Postprint of an Evidence Mapping Study on Clinically Advantageous Diseases for Manual Therapy in Traditional Chinese Medicine Orthopedics and Traumatology

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Abstract

Background: Establishing the dominant disease indications for manipulation therapy in orthopedic traumatology of Traditional Chinese Medicine will facilitate the advancement of manipulation techniques and the development of specialized orthopedics. However, current evaluation and screening processes lack quantitative assessment based on evidence-based medicine.

Objective: To apply evidence mapping methodology to systematically review systematic reviews of manipulation therapy for diseases in orthopedic traumatology of Traditional Chinese Medicine, and to explore the dominant disease indications for manipulation therapy in this field.

Methods: Computerized searches were conducted in PubMed, EMbase, The Cochrane Library, Web of Science, China Biology Medicine disc, CNKI, VIP, and Wanfang Data to collect systematic reviews of manipulation therapy for diseases in orthopedic traumatology of Traditional Chinese Medicine. The search period spanned from database inception to March 5, 2023. The distribution characteristics of evidence were presented using a combination of charts and textual description.

Results: The 126 included systematic reviews were published between 2003 and 2023, showing an overall increasing trend in the number of related studies both domestically and internationally. Methodological quality assessment revealed that 13 were of moderate quality, 64 of low quality, and 49 of very low quality. Evidence mapping revealed that research evidence on manipulation therapy in orthopedic traumatology of Traditional Chinese Medicine was primarily distributed across 18 clinical conditions, including cervical spondylosis, low back pain, knee osteoarthritis, lumbar disc herniation, ankle sprain,

periarthritis of shoulder, cervicogenic headache, atlantoaxial subluxation, distal radius fracture, lateral epicondylitis, carpal tunnel syndrome, lumbar sprain, scoliosis, hip osteoarthritis, fibromyalgia syndrome, myofascial pain syndrome, rotator cuff injury, and supracondylar fracture of humerus, demonstrating beneficial or potentially beneficial effects.

Conclusion: Manipulation therapy is widely applied clinically in orthopedic traumatology of Traditional Chinese Medicine. However, due to insufficient methodological quality and a lack of research evidence regarding safety and cost-effectiveness, future collaborative efforts among multi-level institutions are required to establish and improve evaluation standards and systems, enhance research quality, update research evidence, and further explore the advantages of manipulation therapy in the field of orthopedic traumatology of Traditional Chinese Medicine.

Full Text

Preamble

Evidence Map of Manual Therapy for Clinical Advantageous Diseases in Traditional Chinese Orthopedics

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Abstract

Background: Establishing advantageous diseases in the field of traditional Chinese orthopedics treated with manual therapy will promote the development of manual techniques and dominant discipline. However, the current evaluation and selection lack a quantitative evaluation process based on evidence-based

medicine. **Objective:** To systematically review systematic reviews of diseases in the field of traditional Chinese orthopedics treated with manual therapy using evidence mapping methodology and explore the advantageous diseases in this field. **Methods:** Computerized searches were conducted in PubMed, EMbase, The Cochrane Library, Web of Science, SinoMed, China National Knowledge Infrastructure, Wanfang Data, and VIP database to collect systematic reviews of diseases in the field of traditional Chinese orthopedics treated with manual therapy from inception to March 5, 2023. The evidence distribution characteristics were presented using a combination of charts and text. **Results:** A total of 126 systematic reviews published from 2003 to 2023 were included, showing an overall increasing trend in the quantity of relevant studies both domestically and internationally. Methodological quality assessment results indicated that 13 reviews were of moderate quality, 64 were of low quality, and 49 were of very low quality. The evidence map showed that the research evidence in the field of traditional Chinese orthopedics treated with manual therapy mainly focused on 18 clinical diseases, including cervical spondylosis, low back pain, knee osteoarthritis, lumbar disc herniation, ankle sprain, adhesive capsulitis of the shoulder, cervicogenic headache, atlantoaxial subluxation, distal radius fracture, lateral epicondylitis of the humerus, carpal tunnel syndrome, lumbar sprain, scoliosis, hip osteoarthritis, fibromyalgia syndrome, myofascial pain syndrome, rotator cuff injury, and supracondylar fracture of the humerus, demonstrating beneficial or potentially beneficial effects. **Conclusion:** Manual therapy is widely used in the clinical practice of traditional Chinese orthopedics. However, due to methodological shortcomings and a lack of research evidence on safety and cost-effectiveness, future efforts should focus on multi-level inter-agency cooperation to establish sound evaluation standards and systems, improve research quality, update research evidence, and further explore the advantages of manual therapy in the field of traditional Chinese orthopedics.

