronic n=16) M/F = 9/21 Age = 36-82	Focus group	Interactive model of analysis	- communication/information/explanation - expectations of treatment - perception of the therapist - process /content of treatment - treatment outcome
May (2001) [44]	England	Low back pain	To describe the aspects of physiotherapy care that patients considered important	N = 34 M/F = 14/20 Age = 29-77	Semi-structured interviews	Framework analysis	- outcome of treatment episode - personal manner and professional manner of the therapist - therapist's role in providing information - treatment as a consultive process - structure of service provision

Medina-Mirapeix et al. (2011) [45]	Spain	Musculoskeletal disorders (fractures, soft tissue injuries, amputation)	To explore ambulatory outpatient experiences and perceptions in post-acute care settings To determine if there is any perceived gap in continuity of rehabilitation care	N = 57 M/F = 33/24 Age = > 18	Focus group	Modified grounded theory approach	- informational continuity (transfer of information among providers; accumulated knowledge of patients' disability experience) - management continuity (consistency of care among providers; flexibility of the team in adapting care to functional changes or needs; involvement in achieving patient collaboration) - relational continuity (consistency of multi-professional rehabilitation team; established provider-patient relationship)
Medina-Mirapeix et al. (2013) [46]	Spain	Musculoskeletal disorders (fractures, soft tissue injuries, amputation)	To identify elements of the environment that patient consider when evaluating	N = 57 M/F = 33/24 Age = > 18	Semi-structured interviewing during focus group	Modified grounded theory approach	- organizational environment (duration; interruptions; waiting times in the sequence of treatment; patient safety) - physical environment (facility design; ambient conditions; social factors)

			the quality of care experience				
Potter et al. (2003) [47]	Australia	Musculoskeletal disorders	To explore patients' perspectives regarding the qualities of a good physiotherapist To Identify the characteristics of good and bad experience in private practice physiotherapy	N = 26 M/F = 10/16 Age = 20-79	Nominal group technique	Analyst triangulation with two independent researchers	- communication ability (interpersonal skills, physiotherapist's manner, teaching/education) - other attributes (professional behaviour; organisational ability) - service provided (diagnostic and treatment expertise, the environment, convenience and accessibility)
Slade et al. (2009) [48]	Australia	Non-specific chronic low back pain	To determine patients' experience of exercise programmes	N = 18 M/F = 6/12 Age = mean 51.2 ± 9.5	Focus group	Grounded Theory	- engagement with the health care process - listen to me, I know my body - tell me: explain it to me can understand

Waters et al. (2016) [49]	Australia	Musculoskeletal disorders	To identify the factors influencing patient satisfaction with orthopaedic outpatient clinic services	N = 10 M/F = 4/6 Age = 22-82	Focus group 1-1 interviews	Thematic analysis	- clinic waiting time - clinical contact time - empathy - communication - expectation - trust - relatedness

Legend: N = number of participants; M = male; F = female; ± = + or – standard deviation;

Table 2. Quality appraisal of the included studies using the Critical Appraisal Screening Programme (CASP)

	Ali & May (2015) [39]	Cooper et al. (2008) [40]	Del Baño-Aledo et al. (2014) [41]	Hills & Kitchen (2007a) [42]	Hills & Kitchen (2007b) [43]	May (2001) [44]	Medina-Mirapeix et al. (2011) [45]	Medina-Mirapeix et al. (2013) [46]	Potter et al. (2003) [47]	Slade et al. (2009) [48]	Waters et al. (2016) [49]
Item 1. Was there a clear statement of the aims of the research?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Item 2. Is a qualitative methodology appropriate?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Item 3. Was the research design appropriate to address the aims of the research?	U	U	U	U	U	U	U	U	U	U	U
Item 4. Was the recruitment strategy appropriate to the aims of the research?	Y	Y	Y	Y	Y	N	Y	Y	U	N	Y
Item 5. Was the data collected in a way that addressed the research issue?	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Item 6. Has the relationship between researcher and participants been adequately considered?	Y	N	N	N	N	N	N	N	N	N	Y
Item 7. Have ethical issues been taken into consideration?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Item 8. Was the data analysis sufficiently rigorous?	Y	Y	Y	U	U	Y	Y	Y	Y	U	Y
Item 9. Is there a clear statement of findings?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Item 10. How valuable is the research?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Overall score	8.5	8.5	8.5	8	8	7.5	8.5	8.5	8	7	9.5

Legend: Y = Yes (1); N = No (0); U = Unclear (0.5).

