

Vol. 11, No.37 Jun 2026

eISSN 2398-4287



Doi: <https://doi.org/10.2183/e-bpj.V11i37>

E-B

Environment-Behaviour
Proceedings Journal

AicE-Bs2026Sokcho

14th Asia-Pacific International Conference
on Environment-Behaviour Studies

Kyungdong University Global (KDU Global), Sokcho (Goseong), S.Korea
04-06 Jun 2026

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An international publication published four times annually by e-IPH, Ltd, UK, for the
Association of Malaysian Environment-Behaviour Researchers (AMER)

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About the Journal

The Environment-Behaviour Proceedings Journal (E-BPJ) is the flagship journal of the Malaysian Association of Environment-Behaviour Researchers (AMER). It publishes selected, original, double-blind, peer-reviewed international conference proceedings on Environment-Behaviour (Environmental Psychology), General Psychology, and Quality of Life issues currently affecting Asian/African/Arabian communities living in both their home countries and other countries. The selected proceeding papers published were presented at multiple serial annual international conferences held worldwide since 2010, mainly organised by AMER and, where appropriate, jointly organised with the institutions of the international conference organising committee.

The E-BPJ's main goal is to disseminate original Environment-Behaviour (Environmental Psychology) research works internationally, particularly by researchers in Asia, Africa, and Arabia, though contributors from other countries are also most welcome.

The proceeding papers published in this journal have been indexed in Clarivate Analytics's Web of Science since its inception in 2016 till 2025.

It's important to note that the views expressed in the proceeding papers, do not necessarily reflect the official stance of AMER. This policy encourages open discussion and diverse opinions in relation to the Environment-Behaviour (Environmental Psychology) studies.

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- Big Data Environment
- Children & Youth Environment
- Commercial/Retail/Services Environment
- Communication / Social Media Environment
- Community Environment / Social Psychology
- Construction Environment
- Design & Creative Environment
- Disabled / Inclusive Environment
- Educational / Learning Environment
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 - Standard of English Language (Score to be above 90%) and Similarity Index (Plagiarism) to be less than 30%, based on [Grammarly](#); Clarity of illustrations; APA style of referencing.

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Journal History

Proceedings of previous international conferences organised by the Association of Malaysian Environment-Behaviour Researchers (AMER) since 2010 were published and accessible online in a formal 5-year contract with Elsevier's *Procedia Social and Behavioural Sciences* (ISSN: 1887-0428) , [www.ScienceDirect.com](#). Those proceedings have all been indexed in Thomson Reuter's Web of Science (WoS). The inevitable but timely birth of the *Environment-Behaviour Proceedings Journal* in 2016 was mainly to sustain the publication of the proceedings of forthcoming annual, serial international conferences to be organised jointly by AMER and institutions of the international conference organising committee.

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The hybrid AicE-Bs2026Sokcho (34th Asia-Pacific International Conference on Environment-Behaviour Studies) marked AMER's 54th international conference to be organised. It is hosted by KDU Research Centre, Kyungdong University Global (KDU Global), Sokcho (Goseong), South Korea in collaboration with Kulliyah of Sustainable Tourism and Contemporary Languages (KSTCL) International Islamic University Malaysia (IIUM), Johor, Malaysia. It will be held at the Kyungdong University Global (KDU Global), Sokcho (Goseong), South Korea from 04-06 Jun 2026.

The conference focuses on Environment-Behaviour issues affecting Asian/African/Arabian communities, both in their countries and worldwide. Issues affecting other communities are also most welcome.

DOI: <https://doi.org/10.21834/e-bpj.v11i37>

Published: 2026-06-04

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Cultural and Behavioural Perspectives on Traditional Medicine Use in Cardiovascular Health

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Abstract

The growing burden of cardiovascular diseases and interest in complementary approaches have stimulated research on cultural and behavioural determinants of traditional medicine (TM). This study examines 689 Scopus-indexed documents (2016–2026) using ScientoPy, Scopus Analyser, and VOSviewer. Publications show fluctuating but increasing trends, peaking in 2025, with the highest citations in 2019 and 2024. The USA and China are the leading contributors, supported by major funding agencies. Keyword analysis reveals strong behavioural-cultural clustering linked to hypertension, cardiovascular disease, and diabetes, highlighting patient attitudes and adherence. Findings emphasise the need to integrate cultural competence and behavioural insights into cardiovascular healthcare to improve TM use and outcomes.

Keywords: Traditional medicine; Cardiovascular disease; Cultural perspectives; Bibliometric analysis

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1.0 Introduction

The growing burden of cardiovascular disease (CVD), alongside increased interest in complementary and integrative approaches, has stimulated a substantial body of research exploring cultural and behavioural determinants of traditional medicine (TM) use. Understanding the global research landscape on TM use in cardiovascular health is essential for identifying knowledge gaps, guiding policy development, and integrating culturally sensitive healthcare strategies.

Current bibliometric analyses reveal a growing interest in TM for CVD with hotspots including herbal components, ischemic reperfusion injury and network pharmacology, with China, the United States and India being the leading contributors to research in this field (Lan et al., 2026). However, detailed bibliometric analyses specifically addressing cultural and behavioural perspectives remain underexplored. Hence, this study aims to investigate the bibliometric characteristics and evolving research patterns on cultural and behavioural perspectives of TM use in cardiovascular health. Specifically, the objectives of this study are to analyse temporal trends in publications and citations, identify the most productive countries, journals, and funding institutions, examine keyword co-occurrence patterns to elucidate major research themes, and assess the extent to which cultural and behavioural dimensions are represented in the existing literature.

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2.0 Literature Review

2.1 Global Trends and Cultural Integration in TM

The global research landscape for traditional medicine (TM) has seen a sustained increase in publications, reflecting a growing academic interest in integrating complementary approaches with conventional care. In the context of CVD, this growth is led predominantly by China, the United States, and India (Bachri et al., 2026). Cultural beliefs and religious practices serve as primary determinants for TM adoption. For instance, in Mauritius, religious affiliation dictates the specific use of plants like *Citrus limon* and *Ocimum tenuiflorum* for heart health (Mahomoodally & Mooroteea, 2021). Similarly, traditional African medicine remains deeply embedded in the healthcare decision-making of rural communities for conditions such as rheumatic heart disease, where cultural competency is a prerequisite for effective clinical engagement (Kobon Sissoko et al., 2025).

2.2 Psychosocial and Behavioural Determinants

Recent evidence suggests that TM is often preferred due to its perceived safety and the "natural" nature of remedies compared to the perceived side effects of conventional medications (Rizvi et al., 2022). Research indicates that patient knowledge is a strong predictor of behaviour; for example, hypertensive patients with higher health literacy in Indonesia exhibit more positive attitudes toward TM use (Husnawati et al., 2023; Al-Hazmi et al., 2025). Beyond simple preference, South Asian immigrant populations in the United States frequently integrate spiritual and traditional practices (CAM) with conventional treatments, highlighting how migration and cultural identity shape cardiovascular self-management (Jamil et al., 2022; Khosla et al., 2024).

2.3 The Research Gap: From Awareness to Implementation

Despite the documented rise in publications, a significant gap remains in understanding the transition from cultural awareness to actual health behaviour. While the current literature frequently explores "attitude" and "knowledge" (cognitive factors), there is limited evidence regarding the behavioural implementation of TM specifically in areas of medication adherence, self-management, and clinical decision-making. Previous bibliometric analyses in cardiovascular health have focused heavily on biological mechanisms, such as oxidative stress and pharmacology, but have largely overlooked the broader social and behavioural context of how patients choose and sustain these treatments. Furthermore, research into the decision-making processes of specific vulnerable populations remains insufficient. This study addresses these gaps by providing a specialised bibliometric assessment of cultural and behavioural perspectives, shifting the focus from purely clinical outcomes to the human-centric determinants of TM use in cardiovascular care.

3.0 Methodology

3.1 Data source and search strategy

A comprehensive bibliometric analysis was conducted using the Scopus database to retrieve relevant publications on cultural and behavioural perspectives of TM use in cardiovascular health.

The search strategy used Boolean operators as follow: ("traditional medicine" OR "complementary medicine" OR "alternative medicine" OR "herbal medicine" OR CAM) AND (perception OR attitude OR behavior OR behaviour OR belief OR beliefs OR cultural OR culture OR "health-seeking behaviour" OR "health seeking behaviour" OR "patient preference" OR "decision making") AND ("cardiovascular disease" OR "heart disease" OR hypertension OR dyslipidemia OR hyperlipidemia OR atherosclerosis).