Keywords: Manipulation, orthopedic; Orthopedics traumatology (TCM); Predominance disease; Evidence map; Systematic review; Meta-analysis

Introduction

Traditional Chinese medicine constitutes an indispensable component of China' s healthcare system. In an era of rapid modern medical development, preserving and leveraging the diagnostic and therapeutic advantages and characteristics of traditional Chinese medicine by establishing its clinically advantageous diseases represents a prerequisite and critical issue for its survival and development [1]. Over the past two decades, Chinese medicine management and decision-making departments have conducted extensive research on clinically advantageous diseases in traditional Chinese medicine [2-4], with such research increasingly gaining attention from health decision-making systems and scholars.

As a specialized discipline with distinct advantages within traditional Chinese

medicine, orthopedics and traumatology demonstrates and leverages the unique features of Chinese medicine in disease diagnosis and treatment, serving as an important representative and gateway for its international promotion. The effectiveness and safety of manual therapy in traditional Chinese orthopedics have been confirmed by multiple systematic reviews [5-7]. Clarifying the advantageous diseases in orthopedics treated with manual therapy will mutually promote the advancement of manual techniques and the development of orthopedics as a dominant specialty.

Previous evaluations and selections of advantageous diseases in orthopedics have primarily relied on conceptual formulations from clinical experts or health decision-making departments, lacking a quantitative evaluation process grounded in evidence-based medicine. Such approaches may suffer from limitations including unclear result generation processes, excessive reliance on expert subjective judgment, and inability to identify potential conflicts of interest, thereby leaving the establishment of advantageous diseases in traditional Chinese medicine without robust evidence-based support and restricting the international promotion and recognition of its characteristics and advantages. The scope of advantageous diseases in traditional Chinese medicine should not merely represent theoretical formulations but should be supported by multifaceted evidence-based medical evidence, enabling the transition from empirical to evidence-based medicine. Currently, manual therapy for orthopedics diseases has accumulated a substantial body of evidence-based medical evidence, creating conditions for systematic review and selection based on such evidence.

This study employs evidence mapping methodology to comprehensively search, analyze, summarize, and evaluate systematic reviews of manual therapy for orthopedics-related diseases in traditional Chinese medicine, scientifically integrating, analyzing, and presenting the current status and gaps in evidence to explore advantageous diseases in the field of manual therapy for orthopedics, thereby providing a reference basis for clinical decision-making.

Methods

1.1 Inclusion Criteria

(1) **Study type:** Systematic reviews of randomized controlled trials on the effectiveness and safety of manual therapy for clinical diseases in traditional Chinese orthopedics that were publicly published. (2) **Study participants:** Patients with a clear diagnosis of clinical diseases in traditional Chinese orthopedics, with no restrictions on age, gender, race, nationality, or ethnicity. The disease scope was determined according to the *Diagnostic and Therapeutic Efficacy Standards for TCM Orthopedic Diseases and Syndromes* [8]. (3) **Interventions:** The experimental group received manual therapy, while the control group received other conventional Chinese

or Western medical treatments, placebo, or blank control. (4) **Outcome measures:** No restrictions were placed on outcome measures in the included studies.