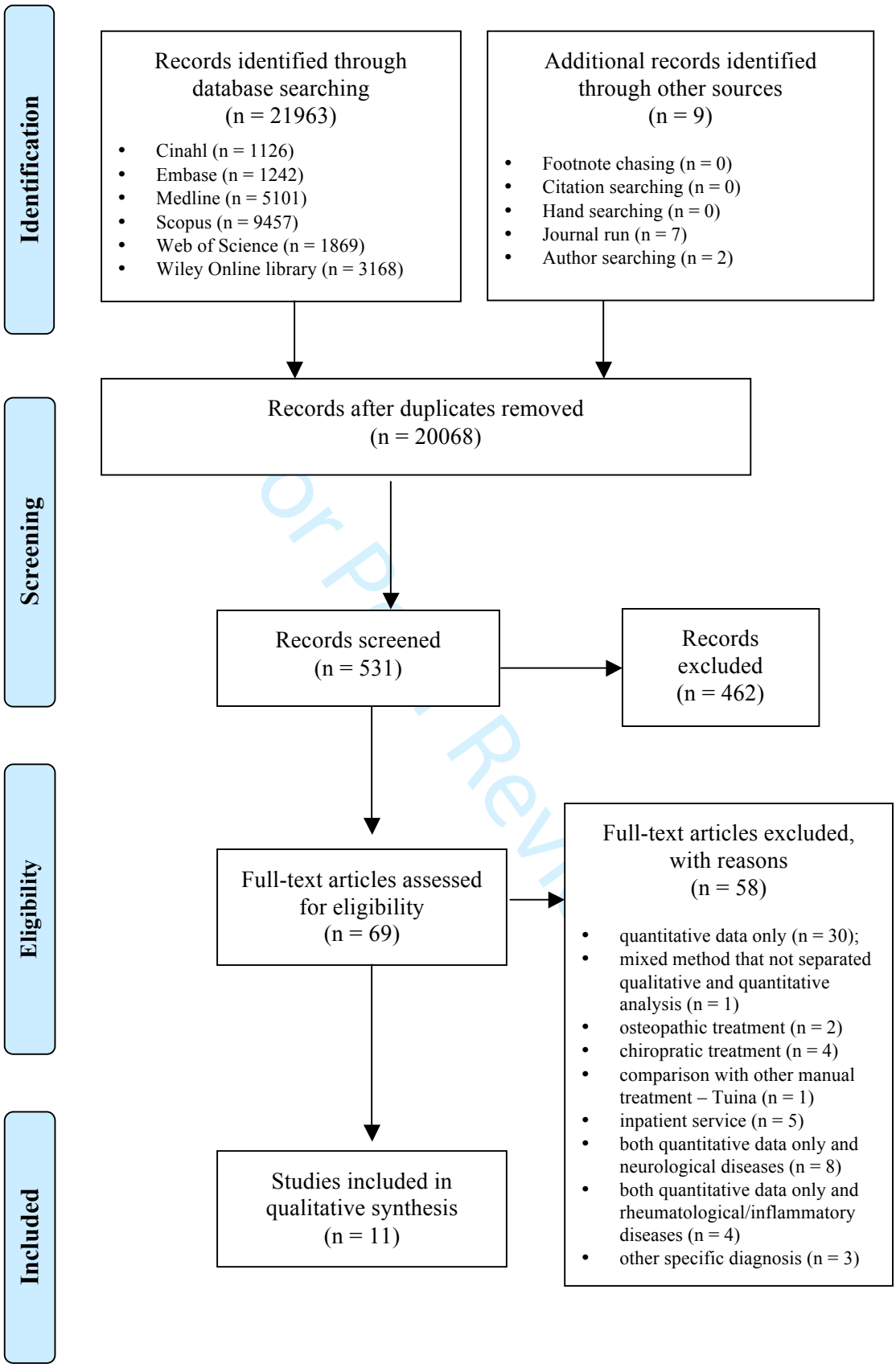
Table 3. Meta-summary

THEMES	Categories	First author (year)											INTER-STUDY FREQUENCY EFFECT SIZES
		Ali & May (2015) [39]	Cooper (2008) [40]	Del Baño-Aledo (2014) [41]	Hills & Kitchen (2007 a) [42]	Hills & Kitchen (2007 b) [43]	May (2001) [44]	Medina-Mirapeix (2011) [45]	Medina-Mirapeix (2013) [46]	Potter (2003) [47]	Slade (2009) [48]	Waters (2016) [49]	
CLINICAL OUTCOME	Results of treatment	X			X	X	X						**36%**
PHYSIOTHERAPIST FEATURE	Human competence	X	X	X	X	X	X			X		X	**73%**
	Professional competence	X	X	X	X		X			X			**54%**
	Gender	X											**9%**
PATIENT FEATURE	Expectation	X	X		X	X						X	**45%**
PHYSIOTHERAPIST/PATIENT	Communication		X		X	X				X	X	X	**54%**

RELATIONSHIP	Partnership of care		X			X		X				X	X	**45%**
TREATMENT FEATURE	Patient education	X	X	X	X	X	X	X		X	X			**82%**
	Organization of care	X	X		X	X	X	X	X	X		X		**82%**
	Treatment typology		X		X	X		X		X	X			**54%**
	Decision making	X	X				X	X						**36%**
HEALTHCARE SETTING FEATURE	Physical environment	X							X					**18%**
	Social context								X					**9%**
INTRA-STUDY INTENSITY EFFECT SIZES		**69%**	**69%**	**23%**	**62%**	**62%**	**46%**	**38%**	**23%**	**46%**	**31%**	**38%**		

Inter-study frequency effect sizes = (number of studies containing a finding / total number of study) * 100

Intra-study intensity effect sizes = (number of findings in the study / total number of findings) * 100