To enhance relevance and consistency, filters were applied to include only articles published between 2016 and 2026, limited to English-language publications. The final dataset was exported in comma-separated values (CSV) format, including full metadata such as titles, authors, affiliations, abstracts and keywords.

3.2 Bibliometric analysis

Descriptive bibliometric indicators were generated to evaluate publication performance and research trends. These included annual publication output, citation trends, leading countries, and most productive journals. Country and journal productivity analyses were conducted using ScientoPy, temporal trends in publications and citations were analysed using Microsoft Excel, while funding landscape analysis was performed using the built-in analytical tools of Scopus.

3.3 Network visualisation and mapping

Keyword co-occurrence analysis was conducted using VOSviewer to explore the intellectual structure and thematic evolution. Co-occurrence networks were generated from author keywords, with a threshold of 5. The resulting maps were visualized to identify major research clusters, thematic hotspots, and relationships between key concepts.

3.4 Study flowchart

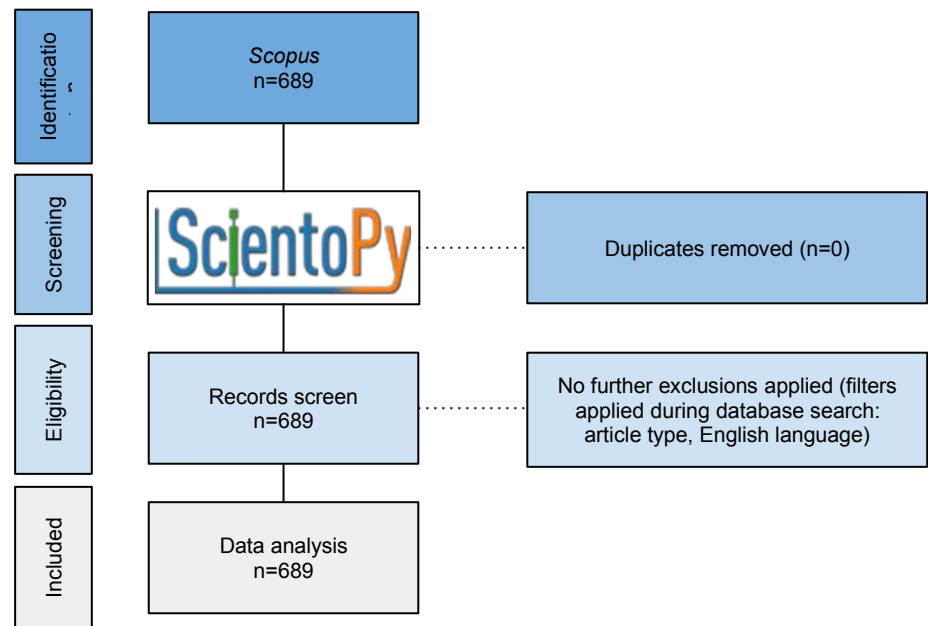


Fig. 1: The Modified Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) Guideline
(Source: Adapted from Page et al., 2021)

The selection and screening process for eligible publications followed a modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, as illustrated in Figure 1, showing 689 retrieved records with no further exclusions applied.

4.0 Findings

4.1 Publication and citation trends

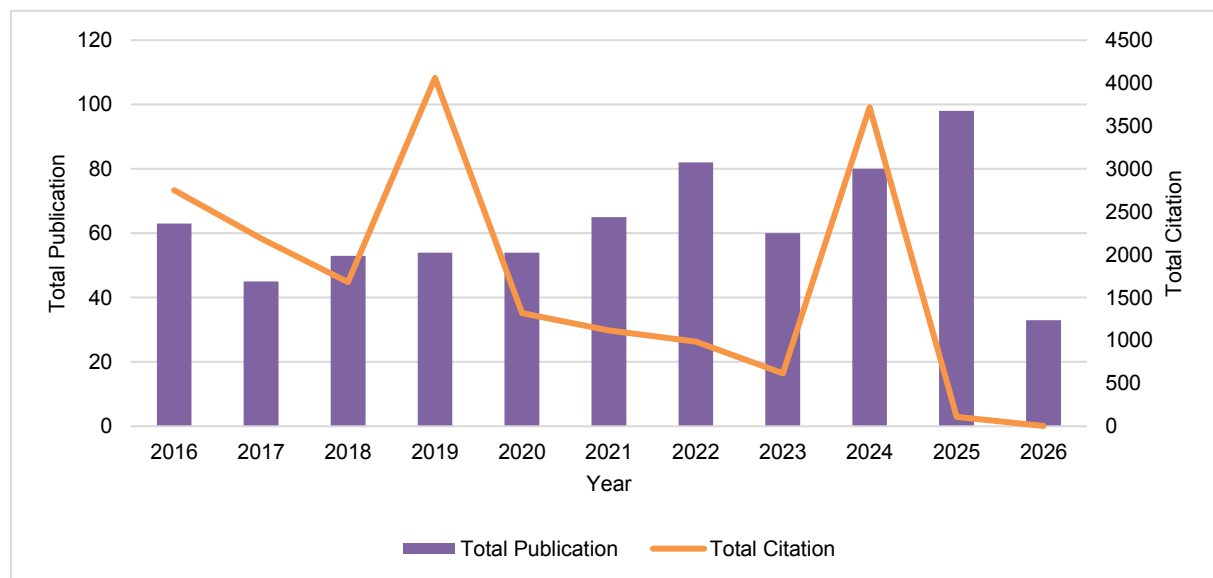


Fig. 2: Annual publication and citation trends related to TM use in cardiovascular health (2016–2026)
(Source: Authors' analysis using Microsoft Excel based on data extracted from Scopus database)

The annual number of publications and citations from 2016 to 2026 is presented in Figure 2. A total of 63 publications were recorded in 2016, followed by 45 in 2017 and 53 in 2018. The number of publications remained relatively stable between 2018 and 2020, with 54 publications reported in both 2019 and 2020. An increase was observed in 2021 (65 publications) and 2022 (82 publications), followed by a decrease in 2023 (60 publications). The number of publications rose again in 2024 (80 publications) and reached the highest value in 2025 (98 publications), before decreasing to 33 publications in 2026.

In terms of citations, 2751 citations were recorded in 2016, decreasing to 2188 in 2017 and 1681 in 2018. The number of citations increased to 4060 in 2019, then decreased to 1319 in 2020. A declining trend continued in 2021 (1116 citations), 2022 (987 citations), and 2023 (617 citations). An increase was observed in 2024, with 3718 citations, followed by a decrease to 110 citations in 2025 and 4 citations in 2026.

4.2 Leading countries contributions

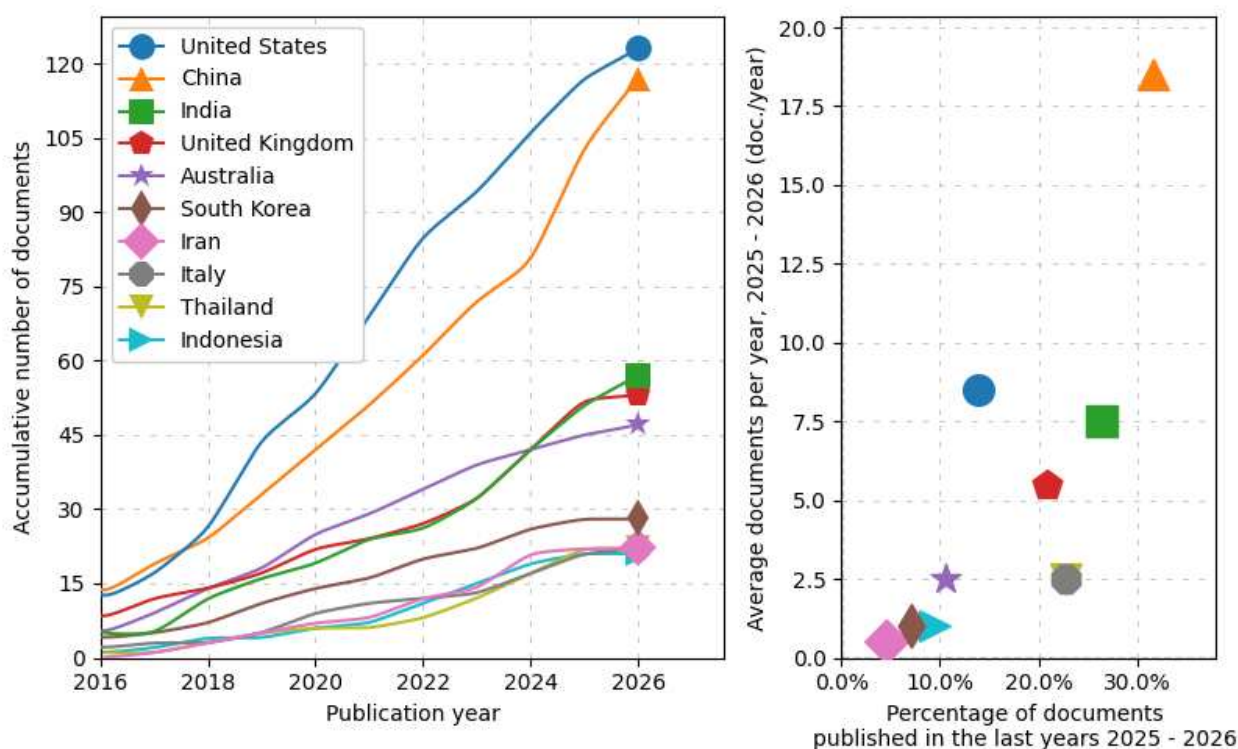


Fig. 3: Global distribution of publications by country
(Source: ScientoPy)

