Acupuncture and Herbal Medicine

# Artificial intelligence and evidence-based research will promote the development of traditional medicine

Xinran Liu[1], Tao Gong[2,*]

[1]College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK; [2]College of Acupuncture and Chinese Medicine, Northwestern Health Sciences University, Bloomington, USA



Traditional medicine (TM) has progressively achieved international recognition. The recent first-ever World Health Organization (WHO) Traditional Medicine Global Summit 2023 has undoubtedly highlighted the significance of TM[1]. This conference was held in India during August 17–18, 2023[2], aiming to mobilize political commitment and evidence-based action supporting TM and integrating it to advance the health and well-being of the people and planet.

This interest can be traced to the establishment of the Center for Complementary and Alternative Medicine (CAM) by the United States National Institutes of Health (NIH) in 1992. WHO defines TM as a summary of health-related knowledge skills and practices that have been developed based on culturally diverse beliefs, indigenous theories, and experiences[1]. The conference expanded the framework to include traditional, complementary, and integrative medicine. The summit noted that promoting evidence-based traditional, complementary, and integrative (TCIM) is an important step. As an optional therapy, a healthcare system that combines the advantages of both modern and TM and provides personalized treatment tailored to the preferences and needs of the patient should be the goal of future TCIM development[3]. This represents a gradual shift in the view of TCIM as merely alternative or complementary medicine. TM being valued on a global platform is a significant step in progress.

Evidence-based medicine emphasizes the explicit utilization of the latest evidence when making decisions pertaining to treatment[4]. Introducing evidence-based concepts into TM can facilitate systematic evaluation of the validity and reliability of evidence to guarantee its application in practice and assess its performance[5]. Majority of the current research on converting evidence into therapeutic efficacy has applied evidence-based approaches, such as traditional Chinese medicine (TCM); it holds significant value as a component of TCIM and plays a crucial role in healthcare in China[6] as well as in numerous countries worldwide[7]. Acupuncture is an important component of TCM. A study on the progress of international clinical research on acupuncture over the past decade showed that acupuncture gradually transformed from an empirical discipline under the promotion of evidence-based medicine[8]. Developing clinical evidence of its safety and effectiveness has accelerated its international acceptance as a treatment method. In another clinical study involving Tongxinluo capsules in patients with acute myocardial infarction, the results of a placebo-controlled randomized clinical trial were used as guide[9]. This project included a combination of TCM and evidence-based medicine. Applying evidence-based medical criteria to evaluate TCIM in clinical practice can improve the credibility, practical value, and potential of comprehensive effectiveness trials. In the contemporary era, TCIM can be used to conduct research and provide high-quality and reliable clinical evidence to bolster relevant medication specifications and treatment guidelines.

Access to high-quality TCIM services requires a stronger evidence base to enable development of country-specific mechanisms and policy guidance for the regulation, quality control, and monitoring of TCIM clinical practices, practitioners, and products. As envisioned at the summit, with the development of artificial intelligence (AI) technology, TCIM research methods have the potential for rapid modernization[2]. AI may play an important role in analyzing complex data from TCIM and in facilitating scientific assessments[10]. Based on recent developments in the operational principles of AI machine learning, its potential benefit in healthcare has been explored[11]. The advanced algorithms and machine learning capabilities of AI enable the convenient processing of large-scale statistics and summarizing basic rules of TCIM clinical medication based on integrating large data quantities. This study will facilitate the consolidation of this discipline with complementary and integrative medicine. Based on this, current AI machine learning can achieve higher prediction accuracy[12], indicating that AI will be able to evaluate existing clinical evidence to further predict unknown data, facilitate more accurate diagnoses, and improve TCIM-related clinical services with personalized treatment.

*Corresponding author. Tao Gong, E-mail: tgong@nwhealth.edu.