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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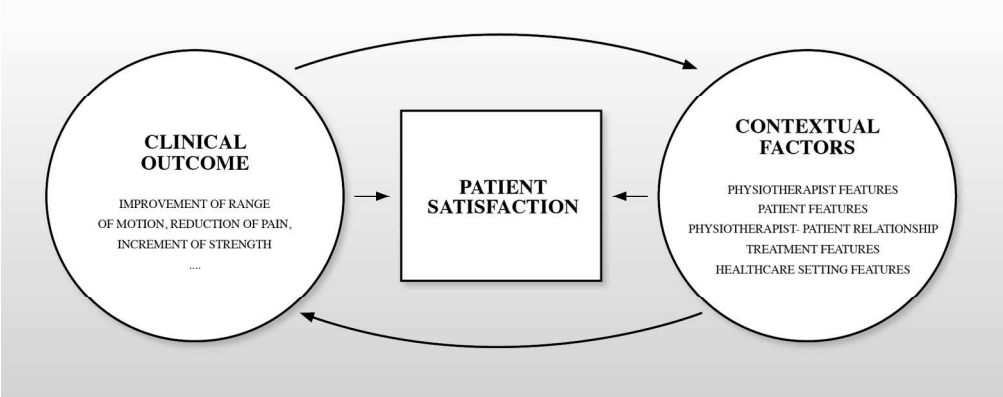

Figure 2. The determinants of patient satisfaction towards O-MSK

176x70mm (300 x 300 DPI)

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	**1**
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	**1/2/3**
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	**4/5**
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	**6**
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	**7**
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	**7/8**
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	**7**
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	**Appendix1**
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	**8**
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	**10**
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	**10**
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	**9**
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	**11**
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	**10/11**

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	**12**
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	**Table1**
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	**13/14**
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	**14-23**
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	**Table3**
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	**24/25**
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	**26/27**
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	**27/28**
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

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Supplementary Table S1. Search strategy applied to different database.

DATABASE	SEARCH STRATEGY
MEDLINE (VIA PUBMED)	("Patient Satisfaction"[Mesh][13] OR “patient satisfaction” OR "Consumer Behavior"[Mesh] OR “consumer satisfaction” OR “client satisfaction” OR “patient experience” OR “client experience”) AND (“physiotherapy” OR “physical therapy” OR "Physical Therapy Modalities"[Mesh] OR "Musculoskeletal Manipulations"[Mesh] OR “allied health” OR “outpatient”) **LIMITS:** English, humans, full text
CINAHL	(“patient satisfaction” OR “consumer satisfaction” OR “client satisfaction” OR “patient experience” OR “client experience” OR “customer experience” OR “consumer experience” OR “patient behavior” OR “client behavior” OR “consumer behaviour” OR “customer behavior”) AND (“physiotherapy” OR “physical therapy” OR “physical therapy modality” OR “physical therapy modalities” OR “physical therapy technique" OR “physical therapy techniques” OR “musculoskeletal manipulations" OR “manual therapy” OR “manual therapies” OR “manipulation therapy” OR “manipulation therapies” OR “manipulative therapy” OR “manipulative therapies” OR “allied health” OR “outpatient”) **LIMITS:** English, humans, full text
SCOPUS	TITLE-ABS-KEY(("patient satisfaction" OR "consumer satisfaction" OR "client satisfaction" OR "patient experience" OR "client experience" OR "customer experience" OR "consumer experience" OR "patient behavior" OR "client behavior" OR "consumer behaviour" OR "customer behavior") AND ("physiotherapy" OR "physical therapy" OR "physical therapy modality" OR "physical therapy technique" OR "musculoskeletal manipulations" OR "manual therapy" OR "manipulation therapy" OR “manipulative therapy” OR "allied health" OR "outpatient")) AND (LIMIT-TO(DOCTYPE,"ar")) AND (LIMIT-TO(LANGUAGE,"English")) AND (LIMIT-TO(SRCTYPE,"j")) AND (LIMIT-TO(SUBJAREA,"HEAL")) **LIMITS:** English, type of document (article), area (professional health), source (documents from journal sources)
Web of science (core collection)	(“patient satisfaction” OR “consumer satisfaction” OR “client satisfaction” OR “patient experience” OR “client experience” OR “customer experience” OR “consumer experience” OR “patient behavior” OR “client behavior” OR “consumer behaviour” OR “customer behavior”) AND (“physiotherapy” OR “physical therapy” OR “physical therapy modality” OR “physical therapy modalities” OR “physical therapy technique" OR “physical therapy techniques” OR “musculoskeletal manipulations" OR “manual therapy” OR “manual therapies” OR “manipulation therapy” OR “manipulation therapies” OR “manipulative therapy” OR “manipulative therapies” OR “allied health” OR “outpatient”)