The global distribution of publications by country is presented in Figure 3. The United States recorded the highest number of publications ($n = 123$, 17.9%), followed by China ($n = 117$, 17.0%) and India ($n = 57$, 8.3%). The United Kingdom ($n = 53$, 7.7%) and Australia ($n = 47$, 6.8%) were also among the leading contributors.

Other countries contributing to the field included South Korea ($n = 28$, 4.1%), Iran ($n = 22$, 3.2%), Italy ($n = 22$, 3.2%), Thailand ($n = 22$, 3.2%), and Indonesia ($n = 21$, 3.0%).

In terms of average documents per year (ADY), China showed the highest value (18.5), followed by the United States (8.5), India (7.5), and the United Kingdom (5.5). Australia, Italy, and Thailand each recorded an ADY of 2.5, while South Korea (1), Indonesia (1), and Iran (0.5) showed lower values.

4.3 Source and journal analysis

Table 1. Top 10 journals ranked by number of publications and citations

No.	Source Title	Total publication	SJR	SNIP	h-Index
1	Journal of Ethnopharmacology	32	1.142	1.578	20
2	BMC Complementary Medicine and Therapies	22	0.741	1.037	11

3	BMJ Open	19	1.016	0.944	8
4	PLoS ONE	18	0.803	1.065	10
5	Frontiers in Pharmacology	12	1.22	1.153	5
6	Phytomedicine	11	1.694	1.703	7
7	BMC Complementary and Alternative Medicine	8	0.741	1.037	8
8	Tropical Journal of Natural Product Research	7	0.217	0.432	3
9	Complementary Therapies in Medicine	6	1.018	1.319	5
10	Evidence-based Complementary and Alternative Medicine	6	0.469	0.831	6

(Source: ScientoPy)

The top 10 journals ranked by number of publications and citations are presented in Table 1. The *Journal of Ethnopharmacology* recorded the highest number of publications (n = 32), followed by *BMC Complementary Medicine and Therapies* (n = 22) and *BMJ Open* (n = 19). Other prominent journals included *PLoS ONE* (n = 18), *Frontiers in Pharmacology* (n = 12) and *Phytomedicine* (n = 11).

Additional contributing journals were *BMC Complementary and Alternative Medicine* (n = 8), *Tropical Journal of Natural Product Research* (n = 7), *Complementary Therapies in Medicine* (n = 6), and *Evidence-based Complementary and Alternative Medicine* (n = 6).

The journals exhibited varying bibliometric indicators, with SCImago Journal Rank (SJR) values ranging from 0.217 to 1.694, Source normalised Impact per Paper (SNIP) values from 0.432 to 1.703, and Hirsch Index (h-index) values from 3 to 20. *BMC Complementary and Alternative Medicine* was later rebranded as *BMC Complementary Medicine and Therapies*, and both titles are presented separately in the dataset.

4.4 Funding agency analysis

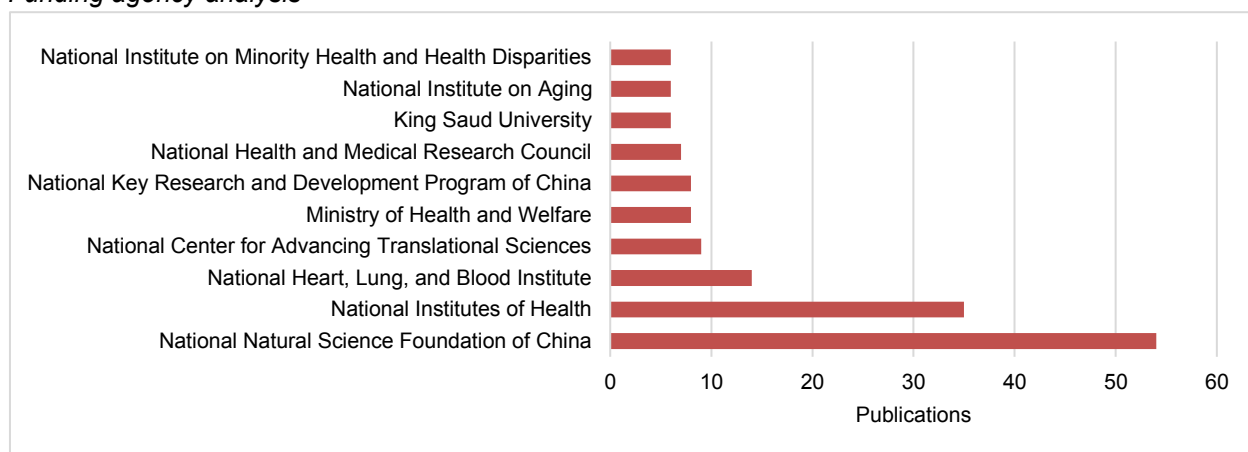


Fig. 4: Distribution of publications by major funding agencies

(Source: Scopus)

The distribution of publications by major funding agencies is presented in Figure 4. Funding contributions were primarily from agencies based in China, the United States, and other countries.

China accounted for the highest number of funded publications, led by the National Natural Science Foundation of China (n = 54) and the National Key Research and Development Program of China (n = 8).

In the United States, major funding agencies included the National Institutes of Health (n = 35), the National Heart, Lung, and Blood Institute (n = 14), the National Center for Advancing Translational Sciences (n = 9), the National Institute on Aging (n = 6), and the National Institute on Minority Health and Health Disparities (n = 6).

Other contributing funding bodies included the Ministry of Health and Welfare, South Korea (n = 8), the National Health and Medical Research Council, Australia (n = 7), and King Saud University, Saudi Arabia (n = 6).

4.5 Keyword co-occurrence and thematic analysis

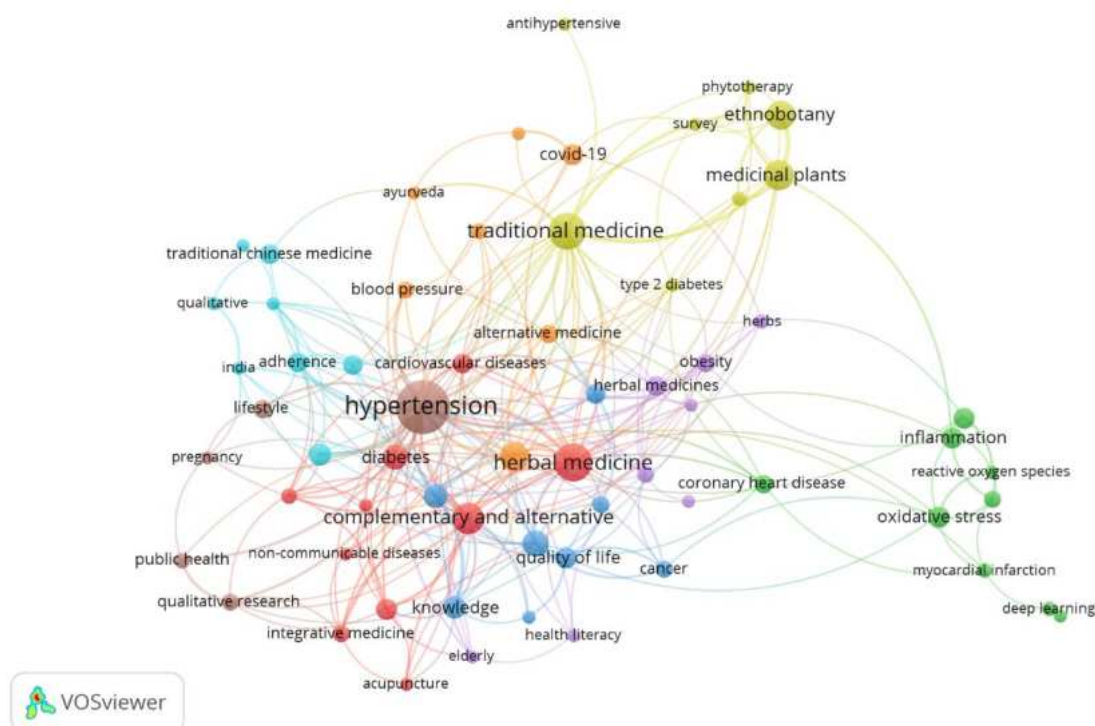


Fig. 5: Keyword co-occurrence network map
(Source: VOSviewer)

The keyword co-occurrence network map is presented in Figure 5. A total of multiple keywords was identified and grouped into eight clusters based on their co-occurrence relationships.