1.2 Exclusion Criteria

Systematic reviews that did not conduct quantitative analysis of included studies; systematic reviews of animal experiments; systematic review protocols; conference abstracts and commentaries; traditional reviews, scoping reviews, evidence maps, network meta-analyses, and overviews of systematic reviews; duplicate publications; and literature for which specific data could not be obtained.

1.3 Literature Search Strategy

Computerized searches were conducted in PubMed, EMbase, The Cochrane Library, Web of Science, SinoMed, China National Knowledge Infrastructure, VIP database, and Wanfang Data to collect publicly published systematic reviews of manual therapy for orthopedic diseases, with the search timeframe spanning from database inception to March 5, 2023. Additionally, reference lists of included studies were traced to supplement relevant literature. The search employed a combination of subject headings and free-text terms. Chinese search terms included: manual therapy, tuina (Chinese therapeutic massage), chiropractic, bone-setting, massage, systematic review, meta-analysis, systematic overview, and meta-analysis. English search terms included: massage, chiropractic, musculoskeletal manipulations, manipulation, osteopathic, tuina, manual therapy, osteopathic manipulation, osteopathic manipulative therapy, zone therapy, massage therapy, systematic review, and meta-analysis. Using PubMed as an example, the specific search strategy was as follows:

#1 massage [Mesh]
#2 manipulation, osteopathic [Mesh]
#3 chiropractic [Mesh]
#4 musculoskeletal manipulations [Mesh]
#5 zone therapy [Title/Abstract] OR zone therapies [Title/Abstract] OR massage therapy [Title/Abstract] OR massage therapies [Title/Abstract] OR osteopathic manipulative treatment [Title/Abstract] OR osteopathic manipulative treatments [Title/Abstract] OR osteopathic manipulation [Title/Abstract] OR tuina [Title/Abstract] OR manual therapy [Title/Abstract] OR manual traction [Title/Abstract] OR manipulation therapy [Title/Abstract] OR manipulative therapy [Title/Abstract] OR massage [Title/Abstract] OR manipulation, osteopathic [Title/Abstract] OR chiropractic [Title/Abstract] OR musculoskeletal manipulations [Title/Abstract]
#6 #1 OR #2 OR #3 OR #4 OR #5
#7 systematic reviews as topic [Mesh]
#8 meta-analysis as topic [Mesh]
#9 systematic review [Publication Type]
#10 meta-analysis [Publication Type]

#11 systematic review [Title/Abstract] OR meta-analysis [Title/Abstract] OR systematic reviews [Title/Abstract] OR meta analysis [Title/Abstract] OR meta analyses [Title/Abstract] OR meta-analyses [Title/Abstract] OR evaluation of system [Title/Abstract] OR system assessment [Title/Abstract] OR system evaluation [Title/Abstract] OR systematic assessment [Title/Abstract]
#12 #7 OR #8 OR #9 OR #10 OR #11
#13 #6 AND #12

1.4 Data Extraction

Two trained researchers (FENG Tianxiao and WANG Xu) independently screened literature, extracted data, and cross-checked results. Any disagreements were resolved by a third party (WEI Xu). During literature screening, titles and abstracts were first read to exclude obviously irrelevant literature, after which full texts were read to determine final inclusion. When necessary, study authors were contacted via email to obtain missing data. Data extraction included: title, authors, publication year, journal, literature type, number of included studies, sample size, interventions, disease names, outcome indicators, bias risk assessment tools, key elements of methodological quality evaluation, and safety assessment.

1.5 Methodological Quality Assessment of Included Studies

Two trained researchers (FENG Tianxiao and WANG Xu) applied the AMSTAR 2 scale [9] to evaluate the methodological quality of included literature, with cross-checking and resolution of disputes by a third party (WEI Xu). Before formal scoring, the two reviewers conducted two rounds of pre-scoring, with Kappa tests performed to ensure consistent understanding of each item.