	LIMITS: English, type of document (article)
Wiley Online library	(“patient satisfaction” OR “consumer satisfaction” OR “client satisfaction” OR “patient experience” OR “client experience” OR “customer experience” OR “consumer experience” OR “patient behavior” OR “client behavior” OR “consumer behaviour” OR “customer behavior”) AND (“physiotherapy” OR “physical therapy” OR “physical therapy modality” OR “physical therapy technique" OR “musculoskeletal manipulations" OR “manual therapy” OR “manipulation therapy” OR “manipulative therapy” OR “allied health” OR “outpatient”) **LIMITS:** type of source (journal), entry terms present in abstract
EMBASE	(‘patient satisfaction’/exp OR ‘patient satisfaction’ OR ‘consumer experience’/exp OR ‘consumer satisfaction’ OR ‘client satisfaction’ OR ‘patient experience’/exp OR ‘patient experience’ OR ‘client experience’ OR ‘customer experience’ OR ‘consumer experience’ OR ‘patient behavior’/exp OR ‘patient behavior’ OR ‘client behavior’ OR ‘consumer behavior’/exp OR ‘consumer behavior’ OR ‘customer behavior’) AND (‘physiotherapy’/exp OR ‘physiotherapy’ OR ‘physical therapy’/exp OR ‘physical therapy’ OR ‘physical therapy modality’ OR ‘physical therapy modalities’/exp OR ‘physical therapy modalities’ OR ‘physical therapy technique’ OR ‘physical therapy techniques’/exp OR ‘physical therapy techniques’ OR ‘musculoskeletal manipulations’/exp OR ‘musculoskeletal manipulations’ OR ‘manual therapy’/exp OR ‘manual therapy’ OR ‘manual therapies’ OR ‘manipulation therapy’/exp OR ‘manipulation therapy’ OR ‘manipulation therapies’ OR ‘manipulative therapy’/exp OR ‘manipulative therapy’ OR ‘manipulative therapies’ OR ‘allied health’ OR ‘outpatient’/exp OR ‘’outpatient’ **LIMITS:** English, type of document (primary studies), human subjects

Supplementary Table S2. Excluded studies with reasons

Studies	Reasons for exclusion
Abtahi AM, Presson AP, Zhang Z, Saltzman CL, Tyser AR. Association Between Orthopaedic Outpatient Satisfaction and Non-Modifiable Patient Factors. J Bone Joint Surg Am. 2015;97(13):1041-8.	Quantitative method
Beattie P, Dowda M, Turner C, Michener L, Nelson R. Longitudinal continuity of care is associated with high patient satisfaction with physical therapy. Phys Ther. 2005;85(10):1046-52.	Quantitative method
Beattie PF, Nleson RM, Heintzelman M. The relationship between patient satisfaction with physical therapy care and global rating of change reported by patients receiving worker's compensation. Physiother Theory Pract. 2011;27(4):310-8.	Quantitative method
Berghofer G, Lang A, Henkel H, Schmidl F, Rudas S. Satisfaction of inpatients and outpatients with staff, environment and other patients. Psychiatr Serv. 2001;52(1):104-6.	Inpatient setting
Byrne NM, Hardy L. Community physiotherapy for children with cystic fibrosis: A family satisfaction survey. J Cyst Fibros. 2005;4(2):123-7.	Quantitative method; specific diagnosis (cystic fibrosis)
Candy E, Haworth-Booth S, Knight-Davis M. Review of the Effectiveness of a Consultant physiotherapy led muscoloskeletal interface team. Musculoskeletal Care. 2016;14(3):185-91.	Quantitative method
Carlesso LC, MacDermid JC, Santaguida PL, Thabane L. A survey of patient's perceptions of what is adverse in manual physiotherapy and predicting who is likely to say so. J Clin Epidemiol. 2013;66(10):1184-91.	Quantitative method
Dennis D, Mullins R. Guillain-Barre syndrome patient's satisfaction with physiotherapy: A two-part observational study. Physiother Theory Pract. 2013;29(4):301-8.	Quantitative method; neurological disease (Guillain-Barré)
Diògenes TPM, Mendinca KMPP, Guerra RO. Dimension of satisfaction of older adult brazilian outpatients with physical therapy. Rev Bras Fisioter. 2009;13(4):301-7.	Quantitative method
Durant TL, Lord LJ, Domholdt E. Outpatient views on direct access to physical therapy in Indiana. Phys Ther. 1989;69(10):850-7.	Quantitative method
Evans RL, Maiers MJ, Bronfort G. What do the patients think? Results of a mixed method	No physiotherapy treatment (chiropractic)