The most frequently occurring keywords included "hypertension" ($n = 74$), "herbal medicine" ($n = 37$), "traditional medicine" ($n = 34$), "complementary and alternative medicine" ($n = 25$), "medicinal plants" ($n = 23$), and "complementary medicine" ($n = 22$). Other commonly occurring keywords were "cardiovascular disease" ($n = 17$), "diabetes" ($n = 16$), "attitude" ($n = 14$), "medication adherence" ($n = 13$), and "knowledge" ($n = 13$).

Cluster 1 included keywords such as "herbal medicine", "complementary and alternative medicine", "chronic disease", and "self-management". Cluster 2 comprised terms related to disease mechanisms and conditions, including "atherosclerosis", "inflammation", "oxidative stress", and "apoptosis". Cluster 3 included "cardiovascular disease", "attitude", "knowledge", "quality of life", and "depression". Cluster 4 focused on traditional and plant-based approaches, including "medicinal plants", "ethnobotany", "traditional medicine", and "phytotherapy".

Cluster 5 included keywords such as "diabetes mellitus", "obesity", "herbal medicines", and "health literacy". Cluster 6 contained behavioural and clinical management terms such as "adherence", "medication adherence", "self-care", and "treatment". Cluster 7 included "alternative medicine", "complementary medicine", "mindfulness", and "COVID-19". Cluster 8 comprised public health-related terms such as "hypertension", "lifestyle", "public health", and "qualitative research".

4.6 Representation of cultural and behavioural dimensions

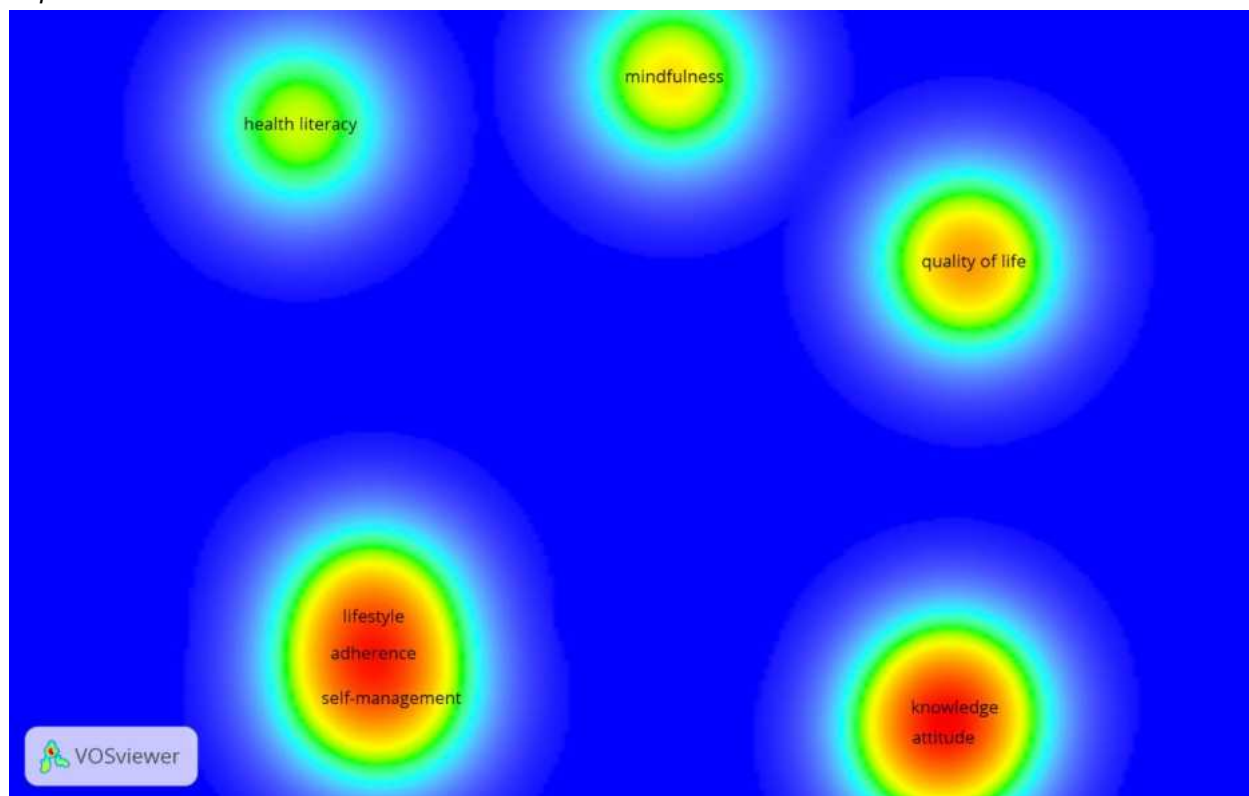


Fig. 6: Density visualisation of cultural and behavioural keywords
(Source: VOSviewer)

The density visualisation of cultural and behavioural keywords is presented in Figure 6. The keywords included in the analysis were "attitude" ($n = 14$), "knowledge" ($n = 13$), "adherence" ($n = 10$), "lifestyle" ($n = 9$), "self-management" ($n = 7$), "mindfulness" ($n = 7$), "quality of life" ($n = 11$), "health literacy" ($n = 5$), and "self-care" ($n = 5$).

Among these, "attitude" and "knowledge" had the highest occurrence values, followed by "quality of life", "adherence", and "lifestyle". Other keywords such as "self-management", "mindfulness", "health literacy", and "self-care" were also identified within the network.

5.0 Discussion

The increasing number of publications over time reflects growing global interest in TM within cardiovascular research, particularly in response to the increasing burden of chronic cardiovascular diseases and the rising demand for patient-centred and culturally sensitive healthcare approaches. Recent bibliometric studies have similarly provided valuable insights into the research landscape of traditional and complementary medicine, demonstrating a sustained increase in publications over time, with a marked rise from the mid-2000s onwards (Ng, 2021). In the context of CVD, previous analyses have also reported a steady growth in publications on traditional and complementary medicine, with China consistently leading in research output, followed by the United States and other countries such as India and Taiwan (Lan et al., 2026).

Meanwhile, variations in citation patterns, including peaks in earlier periods, likely reflect the influence of foundational studies, while lower citation counts in recent years are consistent with citation lag. Citation lag is often influenced by factors such as research complexity, the maturity of the field, and the time required for knowledge diffusion, with older or more complex research areas often exhibiting longer lag periods (Adams & Clemmons, 2013). These trends suggest that research on TM in cardiovascular health continues to evolve beyond pharmacological exploration, with increasing attention towards broader behavioural, psychosocial, and healthcare-related dimensions.

The prominence of countries such as the United States and China underscores their strong research capacity and investment in both biomedical and TM research. This pattern may also reflect differences in

healthcare systems, cultural acceptance of TM, government policy support, and the degree of integration between traditional and conventional medicine within national healthcare practices. China's leading position may be associated with the deep integration of TCM, including Chinese materia medica (CMM), into its national healthcare system, supported by substantial government funding and policy frameworks. By 2014, CMM sales exceeded \$120 billion, accounting for 31% of China's pharmaceutical market, with more than 200 CMM drugs included in the national Essential Drug List, reflecting its mainstream status (Dang et al., 2016). TCM has also influenced healthcare systems in countries such as Japan, Korea, and Vietnam and is increasingly recognised globally, despite ongoing challenges related to standardisation, intellectual property, and cultural adaptation (Kadier et al., 2025).