Received 17 October 2023 / Accepted 31 January 2024

**How to cite this article:** Liu XR, Gong T. Artificial intelligence and evidence-based research will promote the development of traditional medicine. Acupunct Herb Med 2024;4(1):134–135. DOI: 10.1097/HM9.0000000000000100

The 2023 WHO Traditional Medicine Global Summit served as a significant milestone in TCIM recognition and advancement. The summit explored opportunities to advance TCIM in an evidence-based manner and highlighted novel possibilities AI could bring to the research and practice of traditional therapeutic systems. Integrating evidence-based medicine concepts and methods is imperative with developing clinical efficacy evaluation methods that align with the unique characteristics of TCIM and international standards. Drawing support from AI for TCIM development is promising and an inevitable way for it to flourish in the present era. Combining it with modern technology can enable its inheritance and innovation. The ultimate goal of future multidisciplinary efforts is to improve the delivery of healthcare services and patient outcomes.

## Conflict of interest statement

The authors declare no conflict of interest.

## Funding

None.

## Author Contributions

Tao Gong conceived the idea of this article, Xinran Liu drafted the manuscript.

## Ethical approval of studies and informed consent

Not applicable.

## Acknowledgments

None.

## Data availability

Not applicable.

## References

[1] World Health Organization. Global partners commit to advance evidence-based traditional, complementary and integrative medicine; 2023. Available from: https://www.who.int/news/item/19-08-2023-global-partners-commit-to-advance-evidence-based-traditional--complementary-and-integrative-medicine. Accessed October 2, 2023.

[2] World Health Organization. The First WHO Traditional Medicine Global Summit; 2023. Available from: https://www.who.int/news-room/events/detail/2023/08/17/default-calendar/the-first-who-traditional-medicine-global-summit. Accessed October 2, 2023.

[3] World Health Organization. WHO convenes first high-level global summit on traditional medicine to explore evidence base, opportunities to accelerate health for all; 2023. Available from: https://www.who.int/news/item/10-08-2023-who-convenes-first-high-level-global-summit-on-traditional-medicine-to-explore-evidence-base--opportunities-to-accelerate-health-for-all. Accessed October 2, 2023.

[4] Sackett DL, Rosenberg WM, Gray JM, et al. Evidence based medicine: what it is and what it isn't. *BMJ* 1996;312(7023):71–72.

[5] Fung FY, Linn YC. Developing traditional Chinese medicine in the era of evidence-based medicine: current evidences and challenges. Evidence-Based Complementary and Alternative Medicine. 2015; published online April 8. Developing Traditional Chinese Medicine in the Era of Evidence-Based Medicine: Current Evidences and Challenges (hindawi.com).

[6] NCCIH. Traditional Chinese Medicine: What You Need to Know; 2019. Available from: https://www.nccih.nih.gov/health/traditional-chinese-medicine-what-you-need-to-know. Accessed October 6, 2023.

[7] Liu B. Past cultural achievement as a future technological resource: contraditions and opportunities in the intellectual property protection of Chinese Medicine in China. *UCLA Pacific Basin Law J* 2003;21(1):75.

[8] Liu B, Chen B, Guo Y, et al. Acupuncture—a national heritage of China to the world: international clinical research advances from the past decade. *Acupunct Herb Med* 2021;1(2):65–73.

[9] Richard G. Traditional Chinese medicine meets evidence-based medicine in the acutely infarcted heart. *JAMA* 2023;330(16):1529–1530.

[10] Malik P, Pathania M, Rathaur VK. Overview of artificial intelligence in medicine. *J Family Med Prim Care* 2019;8(7):2328–2331.

[11] Hwang TJ, Kesselheim AS, Vokinger KN. Lifecycle regulation of artificial intelligence–and machine learning–based software devices in medicine. *JAMA* 2019;322(23):2285–2286.

[12] Meskó B, Görög M. A short guide for medical professionals in the era of artificial intelligence. *npj Digital Med* 2020;3(1):126.