1.6 Statistical Analysis

Data analysis was conducted using a combination of charts and text. Flow diagrams were used to present the literature screening process and results, bar charts to present annual publication volume and trends of included systematic reviews, and tables for descriptive analysis of basic characteristics, methodological quality assessment results, and disease distribution of included systematic reviews. Evidence distribution was presented using bubble charts, with each bubble representing a systematic review and displaying information across four dimensions: (1) **Conclusions of systematic reviews:** Based on previous research, effectiveness evaluation results were categorized into five types: beneficial (study conclusions showed the intervention was effective and included studies had very low risk of bias), possibly beneficial (although outcome indicators were reported as effective, conclusions did not clearly state the intervention was beneficial), harmful (conclusions clearly reported the intervention was harmful compared to control), no differential effect (conclusions indicated similar effects between intervention and control groups), and uncertain (conflicting conclusions across multiple study outcomes or limitations in included studies

restricting conclusion drawing) [10]. Safety evaluation results were categorized into three types: intervention group superior to control group, no significant difference between groups, and intervention group inferior to control group [11], all presented on the horizontal axis. (2) **Methodological quality assessment results:** Categorized as high, moderate, low, and very low quality, presented on the vertical axis. (3) **Diseases:** Different bubble colors represented different diseases. (4) **Total sample size of systematic reviews:** Bubble size represented differences in sample size, with larger bubbles indicating greater total sample sizes of original studies included in the systematic review. Additionally, disease names were classified according to the *International Classification of Diseases 11th Revision (ICD-11) Chinese Version*.

Results

2.1 Literature Screening Process and Results

The initial search yielded 14,183 relevant articles. After layer-by-layer screening, 126 systematic reviews were finally included. The literature screening process and results are shown in [Figure 1: see original paper].

2.2 Basic Characteristics of Included Systematic Reviews

The 126 included systematic reviews were published between 2003 and 2023. Fewer articles were published between 2003 and 2010 (6 articles, 4.76%). The number of publications gradually increased from 2011, with 34 articles (26.98%) published between 2011 and 2015, 51 articles (40.48%) between 2016 and 2020, and 35 articles (27.78%) between 2021 and March 2023. The annual publication volume peaked in 2022 with 20 articles (15.87%), indicating continuous promotion and development of manual therapy applications and research in traditional Chinese orthopedics in recent years, as shown in [Figure 2: see original paper].

Among the included systematic reviews, 70 were in English and 56 in Chinese. There were 118 journal articles and 8 dissertations. Eight articles were published in the *Cochrane Database of Systematic Reviews*, and 5 in *Complementary Therapies in Clinical Practice*. The number of included original studies ranged from 2 to 52, with sample sizes ranging from 143 to 10,602 participants. For methodological quality evaluation of included original studies, 91 reviews used the Cochrane Collaboration' s risk of bias assessment tool [12], 18 used the PEDro scale [13], 11 used the Jadad scale [14], 3 used both the Cochrane tool [12] and Jadad scale [14], 1 used both the Cochrane tool [12] and PEDro scale [13], and 2 used the Scottish Intercollegiate Guidelines Network (SIGN 50) randomized controlled trial checklist [15]. Twenty-two systematic reviews evaluated the safety of manual therapy. Results are shown in .

2.3 Methodological Quality Assessment of Included Systematic Reviews

After training, the Kappa value for AMSTAR 2 scale evaluation between the two researchers was 0.87 (P<0.01), indicating high inter-rater consistency and enabling formal evaluation. Methodological quality assessment results showed that 13 reviews (10.32%) were rated as moderate quality, 64 (50.79%) as low quality, and 49 (38.89%) as very low quality.