Similarly, the funding landscape, dominated by agencies from China and the United States, reflects strategic prioritisation and institutional support for research in this area. The concentration of funding in a limited number of countries may also influence global research priorities and contribute to regional disparities in the generation of evidence related to cultural and behavioural aspects of TM use. This may further contribute to the underrepresentation of culturally diverse healthcare perspectives from low- and middle-income countries where TM practices remain widely embedded within local communities. The Chinese government has substantially increased funding for cardiovascular research, including TCM, through agencies such as the National Natural Science Foundation of China (NSFC), which funded numerous projects on integrated traditional Chinese and Western medicine (Wang, 2005). In parallel, the National Institutes of Health (NIH) remains a major funder of cardiovascular research, with significant investments in both basic science and clinical studies, contributing to high-impact outputs in the field (Lyubarova et al., 2009).

The distribution of publications across journals suggests that research in this field is primarily disseminated through specialised sources focusing on ethnopharmacology, complementary, and integrative medicine, alongside multidisciplinary journals with broader public health and clinical relevance. The range of journal impact indicators further reflects the diversity of publication platforms contributing to the field. For instance, journals such as the *Journal of Ethnopharmacology* emphasise an interdisciplinary approach that integrates cultural beliefs, traditional knowledge, and scientific methodologies to investigate the therapeutic potential of natural substances, reflecting the holistic nature of TM systems.

The keyword co-occurrence analysis reveals a strong emphasis on clinical conditions such as "hypertension" and "diabetes", as well as TM modalities including "herbal medicine" and "complementary therapies". The presence of mechanistic terms such as "inflammation" and "oxidative stress" indicates continued interest in elucidating the biological pathways underlying therapeutic effects. For instance, herbal compounds such as *Nigella sativa* have been reported to exhibit antioxidant and anti-inflammatory properties through modulation of oxidative stress pathways (Hadi et al., 2021). At the same time, the inclusion of psychosocial and behavioural terms, including "attitude", "knowledge", and "quality of life", reflects an emerging but less dominant focus on patient-centred aspects. Previous studies conducted in Riau have shown that increased knowledge among hypertensive patients is associated with more positive attitudes toward the use of TM (Husnawati et al., 2023). The coexistence of mechanistic keywords alongside psychosocial and behavioural terms suggests a gradual shift from purely disease-oriented research to more holistic, and behaviour-informed approaches in TM-related cardiovascular care.

The density visualisation further highlights that cultural and behavioural dimensions are unevenly represented within the literature. This imbalance may limit the understanding of how cultural beliefs and behavioural practices influence long-term treatment adherence, healthcare utilisation, and patient decision-making in cardiovascular disease management. Keywords related to awareness and perception, such as "attitude" and "knowledge", appear more frequently, whereas terms reflecting behavioural implementation, including "adherence", "self-management", and "self-care", are less prominent. Concepts such as "health literacy" and "mindfulness" are also present but comparatively underrepresented. This pattern suggests that, although cultural and cognitive aspects are increasingly recognised, there remains relatively limited emphasis on behavioural processes and decision-making in the context of TM use for cardiovascular health. Previous studies have similarly reported gaps in understanding the broader social and behavioural context of healthcare decision-making, including the limited exploration of family and social influences on treatment choices (Nichol et al., 2011). In addition, research focusing on decision-making processes, particularly among specific populations such as South Asian communities, remains insufficient, highlighting the need for greater attention

to cultural beliefs and healthcare preferences in clinical practice (Khosla et al., 2024). Furthermore, existing studies on cognitive and behavioural traits associated with complementary and alternative medicine use, such as intuitive thinking and coping mechanisms, are relatively sparse and often limited by methodological constraints, including unrepresentative samples and simplified analytical approaches (Galbraith et al., 2018).

Overall, these findings highlight the need for future research to move beyond descriptive evaluations of TM use and incorporate more comprehensive behavioural and socio-cultural frameworks to enhance patient-centred cardiovascular care.

6.0 Limitations

This study has several limitations that should be acknowledged. First, the analysis was based solely on the Scopus database, which, although comprehensive, may not capture all relevant publications indexed in other databases such as Web of Science or PubMed. Second, the inclusion criteria were limited to English-language articles, which potentially excluded relevant studies published in other languages, particularly in regions where TM is widely practised. Third, bibliometric analyses rely on metadata such as author keywords and abstracts, which may not fully reflect the depth or context of cultural and behavioural dimensions within individual studies. Additionally, variations in keyword selection and indexing may influence the accuracy of co-occurrence and thematic analyses. Furthermore, citation-based indicators are influenced by temporal factors, including citation lag, which may underestimate the impact of more recent publications. Finally, the study also did not incorporate qualitative content analysis, limiting the ability to capture nuanced cultural and behavioural interpretations beyond keyword-level data.

7.0 Conclusion and Recommendations

This bibliometric analysis provides a comprehensive overview of research trends, thematic developments, and knowledge structures related to cultural and behavioural perspectives of TM in cardiovascular health. However, the analysis also reveals an imbalance in research emphasis, with cultural and cognitive aspects such as "attitude" and "knowledge" being more frequently explored than behavioural components such as "adherence", "self-management", and "self-care". This indicates that while awareness-related factors are increasingly recognised, the translation of these factors into actual health behaviours remains underrepresented in the literature.

Future research should therefore place greater emphasis on integrating behavioural and decision-making frameworks into studies of TM use, particularly in the context of CVD management. Greater attention should be given to health literacy, patient preferences, and socio-cultural influences that shape treatment choices. In addition, interdisciplinary approaches combining clinical, behavioural, and social science perspectives are recommended to provide a more holistic understanding of TM use. Expanding analyses to include multiple databases and incorporating qualitative methodologies may further enhance the depth and reliability of future bibliometric and empirical studies in this field.

Acknowledgements

This work was supported by the Higher Institution Centre of Excellence (HICoE) research grant 600-RMC/MOHE HICoE CARE-I 5/3 (01/2025) awarded to the Cardiovascular Advancement and Research Excellence Institute (CARE Institute), Universiti Teknologi MARA.

Paper Contribution to Related Field of Study

This study contributes to the growing body of literature on TM and cardiovascular health by providing a focused bibliometric assessment of cultural and behavioural perspectives, which have received comparatively less attention in previous analyses. By integrating publication trends, geographic distribution, funding patterns, and keyword network analyses, the study offers a comprehensive mapping of the intellectual structure of this research area.

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Cultural and Behavioural Perspectives on Traditional Medicine Use in Cardiovascular Health

by Nany Hairunisa FK

Submission date: 08-Jun-2026 08:14PM (UTC+0700)

Submission ID: 2652402604

File name: HE_003_Hazirah_Watikah_Abdah.pdf (663.73K)

Word count: 5031

Character count: 30767

Cultural and Behavioural Perspectives on Traditional Medicine Use in Cardiovascular Health

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Abstract

The growing burden of cardiovascular diseases and interest in complementary approaches have stimulated research on cultural and behavioural determinants of traditional medicine (TM). This study examines 689 Scopus-indexed documents (2016–2026) using ScientoPy, Scopus Analyser, and VOSviewer. Publications show fluctuating but increasing trends, peaking in 2025, with the highest citations in 2019 and 2024. The USA and China are the leading contributors, supported by major funding agencies. Keyword analysis reveals strong behavioural-cultural clustering linked to hypertension, cardiovascular disease, and diabetes, highlighting patient attitudes and adherence. Findings emphasise the need to integrate cultural competence and behavioural insights into cardiovascular healthcare to improve TM use and outcomes.

Keywords: Traditional medicine; Cardiovascular disease; Cultural perspectives; Bibliometric analysis

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1.0 Introduction

The growing burden of cardiovascular disease (CVD), alongside increased interest in complementary and integrative approaches, has stimulated a substantial body of research exploring cultural and behavioural determinants of traditional medicine (TM) use. Understanding the global research landscape on TM use in cardiovascular health is essential for identifying knowledge gaps, guiding policy development, and integrating culturally sensitive healthcare strategies.

Current bibliometric analyses reveal a growing interest in TM for CVD with hotspots including herbal components, ischemic reperfusion injury and network pharmacology, with China, the United States and India being the leading contributors to research in this field (Lan et al., 2026). However, detailed bibliometric analyses specifically addressing cultural and behavioural perspectives remain underexplored. Hence, this study aims to investigate the bibliometric characteristics and evolving research patterns on cultural and behavioural perspectives of TM use in cardiovascular health. Specifically, the objectives of this study are to analyse temporal trends in publications and citations, identify the most productive countries, journals, and funding institutions, examine keyword co-occurrence patterns to elucidate major research themes, and assess the extent to which cultural and behavioural dimensions are represented in the existing literature.