pilot study assessing sciatica patients' interpretations of satisfaction and improvement. J Manipulative Physiol Ther. 2003;26(8):502-9.	
Forsberg A, de Pedro-Cuesta J, Widén Holmqvist L. Use of healthcare, patient satisfaction and burden of care in Guillain-Barré syndrome. J Rehabil Med. 2006;38(4):230-6.	Quantitative method; neurological disease (Guillain-Barré)
French HP, Keogan F, Gilsenan C, Waldron L, O'Connell P. Measuring patient satisfaction with exercise therapy for knee osteoarthritis: evaluating the utility of the physiotherapy outpatient survey. Musculoskeletal Care. 2010;8(2):61-7.	Quantitative method; rheumatological/inflammatory disease (osteoarthritis)
Geberemichael SG, Metaferia GZ, Takele GM, Johnston JC. Patient satisfaction with outpatient neurology services: a momentum for improvement. J Neurol Sci. 2011;303(1-2):128-32.	Quantitative method; neurological disease (cerebral palsy; nerve root-cord compression disorders; extrapyramidal movement disorders)
Gemmell HA, Hayes BM. Patient satisfaction with chiropractic physicians in an independent physicians' association. J Manipulative Physiol Ther. 2001;24(9):556-9.	No physiotherapy treatment (chiropractic)
Greig A, Bainbridge L, Bedard-Gautrais C, Gris A, Kramer T, Mak M, St Martin J. An evaluation of patient-centred care elements that influence patient satisfaction in physiotherapy practice: a systematic review. Physiother. 2015;101(1):104.	Quantitative method
Grønhaug G, Hagfors J, Borch I, Østerås N, Hagen KB. Perceived quality of health care services among people with osteoarthritis – Results from a nationwide survey. Patient Prefer Adherence. 2015;9:1255-61.	Quantitative method; rheumatological/inflammatory disease (osteoarthritis)
Hills R, Kitchen S. Toward a theory of patient satisfaction with physiotherapy: exploring the concept of satisfaction. Physiother Theory Pract. 2007;23(5):243-54.	Quantitative method
Hills R, Kitchen S. Satisfaction with outpatient physiotherapy a survey comparing the views of patients with acute and chronic musculoskeletal conditions. Physiother Theory Pract. 2007;23(1):21-36.	Quantitative method
Hush JM, Kirsten Cameron K, Mackey M. Patient satisfaction with musculoskeletal physiotherapy care in Australia an international comparison. J Man Manip Ther. 2012;20(4):201-8.	Quantitative method
Hush JM, Lee H, Yung V, Adams R, Mackey M, Wand BM, Nelson R, Beattie P. Intercultural comparison of patient satisfaction with physiotherapy care in Australia and	Quantitative method

Korea an exploratory factor analysis. J Man Manip Ther. 2013;21(2):103-12.	
Juby AG, Skeith K, Davis P. Patients' awareness, utilization, and satisfaction with treatment modalities for the management of their osteoarthritis. Clin Rheumatol. 2005;24(5):535-8.	Quantitative method; rheumatological/inflammatory (osteoarthritis)
Keus SH, Bloem BR, Verbaan D, de Jonge PA, Hofman M, van Hilten BJ, Munneke M. Physiotherapy in Parkinson's disease: Utilisation and patient satisfaction. J Neurol. 2004;251(6):680-7.	Quantitative method; neurological disease (Parkinson's disease)
Kim KW, Cho KJ, Kim SW, Lee SH, An MH, Im JH. A nation-wide, outpatient-based survey on the pain, disability, and satisfaction of patients with osteoporotic vertebral compression fractures. Asian Spine J. 2013;7(4):301-7.	Quantitative method; specific diagnosis (osteoporotic vertebral compression fractures)
Knight PK, Cheng AN, Lee GM. Results of a survey of client satisfaction with outpatient physiotherapy care. Physiother Theory Pract. 2010;26(5):297-307.	Quantitative method
Ku JH, Danve A, Pang H, Choi D, Rosenbaum JT. Determinants of patient satisfaction in an academic rheumatology practice. J Clin Rheumatol. 2015;21(5):256-6.	Quantitative method; rheumatological/inflammatory diseases
Larsson MEH, Kreuter M. Is patient responsibility for managing musculoskeletal disorders related to self-reported better outcome of physiotherapy treatment. Physiother Theory Pract. 2010;26(5):308-17.	Quantitative method
Leininger BD, Evans R, Bronfort G. Exploring Patient Satisfaction: A Secondary Analysis of a Randomized Clinical Trial of Spinal Manipulation, Home Exercise, and Medication for Acute and Subacute. J Manipulative Physiol Ther. 2014;37(8):593-601.	Quantitative method
Licciardone J, Gamber R, Cardarelli K. Patient satisfaction and clinical outcomes associated with osteopathic manipulative treatment. J Am Osteopath Assoc. 2002;102(1):13-20.	No physiotherapy treatment (osteopathic)
McCarthy CJ, Oldham JA, Sephton R. . Expectations and satisfaction of patients with low back pain attending a multidisciplinary rehabilitation service. Physiother Res Int. 2005;10(1):23-31.	Quantitative method
McKinnon AL. Client Satisfaction with Physical Therapy Services does age make a difference. Physical and Occupational Therapy in Geriatrics. 2001;19(2):23-37.	Quantitative method
Medina-Mirapeix F, Jimeno-Serrano FJ, Escolar-Reina P, Del Baño-Aledo ME. Is patient satisfaction and perceived service quality with musculoskeletal rehabilitation determined by patient experiences. Clin Rehabil. 2013;27(6):555-64.	Quantitative method

