

Comparison of the Efficacy of Different Traditional Chinese Exercises in the Treatment of Chronic Non-Specific Low Back Pain: A Bayesian Network Meta-Analysis [Letter]

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Dear editor

We read with interest the network meta-analysis, “Comparison of the Efficacy of Different Traditional Chinese Exercises in the Treatment of Chronic Non-Specific Low Back Pain: A Bayesian Network Meta-Analysis” by Min Huang et al.¹ This study represents a welcome contribution to the evidence base for Traditional Chinese Exercises (TCEs) in Chronic Non-Specific Low Back Pain (CNSLBP) rehabilitation, as it synthesizes multiple randomized controlled trials using rigorous statistical methods and provides the first high-level evidence synthesis for the comparative hierarchy of six specific TCEs, an analysis that is much needed for a class of clinical interventions with no head-to-head comparative data available. The study addresses a clinically relevant topic and adopts a Bayesian network meta-analysis design appropriate for multiple intervention comparisons, which is of significant potential value for guiding clinical rehabilitation practice. While the study's focus and methodological framework are highly meritorious, we wish to raise several concerns that may materially affect the certainty and applicability of the findings.

First, the manuscript exhibits critical logical and methodological flaws in its statistical outcome ranking. These issues remain uncorrected in the supplementary materials and substantially compromise the study's rigor and interpretability. A basic counting error is present in the SUCRA rankings for VAS in Table 2: the rank for Baduanjin alone is incorrectly reported as 20, even though only 12 interventions are included.

Second, the Discussion section contains a critical factual typo in the key statement outlining the study's academic contribution, where the authors incorrectly reference transcranial electrical stimulation therapies rather than traditional Chinese exercise therapies. This error renders the study's core claim unintelligible and entirely disconnected from its central research focus. Transcranial electrical stimulation is a neurostimulation technique that has no relevance to the TCEs evaluated in this manuscript, and this mistake directly distorts the authors' intended assertion regarding the role of TCEs in evidence-based non-pharmacological rehabilitation for CNSLBP. This is not a minor editorial error but a serious oversight that hinders readers' understanding of the study's key contributions and reflects insufficient proofreading and content verification on the part of the research team.

Third, a critical, unaddressed issue related to exercise intensity significantly undermines the validity, interpretability, and clinical utility of all key findings, with the manuscript and supplementary materials lacking details of any reporting of this core component of exercise therapy defined by the FITT-VP principle (Frequency, Intensity, Time, Type, Volume, and Progression).^{2,3} While the authors briefly acknowledge intensity's potential impact in the Discussion section, they fail to incorporate it into any heterogeneity analyses or meta-regression models, instead including only intervention duration as a covariate and drawing unsubstantiated conclusions about duration-dependent efficacy. This makes the aforementioned oversight particularly problematic because, for CNSLBP, existing studies confirm that exercise intensity exerts a critical



influence on therapeutic efficacy,^{4,5} and intensity and duration are inherently interrelated confounders with their interactive effects critical to CNSLBP rehabilitation,^{3,4} without accounting for intensity, the study is unable to discern their independent effects, which limits the causal interpretability of its conclusions. Notably, studies have shown that the intensity of TCEs can be evaluated using methods such as metabolic equivalents (METs), and inherent intensity differences exist across TCEs at the same training frequency: dynamic TCEs (eg., Wuqinxi, Tai Ji) involve lumbar movement and core activation and fall into the moderate-to-moderately high category (eg, Tai Ji = 6.0 METs), while static/breathing-focused TCEs (eg, Liuzijue, Chan-Chuang Qigong) are low intensity (eg, Qigong = 3.0 METs) with distinct therapeutic mechanisms (muscle strengthening vs. relaxation). This intensity heterogeneity is further amplified by unmeasured, unreported factors (participant Qigong proficiency, instructor qualifications, lack of follow-up supervision)⁶ and variability within individual TCEs due to divergent practice styles (eg, different Tai Ji schools).⁷ To further enhance the clinical utility and interpretability of the findings, it would be valuable to conduct subgroup analyses stratified by TCE intensity (eg, low vs. moderate-to-high intensity) or to incorporate intensity as a key covariate in meta-regression models. Including these analyses would help the study provide more actionable clinical guidance on the optimal TCE intensity for managing CNSLBP, thereby strengthening its overall practical clinical value. That said, there are practical challenges in defining the precise exercise intensity of each TCE, objective intensity assessments can currently be effectively conducted using gold-standard metrics such as MET values, in combination with key exercise parameters including training frequency and duration.^{2,8} Such approaches enable intensity-stratified subgroup analyses or meta-regression models incorporating intensity as a covariate, generating findings with far greater clinical utility for clinical practice.

Overall, insufficient consideration of exercise intensity has the risk of transforming the intended “comparison of TCE efficacy” into a confounding “comparison of exercise intensity effects”, which results in distorted findings and an unreliable conclusion. Coupled with the aforementioned errors that weaken the clarity and credibility of the manuscript’s key messages and core results, these issues collectively compromise the study’s scientific rigor to a significant degree.

We commend the authors for investigating a clinically important question of TCE efficacy for CNSLBP, a key focus in global non-pharmacological musculoskeletal pain rehabilitation. Addressing the noted methodological and editorial flaws, enhancing intervention reporting transparency, and conducting guideline-aligned evidence certainty appraisal will substantially boost this NMA’s clinical utility and scientific trustworthiness, delivering robust evidence-informed guidance for CNSLBP patient care.

Disclosure

The authors report no conflicts of interest in this communication.

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