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2.0 Literature Review

2.1 Global Trends and Cultural Integration in TM

The global research landscape for traditional medicine (TM) has seen a sustained increase in publications, reflecting a growing academic interest in integrating complementary approaches with conventional care. In the context of CVD, this growth is led predominantly by China, the United States, and India (Bachri et al., 2026). Cultural beliefs and religious practices serve as primary determinants for TM adoption. For instance, in Mauritius, religious affiliation dictates the specific use of plants like *Citrus limon* and *Ocimum tenuiflorum* for heart health (Mahomoodally & Mooroteea, 2021). Similarly, traditional African medicine remains deeply embedded in the healthcare decision-making of rural communities for conditions such as rheumatic heart disease, where cultural competency is a prerequisite for effective clinical engagement (Kobon Sissoko et al., 2025).

2.2 Psychosocial and Behavioural Determinants

Recent evidence suggests that TM is often preferred due to its perceived safety and the "natural" nature of remedies compared to the perceived side effects of conventional medications (Rizvi et al., 2022). Research indicates that patient knowledge is a strong predictor of behaviour; for example, hypertensive patients with higher health literacy in Indonesia exhibit more positive attitudes toward TM use (Husnawati et al., 2023; Al-Hazmi et al., 2025). Beyond simple preference, South Asian immigrant populations in the United States frequently integrate spiritual and traditional practices (CAM) with conventional treatments, highlighting how migration and cultural identity shape cardiovascular self-management (Jamil et al., 2022; Khosla et al., 2024).

2.3 The Research Gap: From Awareness to Implementation

Despite the documented rise in publications, a significant gap remains in understanding the transition from cultural awareness to actual health behaviour. While the current literature frequently explores "attitude" and "knowledge" (cognitive factors), there is limited evidence regarding the behavioural implementation of TM specifically in areas of medication adherence, self-management, and clinical decision-making. Previous bibliometric analyses in cardiovascular health have focused heavily on biological mechanisms, such as oxidative stress and pharmacology, but have largely overlooked the broader social and behavioural context of how patients choose and sustain these treatments. Furthermore, research into the decision-making processes of specific vulnerable populations remains insufficient. This study addresses these gaps by providing a specialised bibliometric assessment of cultural and behavioural perspectives, shifting the focus from purely clinical outcomes to the human-centric determinants of TM use in cardiovascular care.

3.0 Methodology

3.1 Data source and search strategy

A comprehensive bibliometric analysis was conducted using the Scopus database to retrieve relevant publications on cultural and behavioural perspectives of TM use in cardiovascular health.

The search strategy used Boolean operators as follow: ("traditional medicine" OR "complementary medicine" OR "alternative medicine" OR "herbal medicine" OR CAM) AND (perception OR attitude OR behavior OR behaviour OR belief OR beliefs OR cultural OR culture OR "health-seeking behaviour" OR "health seeking behaviour" OR "patient preference" OR "decision making") AND ("cardiovascular disease" OR "heart disease" OR hypertension OR dyslipidemia OR hyperlipidemia OR atherosclerosis).

To enhance relevance and consistency, filters were applied to include only articles published between 2016 and 2026, limited to English-language publications. The final dataset was exported in comma-separated values (CSV) format, including full metadata such as titles, authors, affiliations, abstracts and keywords.

3.2 Bibliometric analysis

Descriptive bibliometric indicators were generated to evaluate publication performance and research trends. These included annual publication output, citation trends, leading countries, and most productive journals. Country and journal productivity analyses were conducted using ScientoPy, temporal trends in publications and citations were analysed using Microsoft Excel, while funding landscape analysis was performed using the built-in analytical tools of Scopus.

3.3 Network visualisation and mapping

5 Keyword co-occurrence analysis was conducted using VOSviewer to explore the intellectual structure and thematic evolution. Co-occurrence networks were generated from author keywords, with a threshold of 5. The resulting maps were visualized to identify major research clusters, thematic hotspots, and relationships between key concepts.

3.4 Study flowchart

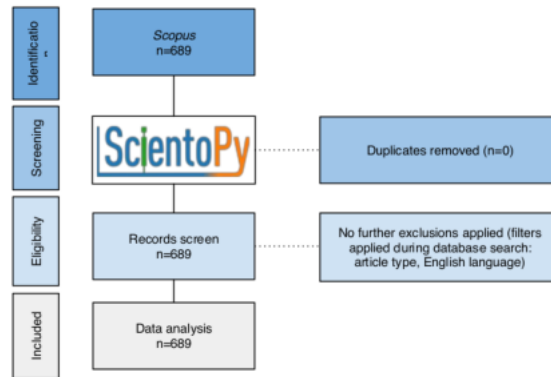


Fig. 1: The Modified Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) Guideline (Source: Adapted from Page et al., 2021)

8 The selection and screening process for eligible publications followed a modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, as illustrated in Figure 1, showing 689 retrieved records with no further exclusions applied.

4.0 Findings

4.1 Publication and citation trends

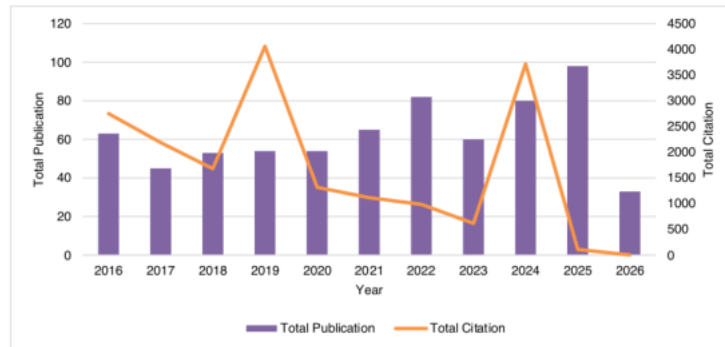


Fig. 2: Annual publication and citation trends related to TM use in cardiovascular health (2016–2026) (Source: Authors' analysis using Microsoft Excel based on data extracted from Scopus database)

The annual number of publications and citations from 2016 to 2026 is presented in Figure 2. A total of 63 publications were recorded in 2016, followed by 45 in 2017 and 53 in 2018. The number of publications remained relatively stable between 2018 and 2020, with 54 publications reported in both 2019 and 2020. An increase was observed in 2021 (65 publications) and 2022 (82 publications), followed by a decrease in 2023 (60 publications). The number of publications rose again in 2024 (80 publications) and reached the highest value in 2025 (98 publications), before decreasing to 33 publications in 2026.

In terms of citations, 2751 citations were recorded in 2016, decreasing to 2188 in 2017 and 1681 in 2018. The number of citations increased to 4060 in 2019, then decreased to 1319 in 2020. A declining trend continued in 2021 (1116 citations), 2022 (987 citations), and 2023 (617 citations). An increase was observed in 2024, with 3718 citations, followed by a decrease to 110 citations in 2025 and 4 citations in 2026.

4.2 Leading countries contributions

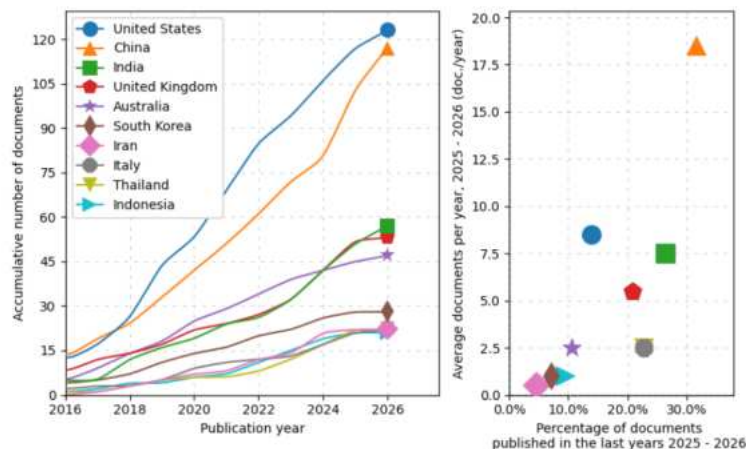


Fig. 3: Global distribution of publications by country
(Source: ScientoPy)

The global distribution of publications by country is presented in Figure 3. The United States recorded the highest number of publications ($n = 123$, 17.9%), followed by China ($n = 117$, 17.0%) and India ($n = 57$, 8.3%). The United Kingdom ($n = 53$, 7.7%) and Australia ($n = 47$, 6.8%) were also among the leading contributors.