Medina-Mirapeix F, Jimeno-Serrano FJ, Escolar-Reina P, Del Baño-Aledo ME, Montilla-Herrador J, Lomas_Vega R, Franco-Sierra MA. Outpatients' perceptions of their experiences in musculoskeletal rehabilitation care. Eur J Phys Rehabil Med. 2012;48(3):475-82.	Quantitative method
Medina-Mirapeix F, Oliveira-Sousa SL, Sobral-Ferreira M, Montilla-Herrador J, Jimeno-Serrano FJ, Escolar-Reina P. What elements of the informational, management, and relational continuity are associated with patient satisfaction with rehabilitation care and global rating change. Arch Phys Med Rehabil. 2013;94(11):2248-54.	Quantitative method
Metcalfe CJ, Klaber Moffett JA. Do patients' expectations of physiotherapy affect treatment outcome Part 1 Baseline data International. International Journal Of Therapy & Rehabilitation. 2005;12(2):55-62.	Quantitative method
Miao EY. Perception of patients, physiotherapists and traditional Chinese medicine practitioners towards manual physiotherapy and Tuina (Chinese manipulative therapy) in Australia a qualitative. Zhong Xi Yi Jie He Xue Bao. 2011;9(7):737-45.	Comparison with other manual treatment (Tuina)
Monnin D, Perneger TV. Scale to measure patient satisfaction with physical therapy. Phys Ther. 2002 Jul;82(7):682-91.	Quantitative method
Normann B, Moe S, Salvesen R, Sørgaard KW. Patient satisfaction and perception of change following single physiotherapy consultations in a hospital's outpatient clinic for people with multiple sclerosis. Physiother Theory Pract. 2012;28(2):108-18.	Quantitative method; neurological disease (Multiple sclerosis)
Nyiendo J, Haas M, Goldberg B, Sexton G. Pain, disability, and satisfation outcomes and predictors of outcomes: A practice-based study of chronic low back pain patients attending primary care and chiropractic physicians. J Manipulative Physiol Ther. 2001;24(7):433-9.	No physiotherapy treatment (chiropractic)
Overmeer T, Boersma K. What Messages Do Patients Remember Relationships Among Patients' Perceptions of Physical Therapists' Messages, Patient Characteristics, Satisfaction, and Outcome. Phys Ther. 2016;96(3):275-83.	Quantitative method
Peersman W, Rooms T, Bracke N, Van Waelvelde H, De Maeseneer J, Cambier D. Patients' priorities regarding outpatient physiotherapy care: a qualitative and quantitative study. Man Ther. 2013;18(2):155-64.	Mixed method without any differentiations of qualitative and quantitative analysis
Peiris CL, Taylor NF, Shield N. Patients value patient-therapist interactions more than the	Inpatient setting

amount or content of therapy during inpatient rehabilitation: A qualitative study. J Physiother. 2012;58(4):261-8.	
Rajendran D, Bright P, Bettles S, Carnes D, Mullinger B. What puts the adverse in 'adverse events' Patients' perceptions of post treatment experiences in osteopathy qualitative study using focus groups. Man Ther. 2012;17(4):305-11.	No physiotherapy treatment (osteopathic treatment)
Roberts L. Improving quality, service delivery and patient experience in a musculoskeletal service. Man Ther. 2013;18(1):77-82.	Quantitative method
Roush SE, Sonstroem RJ. Development of the Physical Therapy Outpatient Satisfaction Survey (PTOPS). Phys Ther. 1999;79(2):159-70.	Quantitative method
Roush SE. The satisfaction of patients with multiple sclerosis regarding services received from physical and occupational therapists. J Inter of Rehabilitation and Health. 1995;1(3):155-166.	Quantitative method; neurological disease (Multiple sclerosis)
Rowell RM, Polipnick J. A Pilot Mixed Methods Study of Patient Satisfaction With Chiropractic Care for Back Pain. J Manipulative Physiol Ther. 2008;31(8):602-10.	No physiotherapy treatment (chiropractic)
Schafer DS. Environmental-scanning behavior among private-practice physical therapy firms. Phys Ther. 1991;71(6):482-90.	Quantitative method
Scholte M, Calsbeek H, Nijhuis-van der Sanden MW, Braspenning J. Quality of physical therapy from a patient's perspective factor analysis on web-based survey data revealed three dimensions on patient experiences with physical therapy. BMC Health Serv Res. 2014; 18;14:266.	Quantitative method
Sephton R, Hough E, Roberts SA, Oldham J. Evaluation of a primary care musculoskeletal clinical assessment service a preliminary study. Physiotherapy. 2010;96(4):296-30.	Quantitative method
Silvis WL, Lakke SE, Stegeman P, Speijer BL, Vroomen PC, Coppes MH, Reneman MF, Soer R. Can patients with low back pain be satisfied with less than expected?. Spine (Phila Pa 1976). 2016 15;41(20):1606-1612.	Quantitative method
Smith DL. Does type of disability and participation in rehabilitation affect satisfaction of stroke survivors? Results from the 2013 Behavioral Risk Surveillance System (BRFSS). Disabil Health J. 2015;8(4):557-63.	Quantitative method; neurological disease (stroke)
Solomon DH, Bates DW, Horsky J, Burdick E, Schaffer JL, Katz JN. Development and	Quantitative method