The reporting rates for each item are shown in . Items with lower reporting rates included: Item 2 (whether a study protocol was developed before conducting the systematic review and whether any deviations from the protocol were explained), Item 3 (whether rationale was provided for the types of included study designs), Item 7 (whether a list of excluded studies with reasons was provided), Item 10 (whether funding sources of included studies were reported), Item 12 (whether the impact of risk of bias in individual studies on meta-analysis results was assessed), Item 15 (whether publication bias was thoroughly investigated and its potential impact on results explained), and Item 16 (whether any potential sources of conflict of interest were reported).

2.4 Disease Distribution of Included Systematic Reviews

The included systematic reviews covered 18 conditions, including 37 reviews (29.37%) on cervical spondylosis, 24 (19.05%) on low back pain, 18 (14.29%) on knee osteoarthritis, 10 (7.94%) on lumbar disc herniation, 9 (7.14%) on ankle sprain, 6 (4.76%) on adhesive capsulitis of the shoulder, 5 (3.97%) on cervicogenic headache, 3 (2.38%) on atlantoaxial subluxation, 3 (2.38%) on distal radius fracture, 2 (1.59%) on lateral epicondylitis of the humerus, and 2 (1.59%) on carpal tunnel syndrome, as shown in .

2.5 Evidence Distribution for Effectiveness of Manual Therapy in Traditional Chinese Orthopedics

The 126 included systematic reviews conducted secondary evaluations of the effectiveness of manual therapy for 18 diseases in traditional Chinese orthopedics. In terms of results reporting, 36 reviews (28.57%) showed beneficial effects, 78 (61.90%) showed possibly beneficial effects, 12 (9.52%) showed no differential effect, 0 showed harmful effects, and 0 showed uncertain effects. Regarding methodological quality, 13 reviews (10.32%) were rated as moderate quality, 64 (50.79%) as low quality, and 49 (38.89%) as very low quality.

Among the 13 moderate-quality systematic reviews, 7 reported beneficial results covering cervical spondylosis (2 reviews), low back pain (1), knee osteoarthritis (1), lumbar disc herniation (1), distal radius fracture (1), and lateral epicondylitis of the humerus (1), with sample sizes ranging from 355 to 1,390 participants. Six reported possibly beneficial results covering low back pain (3 reviews), cervical spondylosis (2), and lumbar disc herniation (1), with sample sizes ranging from 566 to 2,475 participants.

Among the 64 low-quality systematic reviews, 27 reported beneficial results covering cervical spondylosis (10 reviews), low back pain (8), knee osteoarthritis (4), lumbar disc herniation (2), ankle sprain (1), adhesive capsulitis (1), and cervicogenic headache (1), with sample sizes ranging from 251 to 9,211 participants. Thirty-seven reported possibly beneficial results covering cervical spondylosis (9 reviews), low back pain (7), knee osteoarthritis (6), ankle sprain (5), lumbar disc herniation (3), adhesive capsulitis (3), cervicogenic headache (1), atlantoaxial subluxation (1), distal radius fracture (1), and lateral epicondylitis (1), with sample sizes ranging from 200 to 10,602 participants.

Among the 49 very low-quality systematic reviews, 2 reported beneficial results covering knee osteoarthritis (1) and ankle sprain (1), with sample sizes ranging from 360 to 558 participants. Thirty-four reported possibly beneficial results covering cervical spondylosis (11 reviews), knee osteoarthritis (4), adhesive capsulitis (2), cervicogenic headache (2), atlantoaxial subluxation (2), carpal tunnel syndrome (2), low back pain (1), lumbar disc herniation (1), ankle sprain (1), distal radius fracture (1), lumbar sprain (1), scoliosis (1), hip osteoarthritis (1), fibromyalgia syndrome (1), myofascial pain syndrome (1), rotator cuff injury (1), and supracondylar fracture of the humerus (1), with sample sizes ranging from 279 to 4,984 participants. Thirteen reported no differential effect covering low back pain (4 reviews), cervical spondylosis (3), knee osteoarthritis (2), lumbar disc herniation (2), ankle sprain (1), and cervicogenic headache (1), with sample sizes ranging from 143 to 1,821 participants. Specific results are shown in [Figure 3: see original paper].

