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Research on the International Promotion of Acupuncture Based on Health Economics

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Abstract: This study explores international promotion strategies for acupuncture from a health economics perspective, aiming to provide both theoretical support and practical pathways for its global dissemination. As a key component of Traditional Chinese Medicine (TCM), acupuncture has gained increasing global recognition due to its simplicity, affordability, effectiveness, and safety. With the advancement of initiatives such as "Healthy China" and the One Belt One Road Initiative, acupuncture has played a leading role in TCM's international outreach. Research indicates that acupuncture offers notable cost-effectiveness across various diseases and shows considerable potential in cost-utility. However, its international promotion still faces challenges, including insufficient economic evidence, legal and policy barriers, limited insurance coverage, lack of standardized practices, and cultural differences. To address these issues, this study recommends enhancing the quality of health economic evaluations, prioritizing high-burden diseases, increasing localized research in target countries, and strengthening international collaboration, with the goal of achieving high-quality global integration of acupuncture.

Keywords: Acupuncture; Traditional Chinese Medicine; Health economics

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1. Introduction

As an important component of TCM, acupuncture is a traditional therapeutic method that involves inserting fine needles into specific acupoints on the human body to regulate qi and blood, unblock meridians, and restore the balance of yin and yang, thereby achieving the goals of disease prevention and treatment. As early as the Jin and Southern-Northern Dynasties, acupuncture began to spread beyond China, gradually reaching East Asia, Europe, and the Americas through multiple historical stages, ultimately forming a diverse pattern of international dissemination [1]. With the ongoing implementation of the "Healthy China 2030" strategy and the One Belt One Road Initiative, the internationalization of TCM has become a key national agenda [2]. Due to its simplicity, safety, and cost-effectiveness, acupuncture has become a leading force in the global promotion of TCM [3]. However, its international dissemination still faces significant challenges, including insufficient evidence from evidence-based medicine, lack of standardized service protocols, and underdeveloped policy and regulatory frameworks [4–5].

Health economics is an interdisciplinary field that studies the efficiency of medical resource allocation and the relationship between cost control and health outcomes [6]. Conducting health economic evaluations of acupuncture not only helps to objectively and comprehensively reveal its advantages in cost control and economic benefits, but also provides strong evidence for government decision-makers in developing clinical guidelines, adjusting health policies, conducting program evaluations, and optimizing clinical decision-making, thereby offering a theoretical foundation for promoting its international dissemination and policy support [7–8]. This review aims to systematically examine the economic value of acupuncture from the perspective of health economics, analyze the barriers to its international promotion, and propose feasible strategies, with the goal of providing theoretical support and policy recommendations for the internationalization of acupuncture.

2. The health economics value of acupuncture

Health economics evaluation is a method that systematically analyzes the relationship between the input of health resources (i.e., costs) and the output (including effects, benefits, or utilities) [6]. Its value in the field of acupuncture is primarily reflected in the following two aspects.

2.1. Prominent cost-effectiveness advantage

Acupuncture has demonstrated significant advantages in health economics across various disease areas, primarily through its superior cost-effectiveness characterized by "high efficacy and low cost."

First, clinical studies consistently show that acupuncture combined with other treatments is not only more effective but also less costly than conventional therapies. For example, Wang et al. found that massage combined with auricular magnetic therapy was superior to massage alone in treating cervical spondylotic radiculopathy, with a higher cure rate (42.9% vs. 17.6%) and lower per-treatment cost (CNY 3,324.46 vs. CNY 4,016.86) [9]. Similarly, Shi et al. reported that a combination of traditional Chinese acupuncture and herbal medicine achieved a 91.1% cure rate for the common cold—much higher than the 79.8% in the conventional treatment group—at a significantly lower cost (CNY 128.58 vs. CNY 367.77), highlighting a superior cost per effective outcome [10].

Second, some specialized acupuncture techniques have shown better efficacy and lower costs compared to traditional methods. For instance, the Xingnao Kaiqiao (brain-awakening) technique was found to be more effective in improving neurological function and quality of life in stroke patients, with a lower cost per unit of effectiveness, saving CNY 813.84 for every one-point reduction in the Clinical Stroke Scale (CSS) score [11].