validation of a patient satisfaction scale for musculoskeletal care. Arthritis Care Res. 1999;12(2):96-100.	
Stiller K, Cains G, Drury C. Evaluating inpatient satisfaction with a physiotherapy service: a rehabilitation centre survey. J Inter of Theory & Rehabilitation. 2009; 16(7):376-384.	Inpatient
Stiller K, Cains G, Drury C. Evaluating inpatient satisfaction with a physiotherapy service: A rehabilitation centre survey. Int J Ther Rehabil. 2016;96(3):275-83.	Inpatient setting
Vanti C, Pillastrini P, Monticone M, Ceron D, Bonetti F, Piccarreta R, Guccione A, Violante FS. The Italian version of the physical therapy patient satisfaction questionnaire - [PTPSQ-I(15)]: Psychometric properties in a sample of inpatients. BMC Musculoskeletal Disorders. 2014 23;15:135.	Inpatient setting
Wittmer M, Volpatti M, Piazzalonga S, Hoffmann A. Expectation, satisfaction, and predictors of dropout in cardiac rehabilitation. Eur J Prev Cardiol. 2012;19(5):1082-8.	Quantitative method; specific diagnosis (coronary heart disease, valvular heart disease)
Ytterberg C, Johansson S, Gottberg K, Holmqvist LW, von Koch L. Perceived needs and satisfaction with care in people with multiple sclerosis: A two-year prospective study. BMC Neurol. 2008 29;8:36.	Quantitative method; neurological disease (Multiple sclerosis)

Supplementary Table S3. The meta-synthesis processes

EXAMPLES[a] OF ILLUSTRATIVE QUOTES	CODES	CATEGORIES	THEMES
• After physiotherapy some patients perceived that the outcome was to develop coping strategies. • Patients appreciated any effective therapy, which could help them to achieve the desired/expected outcomes. • Most participants considered complete recovery an important determinant of satisfaction, immediately or over time. [39]	Outcome, result of treatment, recovery	Result of treatment	CLINICAL OUTCOME
• Patients were satisfied by physiotherapist's personal attitudes such as: friendliness and bedside manner; sensitivity to patients' needs; friendliness and empathy. • Generally, respondents liked the physiotherapists' friendly attitude, their ability to put people at ease, and their helpfulness. • The characteristic of empathy involved a range of skills, which allowed patients to feel they were being dealt with in a sympathetic and respectful way. Listening to the patients' concerns and being understanding of their situation. [44]	Interpersonal manners, attitude, empathy, support, physiotherapist's personality, personal and professional manner, professional behaviour, organisational ability, perception of the therapist	Attitude	PHYSIOTHERAPIST FEATURE
• Physiotherapists' technical expertise impacted patients' perceptions. • The impact was based on patients' feeling about physiotherapists' ability to provide good assessments and early functioning improvement. These feelings were reported based upon comparing outcomes or	Technical expertise, competence	Professionalism	

qualifications of knowledge among physiotherapists. [41]			
• Most patients felt comfortable with therapist of the same gender but cared for with an expert by appertaining to the opposite gender was some time favoured over less experienced therapist of the same gender. [39]	Gender	Gender	
• Patients with acute problems present different expectations encompassing: the lack of expectations about the outcome; the expectation of a specific recovery (e.g. full, good, not complete recovery); the expectation of a specific treatment modality (e.g. manual treatment); the expectation of a painful treatment. • Patients with chronic problems expect symptomatic relief, specific treatment modality, and resolution of the problem "cure", expect no treatment to help. • Subjects with positive expectations of being helped tended to report a positive outcome to the encounter if the treatment met or exceeded their expectations. [42]	Patient's wishes, expectation about physiotherapy, treatment, recovery	Patient expectation	PATIENT FEATURE
• Patients were given appreciative explanations about their problem and what improvements they were likely to make with treatment. • Patients in the acute group needed reassurance, hence by the time they came for treatment, their fracture had healed. An explanation that there is no danger in moving the limb will reduce apprehension and facilitate more effective treatment. • Devising home exercise regimens that incorporate functional activities rather than those which may appear divorced from everyday life is a way of improving	Interpersonal skills, communication, explanation, information sharing	Communication	PHYSIOTHERAPIST/ PATIENT RELATIONSHIP

compliance and ensuring continuous improvement. [43]			
• Listening, understanding and getting to know the patient and allowing the patient to explain their problem and to question the physiotherapist were recurrently cited in relation to this dimension. [40]	Partnership with a practitioner, engagement with the health care process, individual care, trust, relatedness, relationship with the therapist, knowledge of patients' disability experience	Partnership of care	
• All patients reported a strong motivation to understand and explain their situation and to be given educational materials and resources. • They reported that explanations should be accurate, understandable and free of jargon; they agreed that this facilitated positive therapeutic experiences. [48]	Patient education, teaching, therapist's role in providing information	Education	TREATMENT FEATURE
• Patients were satisfied by different elements of the treatment process such as: the clinic waiting time, the patient awareness of clinic efficiency as a factor influencing waiting times and the clinical contact time. Patient awareness of time spent within clinic was also acknowledged by front desk reception staff. [49]	Organization, time, consistency of care, value for money, convenience, accessibility, organizational environment, organization of care, service provision, duration of attendance, interruptions, patient safety, management continuity, informational continuity, consistency of team, clinical contact time, clinic waiting time, treatment process, relational continuity, informational continuity, management continuity	Organization of care	
• Participants liked or wanted both treatment and the	Diagnostic and treatment	Typology	

