INPLASY

Meta-Analysis of Tuina Combined with Other Treatments for Obesity

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 4 February 2025 and was last updated on 4 February 2025.

INTRODUCTION

*R*eview question / Objective Population: Obese patients, specifically those diagnosed with obesity based on body mass index (BMI), waist circumference, and other related health indicators.
Intervention: Tuina therapy combined with other treatment modalities, including auricular point plaster therapy, acupuncture, traditional Chinese patent medicines, and exercise therapy.
Comparison: Control groups receiving standard medical treatment, auricular point plaster therapy alone, acupuncture alone, or other non-combined interventions.
Outcomes: Key health indicators such as weight loss (kg), body mass index (BMI), waist circumference (cm), hip circumference (cm), and overall treatment efficacy.

Study Design: Randomized controlled trials (RCTs) published between 2004 and 2024, focusing on the effectiveness of Tuina therapy in managing obesity.

Condition being studied Obesity has become a significant public health concern globally, leading to various health complications, including cardiovascular diseases, diabetes, and metabolic disorders. In modern society, the prevalence of obesity is rising due to lifestyle changes, including poor dietary habits and reduced physical activity. Traditional weight-loss methods often fall short, prompting the exploration of alternative therapies. Tuina, a form of traditional Chinese medicine, has gained attention for its potential benefits in weight management. Recognized by the World Health Organization as a complementary therapy, Tuina is known for its safety, efficacy, and affordability.

Despite its growing popularity, the clinical evidence supporting Tuina's effectiveness in treating obesity remains limited and inconsistent. This meta-analysis aims to systematically evaluate the therapeutic effects of Tuina combined with other treatment methods on obese patients, focusing on key health indicators such as weight loss, BMI, and waist circumference. By consolidating existing research, this study seeks to provide robust evidence for the efficacy of Tuina in obesity management and guide clinical practice.

METHODS

Search strategy To ensure a comprehensive and authoritative literature review, a systematic search was conducted across multiple databases, including CNKI, Wanfang Data, VIP, PubMed, Cochrane Library, and Web of Science. These databases encompass both Chinese and English literature, providing a broad spectrum of research on the effects of Tuina therapy and its combinations with other treatments on obesity-related outcomes.

The search strategy employed specific keywords in both Chinese and English. The Chinese keywords included "Tuina," "massage," "exercise therapy," "auricular pressure," "acupuncture," "weight," "waist circumference," "BMI," and "hip circumference." The English keywords mirrored these terms to ensure consistency across languages. The search queries were structured as follows:

Chinese search query: (Tuina OR massage) AND (exercise therapy OR auricular pressure OR acupuncture) AND (weight OR waist circumference OR BMI OR hip circumference).

English search query: (Massage OR Tuina) AND (Exercise therapy OR Auricular points plaster therapy OR Acupuncture) AND (Weight OR Waist circumference OR BMI OR Hip circumference).

The search was limited to studies published between 2004 and 2024 to ensure the relevance and timeliness of the data. Priority was given to peer-reviewed journal articles, conference papers, and theses, while review articles and news reports were excluded. The initial screening involved reviewing titles and abstracts to eliminate irrelevant studies, followed by a full-text review to assess the quality and relevance of the literature. Inclusion and exclusion criteria were applied to finalize the studies for meta-analysis, ensuring high-quality data support for the research.

Participant or population The meta-analysis included obese patients diagnosed based on specific criteria such as BMI, waist circumference, and other health indicators. A total of 11 randomized controlled trials (RCTs) were selected for analysis, encompassing a diverse population of obese individuals.

Intervention The primary intervention involved Tuina therapy, which was combined with various other treatment modalities, including auricular point plaster therapy, acupuncture, traditional Chinese patent medicines, and exercise therapy. Each study documented the specific intervention protocols, duration, and frequency of treatments.

Comparator Control groups received standard medical treatments, auricular point plaster therapy alone, acupuncture alone, or other non-combined interventions. The comparison between the intervention and control groups aimed to evaluate the effectiveness of Tuina therapy in managing obesity.

Study designs to be included Only "randomized controlled trials (RCTs)"will be included, as they provide the highest level of evidence. Non-randomized, single-arm, or historical control studies will be excluded. Open-label designs are allowed (due to the difficulty of blinding in Tuina), but the impact of the lack of blinding on bias must be recorded.

Eligibility criteria
Inclusion:
①Only studies published in Chinese and English (excluding other languages).
②Complete data (must report mean ± standard deviation for weight, BMI, waist and hip circumference).
Exclusion:
① Non-randomized controlled trials (e.g., case reports, observational studies).
②Studies that combine Tuina with other interventions but do not analyze the effects of Tuina separately.
③Studies with intervention periods <4 weeks or missing follow-up data.

Information sources The literature search was conducted across major databases, including CNKI, Wanfang Data, VIP, PubMed, Cochrane Library, and Web of Science, ensuring a comprehensive collection of relevant studies.

Main outcome(s) Key health indicators assessed in the included studies included weight loss (kg), body mass index (BMI), waist circumference (cm), hip circumference (cm), and overall treatment efficacy.

Quality assessment / Risk of bias analysis The "Jadad Scale" will be used (random sequence generation, blinding, description of withdrawals and dropouts, total score 0-5) along with the "Cochrane Risk of Bias Tool"(assessing random allocation, allocation concealment, selective reporting, etc., across 7 domains). Two researchers will independently evaluate the studies, with disagreements resolved through discussion or third-party adjudication. Results will be classified as:

①low Risk: Jadad ≥ 4 and Cochrane tool ≤ 1 high-risk domain.

②Moderate Risk: Jadad = 3 or Cochrane tool with 2 high-risk domains.

③High Risk: Jadad ≤ 2 or Cochrane tool with ≥ 3 high-risk domains.

Strategy of data synthesis Statistical Software: RevMan 5.4 or R (using the `metafor` package).

Effect Size: Odds ratios (OR) for binary variables and weighted mean differences (WMD) for continuous variables, both presented with 95% confidence intervals (CI).

Heterogeneity Testing: Q test (P50% use random effects model).

Subgroup Analysis: Stratified by intervention type (Tuina + auricular points/acupuncture/medication).

Publication Bias: Funnel plot symmetry test (Egger's test, P<0.10 indicates bias).

Subgroup analysis
Predefined subgroups:

1. Intervention Type: Tuina + auricular points vs. Tuina + acupuncture vs. Tuina + medication.

2. Duration: Short-term (≤8 weeks) vs. long-term (>8 weeks).

3. Severity of Obesity: BMI ≥ 30 kg/m² vs. BMI < 30 kg/m².

4. Region: Studies from China vs. studies from other countries (if available).

Interaction tests (P<0.05) will be used to determine the significance of subgroup differences.

Sensitivity analysis Excluding High-Risk Bias Studies: Remove studies with Jadad ≤ 2 and observe changes in combined effect size.

Changing Statistical Models: Compare results from fixed effects and random effects models.

Leave-One-Out Analysis: Exclude each study one at a time to verify the robustness of results.

Continuous Variable Transformation: Convert WMD to standardized mean difference (SMD) to verify consistency.

Country(ies) involved China.

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