Third, acupuncture offers long-term benefits in chronic disease rehabilitation, demonstrating favorable long-term cost-effectiveness. A study on ischemic stroke patients found that although the initial cost of acupuncture was slightly higher, the effective rate significantly increased after three months (92.0% vs. 74.7%), resulting in a lower cost per effective outcome and a better long-term cost-benefit ratio [12].

Finally, a systematic review and network meta-analysis by Zhao et al. indicated that various acupuncture techniques, such as fire needling, warm needling, and moxibustion, were more effective than pharmacological treatments for peripheral neuropathic pain, with more favorable incremental cost-effectiveness ratios [13]. Among them, fire needling showed the most outstanding cost-effectiveness.

2.2. Significant potential for cost-utility advantage

In China, health economic evaluations in the field of acupuncture have largely focused on cost-effectiveness analysis (CEA) [14]. However, relying solely on CEA is insufficient to fully capture the multidimensional

therapeutic value of acupuncture. CEA primarily compares quantitative clinical indicators, such as symptom relief, but fails to encompass improvements in patients' quality of life [15]. As a therapeutic modality that modulates the neuro–endocrine–immune systems with multifaceted mechanisms and layered efficacy, acupuncture often demonstrates its strengths in enhancing quality of life, alleviating chronic symptoms, and improving overall functional status [16]. These benefits are not adequately reflected in CEA.

Therefore, there is a need to incorporate methods such as cost-utility analysis (CUA) and cost-benefit analysis (CBA), which translate treatment outcomes into comprehensive indicators like quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs), providing a more accurate assessment of the overall value of acupuncture interventions. For example, Oberoi et al. conducted a CUA on 74 cancer patients and found that the cost per QALY gained in the acupuncture group was $1,265—well below the commonly accepted societal threshold of $35,628 [17]. Similarly, a study by Skonnord et al. involving 171 patients with acute low back pain also supported the high cost-utility of acupuncture [18]. These findings indicate that acupuncture has already demonstrated promising results in CUA evaluations. With further support from high-quality studies, its potential in health economics is expected to become even more prominent.

3. Barriers to the international promotion of acupuncture

Acupuncture has gained increasing recognition and promotion globally in recent years. According to the World Health Organization's statistics, 113 member countries are using acupuncture as a diagnostic and therapeutic method, 29 member countries have established relevant laws and regulations for its application, and 20 member countries have included acupuncture in their healthcare reimbursement systems [19]. Despite this, its international promotion still faces numerous challenges.

3.1. Institutional barriers and evidence dilemmas in international promotion

Currently, acupuncture faces multiple institutional barriers in its international promotion, which are interwoven and mutually reinforcing, limiting its effective integration into global healthcare systems. Specifically, most countries have not incorporated acupuncture into their health insurance schemes; its legal status remains ambiguous, technical and service standards are lacking, and it has yet to be included in mainstream international clinical guidelines [4, 5, 20].

Limited insurance coverage remains a major constraint on accessibility and affordability. For instance, in Egypt, acupuncture is not included in the national healthcare system, and treatment costs are not reimbursed, which significantly hinders its adoption [4]. In the United States, although some commercial insurance plans reimburse acupuncture, it remains excluded from both federal and state government insurance programs, reflecting its marginal position in mainstream healthcare coverage [20]. In contrast, while acupuncture is reimbursed under Germany's national health insurance, the coverage is limited to specific conditions and restricted in the number of sessions allowed [21].

Legal recognition of acupuncture varies widely across countries, raising concerns about market uncertainty. In the United States, legality is determined at the state level: 44 states have enacted laws recognizing TCM and offer licensure for acupuncture practitioners; 4 states allow acupuncture under the supervision or recommendation of a medical doctor; and in Wyoming, acupuncture is still not legally recognized [22].

One major reason acupuncture lacks broad policy support is the insufficient availability of high-quality health

economic evidence [5]. According to Li et al., existing economic evaluations of acupuncture often suffer from weak research designs, inadequate control of confounding variables, a lack of long-term outcome data, poor reporting quality, and limited alignment with real-world policy-making contexts [23]. Moreover, the lack of consistency in acupoint selection, needling techniques, and control group design leads to heterogeneity in efficacy studies, making it difficult to demonstrate acupuncture's superiority over pharmacological treatments and reducing the comparability and persuasiveness of economic evaluations [24–25]. Zeng et al., further highlight that the scarcity of survival and quality-of-life data, as well as the cost variability across regions, also contributes to the low homogeneity and limited publication of health economic assessments of acupuncture [5].