Other countries contributing to the field included South Korea ($n = 28$, 4.1%), Iran ($n = 22$, 3.2%), Italy ($n = 22$, 3.2%), Thailand ($n = 22$, 3.2%), and Indonesia ($n = 21$, 3.0%).

In terms of average documents per year (ADY), China showed the highest value (18.5), followed by the United States (8.5), India (7.5), and the United Kingdom (5.5). Australia, Italy, and Thailand each recorded an ADY of 2.5, while South Korea (1), Indonesia (1), and Iran (0.5) showed lower values.

4.3 Source and journal analysis

Table 1. Top 10 journals ranked by number of publications and citations

No.	Source Title	Total publication	SJR	SNIP	h-Index
1	Journal of Ethnopharmacology	32	1.142	1.578	20
2	BMC Complementary Medicine and Therapies	22	0.741	1.037	11

3	BMJ Open	19	1.016	0.944	8
4	PLoS ONE	18	0.803	1.065	10
5	Frontiers in Pharmacology	12	1.22	1.153	5
6	Phytomedicine	11	1.694	1.703	7
7	BMC Complementary and Alternative Medicine	8	0.741	1.037	8
8	Tropical Journal of Natural Product Research	7	0.217	0.432	3
9	Complementary Therapies in Medicine	6	1.018	1.319	5
10	Evidence-based Complementary and Alternative Medicine	6	0.469	0.831	6

(Source: ScientoPy)

The top 10 journals ranked by number of publications and citations are presented in Table 1. The *Journal of Ethnopharmacology* recorded the highest number of publications (n = 32), followed by *BMC Complementary Medicine and Therapies* (n = 22) and *BMJ Open* (n = 19). Other prominent journals included *PLoS ONE* (n = 18), *Frontiers in Pharmacology* (n = 12) and *Phytomedicine* (n = 11).

Additional contributing journals were *BMC Complementary and Alternative Medicine* (n = 8), *Tropical Journal of Natural Product Research* (n = 7), *Complementary Therapies in Medicine* (n = 6), and *Evidence-based Complementary and Alternative Medicine* (n = 6).

The journals exhibited varying bibliometric indicators, with SCImago Journal Rank (SJR) values ranging from 0.217 to 1.694, Source normalised Impact per Paper (SNIP) values from 0.432 to 1.703, and Hirsch Index (h-index) values from 3 to 20. *BMC Complementary and Alternative Medicine* was later rebranded as *BMC Complementary Medicine and Therapies*, and both titles are presented separately in the dataset.

4.4 Funding agency analysis

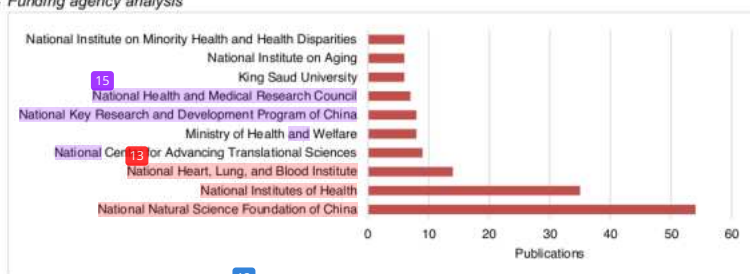


Fig. 4: Distribution of publications by major funding agencies
(Source: Scopus)

The distribution of publications by major funding agencies is presented in Figure 4. Funding contributions were primarily from agencies based in China, the United States, and other countries.

China accounted for the highest number of funded publications, led by the National Natural Science Foundation of China (n = 54) and the National Key Research and Development Program of China (n = 22). In the United States, major funding agencies included the National Institutes of Health (n = 35), the National Heart, Lung, and Blood Institute (n = 14), the National Center for Advancing Translational Sciences (n = 9), the National Institute on Aging (n = 6), and the National Institute on Minority Health and Health Disparities (n = 6).

Other contributing funding bodies included the Ministry of Health and Welfare, South Korea (n = 8), the National Health and Medical Research Council, Australia (n = 7), and King Saud University, Saudi Arabia (n = 6).

4.5 Keyword co-occurrence and thematic analysis

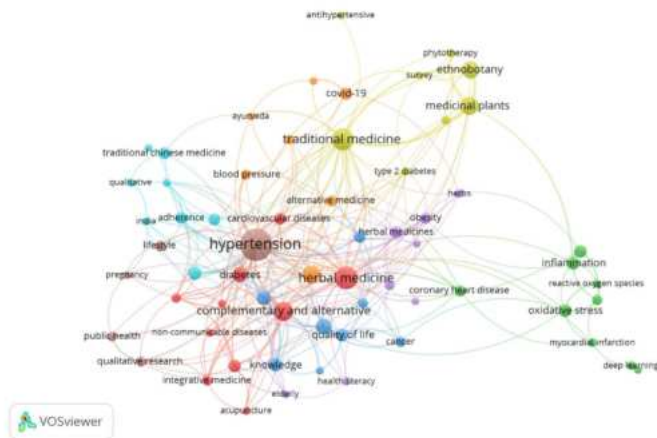


Fig. 5: Keyword co-occurrence network map
(Source: VOSviewer)

The keyword co-occurrence network map is presented in Figure 5. A total of multiple keywords was identified and grouped into eight clusters based on their co-occurrence relationships.

The most frequently occurring keywords included "hypertension" ($n = 74$), "herbal medicine" ($n = 37$), "traditional medicine" ($n = 34$), "complementary and alternative medicine" ($n = 25$), "medicinal plants" ($n = 23$), and "complementary medicine" ($n = 22$). Other commonly occurring keywords were "cardiovascular disease" ($n = 17$), "diabetes" ($n = 16$), "attitude" ($n = 14$), "medication adherence" ($n = 13$), and "knowledge" ($n = 13$).

Cluster 1 included keywords such as "herbal medicine", "complementary and alternative medicine", "chronic disease", and "self-management". Cluster 2 comprised terms related to disease mechanisms and conditions, including "atherosclerosis", "inflammation", "oxidative stress", and "apoptosis". Cluster 3 included "cardiovascular disease", "attitude", "knowledge", "quality of life", and "depression". Cluster 4 focused on traditional and plant-based approaches, including "medicinal plants", "ethnobotany", "traditional medicine", and "phytotherapy".

Cluster 5 included keywords such as "diabetes mellitus", "obesity", "herbal medicines", and "health literacy". Cluster 6 contained behavioural and clinical management terms such as "adherence", "medication adherence", "self-care", and "treatment". Cluster 7 included "alternative medicine", "complementary medicine", "mindfulness", and "COVID-19". Cluster 8 comprised public health-related terms such as "hypertension", "lifestyle", "public health", and "qualitative research".

4.6 Representation of cultural and behavioural dimensions

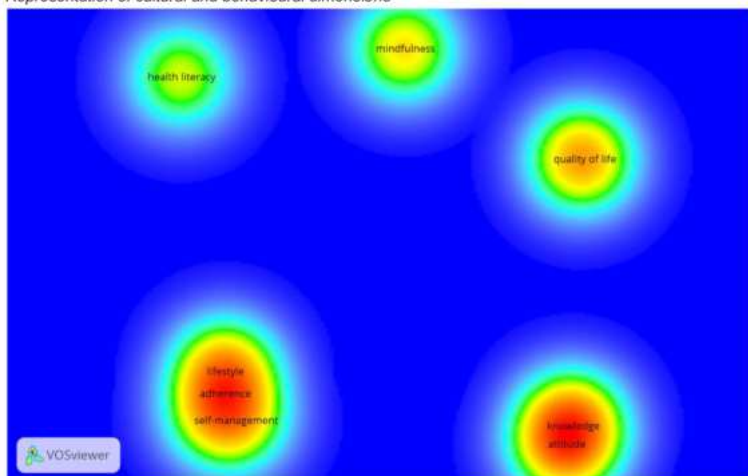


Fig. 6: Density visualisation of cultural and behavioural keywords
(Source: VOSviewer)

The density visualisation of cultural and behavioural keywords is presented in Figure 6. The keywords included in the analysis were "attitude" ($n = 14$), "knowledge" ($n = 13$), "adherence" ($n = 10$), "lifestyle" ($n = 9$), "self-management" ($n = 7$), "mindfulness" ($n = 7$), "quality of life" ($n = 11$), "health literacy" ($n = 5$), and "self-care" ($n = 5$).