delivery of treatment to be individualised. • Patients who felt that their exercises made sense to them and were well explained also felt that their individual needs were addressed, in contrast to those who felt that their exercises did not make sense or did not push them hard enough. • Patients described the type of exercise as affecting compliance, only doing the exercises that fitted in with their lifestyle, suggesting the physiotherapists need to take this into account when prescribing exercise for chronic low back pain patients. • Many placed importance on a thorough assessment, feeling that it enabled their treatment to better relate to their needs and emphasizing the importance that patients seem to place on this aspect of physiotherapy. [40]	expertise, individual treatment, content of treatment, flexibility in adapting care to functional change or needs		
• Patients' needs to be listened to and involved in the treatment; so that it is seen as a consultive, rather than a prescriptive, process. [44]	Participation in decision making, involvement in the process, consultive process, involvement in achieving patient's collaboration	Decision-making	
• Patients felt low visual privacy to move from one room to another and when they were attended by therapists or performed exercise in a large room that was used by other people. • They feel high service quality when having private rooms whenever they needed to change clothes for receiving therapy. [46]	Standard of premises, facility design, ambient condition	Physical environment	HEALTH CARE SETTING FEATURE
• Positive influence on the quality of the environment when the patients were supportive of each other in their efforts	Social factors	Social context	

	to improve health status. When this happened, they rated the environment as motivational (mutual help, similar stories and disability). [46]

[a] quotes have been selected, extracted directly from the original manuscript and reported in the table as examples; the full table of the meta-synthesis process is available from authors

Supplementary Table S4. Synopsis of the audit trail

NOTE FOR THE AUDITOR (according to 37, 38)

- The audit trail is a documentation of the process of data gathering and analysis. It encompasses a description of the decisions during planned and during realized data gathering actions, and a description of the decisions during planned and during realized data analyses actions.
- All experts take part in the meeting sessions.
- During regular meetings, the overall research group discussed methodological choices, data analysis, procedures and interpretations by using a "think aloud" strategy thus negotiating and resolving any discrepancy by a consensus process.

MEETING	AIM	PROCEDURES PERFORMED	OUTPUT
N° 1	Plan the research question	• Formulation of the research problem; • Formulation of the rational of the study; • Formulation of the purpose of the study; • Program of time and labour; • Reflection about the possible clinical impact of the study;	• Definition of a research question about patient satisfaction in outpatient musculoskeletal physiotherapy;
N° 2	Plan the eligibility criteria	• Formulation of the parameters for the research; • Formulation of topical parameters; • Formulation of population parameters; • Formulation of temporal parameters; • Formulation of methodological parameters;	• Definition of the inclusion criteria; • Definition of the exclusion criteria; • Identification of two independent reviewers (TL, SG);
N° 3	Plan the search strategy	• Formulation of the keywords and free terms; • Formulation of the search strings; • Formulation of the electronic databases; • Formulation of the berry-picking strategies; • Formulation of the research limits;	• Definition of the final keywords and search strings; • Definition of the final electronic database and berry-picking strategies; • Definition of the final research limits; • Identification of two independent reviewers (TL, SG);

N° 4	Plan the quality appraisal evaluation process	• Reflection about the need of quality appraisal; • Evaluation of the existed quality appraisal tools; • Research and formulation of the quality appraisal score for the studies;	• Definition of the quality appraisal tool to use; • Definition of the quality appraisal score to adopt; • Identification of two independent reviewers (GR, SJ);
N°5	Plan the extraction data and study classification process	• Research of the existed extracted data system; • Research of the existed classification system for qualitative studies;	• Definition of the final extracted data system; • Definition of the final study classification system; • Identification of two independent reviewers (DR, MT);
N°6	Plan of the analysis and synthesis process	• Reflection about the management of findings during the following phases: extraction and separation, editing, grouping, abstraction; • Reflection about the creation system of codes, categories and themes; • Reflection about the system useful to analyse the findings; • Research about the calculation of the intra-study and inter-study effect size;	• Definition of the final meta-summary and meta-synthesis process • Identification of three independent reviewers (TL, GR, AP);
N° 7	Review the outcomes of the eligibility process	• Debate about the inclusion of specific studies emerged from the search; • Debate about the exclusion of specific studies emerged from the search;	• Decision about the final studies to be included and excluded
N° 8	Review the outcomes of the quality	• Debate about the specific item score of included studies; • Debate about the overall score of included studies;	• Decision about the final quality appraisal scores of the included studies;

	appraisal process		
N°9	Review the outcomes of the extraction data and study classification process	• Debate about the extracted data of specific included studies; • Debate about the classification of specific included studies;	• Decision about the final extracted data and classification of the included studies;
N°10	Review the outcomes of analysis and synthesis process	• Debate about the management of findings emerged from included studies during the following phases: extraction and separation, editing, grouping, abstraction; • Debate about the created codes, categories and themes emerged from the included studies; • Debate about the calculated the intra-study and inter-study effect size;	• Decision about the final outcomes of meta-summary and meta-synthesis;