3.2. Language and cultural barriers

Language barriers hinder the accurate translation and understanding of TCM terminology by the international community, thereby impeding the dissemination of its core concepts [4]. Culturally, Western medicine emphasizes standardization and precision, which makes it difficult to accept non-standardized concepts in acupuncture such as the Eight Principles, Qi and Blood, Yin-Yang theory, Zang-Fu differentiation, and meridian theory [26]. As a result, some Western acupuncture practitioners have abandoned traditional meridian and acupoint theories, advocating instead for dry needling techniques grounded in anatomy and pathophysiology, to align with Western diagnostic and therapeutic standards [25]. In the United States, more than 20 states currently allow physical therapists to perform dry needling [27]. These developments illustrate that language and cultural barriers not only obstruct the global promotion of acupuncture but also pose challenges to traditional Chinese acupuncture theories, potentially even leading to their replacement.

4. Strategies for international promotion of acupuncture based on health economics

4.1. Increase high-quality health economics analyses of acupuncture

Enhancing the scientific rigor of research design remains a key priority. It is recommended to prioritize multicenter, large-sample randomized controlled trials (RCTs) to improve methodological robustness. Greater attention may also be given to accounting for confounding factors such as patients' underlying conditions and concurrent therapies. Including long-term follow-up in study protocols could facilitate a more comprehensive evaluation of acupuncture's sustained efficacy and potential cost-effectiveness, particularly in the context of chronic disease management. Research reporting is advised to follow international guidelines, such as the Consolidated Health Economic Evaluation Reporting Standards (CHEERS), to enhance transparency and reproducibility. Moreover, careful consideration should be given to the design of control groups, including comparisons with placebo or standard care, to more accurately assess the incremental effects of acupuncture.

4.2. Focus on key disease research

Although acupuncture has a broad range of indications, prioritizing in-depth research on certain global high-burden diseases or conditions with poor cost-effectiveness of existing treatments may help more rapidly demonstrate its unique value. For instance, chronic pain, neurological disorders, and mental health conditions such as anxiety and depression are often associated with prolonged disease duration, high recurrence rates, substantial healthcare costs, and conventional treatments that may involve considerable side effects or limited efficacy [28–29].

4.3. Increase localization research in target countries

Given the significant differences among countries in disease patterns, healthcare resource pricing, insurance reimbursement mechanisms, and cultural acceptance, directly applying findings from domestic Chinese studies often lacks persuasiveness. Therefore, it is advisable to encourage collaborations with local healthcare institutions, universities, or research centers in target countries to conduct data collection and economic evaluations based on local clinical practice. These efforts could yield region-specific cost-effectiveness, cost-utility, and budget impact analyses. Establishing a comprehensive acupuncture database that systematically collects data on clinical outcomes, adverse events, and resource utilization—along with the use of health-related quality of life instruments such as EQ-5D or SF-36—would provide strong support for cost-utility assessments. To reduce heterogeneity across studies, it is also recommended to promote the standardization of acupuncture procedures, including unified acupoint selection, stimulation intensity, needle retention time, and treatment duration.

5. Conclusion

Acupuncture, with its distinctive health economic characteristics, demonstrates substantial value and potential within global healthcare systems. This study, from the perspective of health economics, systematically analyzes the economic value of acupuncture, its current status, and challenges in international dissemination, and proposes targeted strategies for global promotion. The findings indicate that acupuncture offers significant cost-effectiveness advantages, particularly in chronic disease management, pain relief, and rehabilitation, delivering both health and economic benefits. Several countries and regions have already integrated acupuncture into their health insurance systems, laying a foundation for broader international adoption. However, further globalization of acupuncture faces critical challenges, including insufficient health economic evidence, legal and policy constraints, limited insurance coverage, lack of standardized practices, and cultural misunderstandings. From a health economics evaluation standpoint, it is recommended that future research place greater emphasis on high-quality economic analyses of acupuncture, focus on high-burden diseases, conduct localized studies in target countries, and strengthen international collaborations, ultimately aiming to achieve high-quality global dissemination of acupuncture.

Disclosure statement

The authors declare no conflict of interest.

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