2.6 Evidence Distribution for Safety of Manual Therapy in Traditional Chinese Orthopedics

Twenty-two systematic reviews (17.46%) evaluated the safety of manual interventions, covering 7 diseases including cervical spondylosis (9 reviews), low back pain (7), knee osteoarthritis (2), lumbar disc herniation (1), cervicogenic headache (1), atlantoaxial subluxation (1), and lumbar sprain (1), with sample sizes ranging from 327 to 10,602 participants. Results showed no serious adverse reactions or events in the manual therapy groups. Fifteen reviews (11.90%) reported that the safety of the intervention group was superior to the control group, including 2 rated as moderate quality (1 on cervical spondylosis and 1 on low back pain), 11 rated as low quality (5 on cervical spondylosis, 3 on low back pain, 1 on knee osteoarthritis, 1 on lumbar disc herniation, and 1 on cervicogenic headache), and 2 rated as very low quality (1 on cervical spondylosis and 1 on lumbar sprain).

Seven reviews reported no significant difference in adverse events between groups, including 6 rated as low quality (3 on low back pain, 2 on cervical spondylosis, and 1 on knee osteoarthritis) and 1 rated as very low quality (1 on atlantoaxial subluxation). No literature reported that the safety of the intervention group was inferior to the control group. Results are shown in [Figure 4: see original paper].

Discussion

Research on clinical advantageous diseases of manual therapy in traditional Chinese orthopedics stems from objective needs in clinical practice, scientific research, and management. At the clinical level, as the contradiction between limited healthcare resources and growing population demands becomes increasingly prominent, how to maximize the utilization of finite healthcare resources and direct investment toward higher-priority clinical diseases has gained global attention from health decision-making systems [16]. Currently, musculoskeletal diseases in China present characteristics of high patient volume, numerous disease types, multiple etiologies, high incidence, high recurrence rates, and high medical costs [17]. Manual therapy, as a manipulative technique, still faces challenges in standardization, normalization, and objectification, with long training cycles and certain risks [18-19]. Therefore, from a comprehensive clinical perspective, systematically and scientifically screening advantageous diseases for manual therapy in traditional Chinese orthopedics forms the foundation and prerequisite for orthopedics clinicians to conduct in-depth clinical and basic research.

At the research level, the current evaluation standards and systems for advantageous diseases in traditional Chinese medicine remain immature. Determination methods mainly include bibliometric analysis, expert surveys, administrative investigations, and case retrospective studies, among which bibliometric analysis is the most common approach. From an evidence-based medicine perspective, establishing advantageous diseases through literature research is recognized as a highly credible method [1-2]. Evidence mapping is an emerging evidence synthesis method with great development potential. By comprehensively searching research in a field of interest, it scientifically summarizes basic characteristics and evidence distribution of various studies, systematically analyzing evidence, progress, and gaps in the field to provide evidence users with the current evidence status and research landscape [24]. CHOI et al. [25] systematically searched systematic reviews related to cupping therapy and created an evidence map to present the overall research landscape, finding potential benefits of cupping therapy for low back pain, ankylosing spondylitis, knee osteoarthritis, neck pain, herpes zoster, migraine, and other conditions. SCHLECHTA PORTELLA et al. [26] comprehensively searched and analyzed systematic reviews related to meditation therapy, summarizing its effects on diseases across different fields and comprehensively presenting evidence for meditation therapy. FOGAÇA et al. [27] systematically searched and evaluated systematic reviews related to mind-body therapies from traditional Chinese medicine and created evidence maps to provide valuable visual information for patients, researchers, and decision-makers, with results suggesting that mind-body therapies such as Tai Chi and Qigong could be applied in various diseases including stroke, schizophrenia, Parkinson' s disease, and hypertension, improving health-related

outcomes and providing references for evidence-based decision-making.