Among these, "attitude" and "knowledge" had the highest occurrence values, followed by "quality of life", "adherence", and "lifestyle". Other keywords such as "self-management", "mindfulness", "health literacy", and "self-care" were also identified within the network.

5.0 Discussion

The increasing number of publications over time reflects growing global interest in TM within cardiovascular research, particularly in response to the increasing burden of chronic cardiovascular diseases and the rising demand for patient-centred and culturally sensitive healthcare approaches. Recent bibliometric studies have similarly provided valuable insights into the research landscape of traditional and complementary medicine, demonstrating a sustained increase in publications over time, with a marked rise from the mid-2000s onwards (Ng, 2021). In the context of CVD, previous analyses have also reported a steady growth in publications on traditional and complementary medicine, with China consistently leading in research output, followed by the United States and other countries such as India and Taiwan (Lan et al., 2026).

Meanwhile, variations in citation patterns, including peaks in earlier periods, likely reflect the influence of foundational studies, while lower citation counts in recent years are consistent with citation lag. Citation lag is often influenced by factors such as research complexity, the maturity of the field, and the time required for knowledge diffusion, with older or more complex research areas often exhibiting longer lag periods (Adams & Clemmons, 2013). These trends suggest that research on TM in cardiovascular health continues to evolve beyond pharmacological exploration, with increasing attention towards broader behavioural, psychosocial, and healthcare-related dimensions.

The prominence of countries such as the United States and China underscores their strong research capacity and investment in both biomedical and TM research. This pattern may also reflect differences in

healthcare systems, cultural acceptance of TM, government policy support, and the degree of integration between traditional and conventional medicine within national healthcare practices. China's leading position may be associated with the deep integration of TCM, including Chinese materia medica (CMM), into its national healthcare system, supported by substantial government funding and policy frameworks. By 2014, CMM sales exceeded \$120 billion, accounting for 31% of China's pharmaceutical market, with more than 200 CMM drugs included in the national Essential Drug List, reflecting its mainstream status (Dang et al., 2016). TCM has also influenced healthcare systems in countries such as Japan, Korea, and Vietnam and is increasingly recognised globally, despite ongoing challenges related to standardisation, intellectual property, and cultural adaptation (Kadier et al., 2025).

Similarly, the funding landscape, dominated by agencies from China and the United States, reflects strategic prioritisation and institutional support for research in this area. The concentration of funding in a limited number of countries may also influence global research priorities and contribute to regional disparities in the generation of evidence related to cultural and behavioural aspects of TM use. This may further contribute to the underrepresentation of culturally diverse healthcare perspectives from low- and middle-income countries where TM practices remain widely embedded within local communities. The Chinese government has substantially increased funding for cardiovascular research, including TCM, through agencies such as the National Natural Science Foundation of China (NSFC), which funded numerous projects on integrated traditional Chinese and Western medicine (Wang, 2005). In parallel, the National Institutes of Health (NIH) remains a major funder of cardiovascular research, with significant investments in both basic science and clinical studies, contributing to high-impact outputs in the field (Lyubarova et al., 2009).

The distribution of publications across journals suggests that research in this field is primarily disseminated through specialised sources focusing on ethnopharmacology, complementary, and integrative medicine, alongside multidisciplinary journals with broader public health and clinical relevance. The range of journal impact indicators further reflects the diversity of publication platforms contributing to the field. For instance, journals such as the *Journal of Ethnopharmacology* emphasise an interdisciplinary approach that integrates cultural beliefs, traditional knowledge, and scientific methodologies to investigate the therapeutic potential of natural substances, reflecting the holistic nature of TM systems.

The keyword co-occurrence analysis reveals a strong emphasis on clinical conditions such as "hypertension" and "diabetes", as well as TM modalities including "herbal medicine" and "complementary therapies". The presence of mechanistic terms such as "inflammation" and "oxidative stress" indicates continued interest in elucidating the biological pathways underlying therapeutic effects. For instance, herbal compounds such as *Nigella sativa* have been reported to exhibit antioxidant and anti-inflammatory properties through modulation of oxidative stress pathways (Hadi et al., 2021). At the same time, the inclusion of psychosocial and behavioural terms, including "attitude", "knowledge", and "quality of life", reflects an emerging but less dominant focus on patient-centred aspects. Previous studies conducted in Riau have shown that increased knowledge among hypertensive patients is associated with more positive attitudes toward the use of TM (Husnawati et al., 2023). The coexistence of mechanistic keywords alongside psychosocial and behavioural terms suggests a gradual shift from purely disease-oriented research to more holistic, and behaviour-informed approaches in TM-related cardiovascular care.

The density visualisation further highlights that cultural and behavioural dimensions are unevenly represented within the literature. This imbalance may limit the understanding of how cultural beliefs and behavioural practices influence long-term treatment adherence, healthcare utilisation, and patient decision-making in cardiovascular disease management. Keywords related to awareness and perception, such as "attitude" and "knowledge", appear more frequently, whereas terms reflecting behavioural implementation, including "adherence", "self-management", and "self-care", are less prominent. Concepts such as "health literacy" and "mindfulness" are also present but comparatively underrepresented. This pattern suggests that, although cultural and cognitive aspects are increasingly recognised, there remains relatively limited emphasis on behavioural processes and decision-making in the context of TM use for cardiovascular health. Previous studies have similarly reported gaps in understanding the broader social and behavioural context of healthcare decision-making, including the limited exploration of family and social influences on treatment choices (Nichol et al., 2011). In addition, research focusing on decision-making processes, particularly among specific populations such as South Asian communities, remains insufficient, highlighting the need for greater attention

to cultural beliefs and healthcare preferences in clinical practice (Khosla et al., 2024). Furthermore, existing studies on cognitive and behavioural traits associated with complementary and alternative medicine use, such as intuitive thinking and coping mechanisms, are relatively sparse and often limited by methodological constraints, including unrepresentative samples and simplified analytical approaches (Galbraith et al., 2018).

Overall, these findings highlight the need for future research to move beyond descriptive evaluations of TM use and incorporate more comprehensive behavioural and socio-cultural frameworks to enhance patient-centred cardiovascular care.

6.0 Limitations

This study has several limitations that should be acknowledged. First, the analysis was based solely on the Scopus database, which, although comprehensive, may not capture all relevant publications indexed in other databases such as Web of Science or PubMed. Second, the inclusion criteria were limited to English-language articles, which potentially excluded relevant studies published in other languages, particularly in regions where TM is widely practised. Third, bibliometric analyses rely on metadata such as author keywords and abstracts, which may not fully reflect the depth or context of cultural and behavioural dimensions within individual studies. Additionally, variations in keyword selection and indexing may influence the accuracy of co-occurrence and thematic analyses. Furthermore, citation-based indicators are influenced by temporal factors, including citation lag, which may underestimate the impact of more recent publications. Finally, the study also did not incorporate qualitative content analysis, limiting the ability to capture nuanced cultural and behavioural interpretations beyond keyword-level data.

7.0 Conclusion and Recommendations

This bibliometric analysis provides a comprehensive overview of research trends, thematic developments, and knowledge structures related to cultural and behavioural perspectives of TM in cardiovascular health. However, the analysis also reveals an imbalance in research emphasis, with cultural and cognitive aspects such as "attitude" and "knowledge" being more frequently explored than behavioural components such as "adherence", "self-management", and "self-care". This indicates that while awareness-related factors are increasingly recognised, the translation of these factors into actual health behaviours remains underrepresented in the literature.

Future research should therefore place greater emphasis on integrating behavioural and decision-making frameworks into studies of TM use, particularly in the context of CVD management. Greater attention should be given to health literacy, patient preferences, and socio-cultural influences that shape treatment choices. In addition, interdisciplinary approaches combining clinical, behavioural, and social science perspectives are recommended to provide a more holistic understanding of TM use. Expanding analyses to include multiple databases and incorporating qualitative methodologies may further enhance the depth and reliability of future bibliometric and empirical studies in this field.

4 Acknowledgements

This work was supported by the Higher Institution Centre of Excellence (HiCoE) research grant 600-RMC/MOHE HiCoE CARE-I 5/3 (01/2025) awarded to the Cardiovascular Advancement and Research Excellence Institute (CARE Institute), Universiti Teknologi MARA.

Paper Contribution to Related Field of Study

This study contributes to the growing body of literature on TM and cardiovascular health by providing a focused bibliometric assessment of cultural and behavioural perspectives, which have received comparatively less attention in previous analyses. By integrating publication trends, geographic distribution, funding patterns, and keyword network analyses, the study offers a comprehensive mapping of the intellectual structure of this research area.

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