Currently, the field of traditional Chinese medicine clinical research faces a contradiction between surging research quantity and insufficient high-quality clinical evidence, with many studies suffering from low-level repetition and difficulty in clinical translation and application. Therefore, how to balance the contradiction between urgent needs and insufficient evidence at the macro level, reduce blind research and resource waste, and promote healthy development in the field of traditional Chinese medicine clinical research has become a critical issue requiring urgent solutions [20]. Advancing research on advantageous diseases in traditional Chinese medicine clinical practice represents an effective approach to address these problems and provide correct guidance. Clarifying advantageous diseases in the field of manual therapy for traditional Chinese orthopedics, integrating superior research resources, establishing multidisciplinary teams, and actively conducting evidence-based evaluation research on advantageous diseases will provide high-quality evidence support for clinical application of manual therapy.

At the management level, diagnosis-related groups (DRG) and diagnosis-intervention packet (DIP) represent important reforms in healthcare payment methods. However, the current DRG/DIP healthcare support system lacks characteristic content for traditional Chinese medicine, which is not conducive to leveraging and promoting its unique advantages. Based on this, multiple regions have explored and reformed healthcare payment methods using advantageous diseases in traditional Chinese medicine as the entry point [21-23]. Therefore, scientifically defining and evaluating advantageous diseases in different fields of traditional Chinese medicine is necessary for health system management and decision-making.

This study systematically searched, evaluated, and analyzed systematic reviews of manual therapy for orthopedics diseases in traditional Chinese medicine, creating evidence maps that scientifically present the evidence overview and research landscape of this field, providing an evidence-based foundation for establishing clinical advantageous diseases of manual therapy in traditional Chinese orthopedics. The results identified potential advantages of manual therapy in 18 orthopedics diseases including cervical spondylosis, low back pain, knee osteoarthritis, lumbar disc herniation, ankle sprain, adhesive capsulitis, cervicogenic headache, atlantoaxial subluxation, distal radius fracture, lateral epicondylitis, carpal tunnel syndrome, lumbar sprain, scoliosis, hip osteoarthritis, fibromyalgia syndrome, myofascial pain syndrome, rotator cuff injury, and supracondylar fracture, demonstrating beneficial or possibly beneficial effects with methodological quality rated as moderate to very low. Safety studies found no serious adverse reactions or events from manual therapy, with no studies identifying manual therapy as less safe than control interventions.

This study has certain evidence gaps and limitations: (1) The methodological quality of included systematic reviews was uneven, with some studies having inconsistent conclusions, which to some extent limits the stability and gener-

alizability of results; (2) Most included systematic reviews did not evaluate the safety of manual interventions, limiting comprehensive assessment of advantages for some effective manual therapy diseases; (3) Included systematic reviews lacked health economics research to explore the economic advantages of clinical manual therapy application; (4) The evaluation standards and systems for advantageous diseases in traditional Chinese medicine still require further improvement, necessitating multi-level and multi-field cooperation to establish evaluation methods suitable for China' s healthcare system.

Conclusion

In summary, manual therapy is widely applied in clinical practice of traditional Chinese orthopedics. However, due to methodological quality deficiencies and lack of research evidence on safety and economics, future efforts require multi-level institutional cooperation to establish and improve evaluation standards and systems, enhance research quality, update research evidence, and further explore the advantages of manual therapy in the field of traditional Chinese orthopedics.

Author Contributions

FENG Tianxiao, WEI Xu, and ZHU Liguo were responsible for conceptualization and design. FENG Tianxiao, WANG Xu, and WEI Xu conducted literature screening and data extraction. BU Hanmei, QIN Xiaokuan, and XIAO Xiangyu performed statistical processing and visualization analysis. FENG Tianxiao drafted and revised the manuscript. WEI Xu and ZHU Liguo were responsible for quality control and review, with overall responsibility and supervision of the manuscript.

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