

Research trends and evidence gaps in integrative palliative care for cancer patients: a bibliometric analysis

Jungho Suh¹, Tae-Hun Kim^{2,✉}

¹ Department of Hematooncology, Kyung Hee University Hospital, Seoul, 02447, South Korea

² Korean Medicine Clinical Trial Center, Korean Medicine Hospital, Kyung Hee University, Seoul, 02447, South Korea

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ABSTRACT

Introduction Palliative care for cancer patients has gained increasing recognition for its significance by improving patient quality of end of life care. However, unmet needs persist due to the limitations of conventional medical interventions and therapeutic approaches. Complementary and alternative medicine (CAM) interventions have potential applications in palliative care. This study aimed to investigate research trends and identify evidence gaps in this field through a bibliometric analysis of published research on the Web of Science (WoS). **Methods** The WoS database was comprehensively searched up to October 2025 for publications related to CAM used in palliative care. The extracted bibliographic information included basic study details and a citation analysis to identify the most influential publications. Additionally, thematic evolution analysis was conducted to structurally understand the research evolution. Co-word networks were constructed using author keywords from the included publications and were clustered based on density (development degree) and centrality (relevance degree). **Results** A total of 588 publications from 217 sources between 1995 and 2026 were included in the analysis. The annual growth rate of publications was estimated to be 9.67%. The United States of America, China, and United Kingdom emerged as the most productive countries in terms of publication output. Studies of music therapy, aromatherapy & massage, and acupuncture played key roles in integrative palliative care research, while digital health and telemedicine emerged as new areas of focus. Nevertheless, significant limitations in the evidence for these interventions, such as small sample sizes and methodological weaknesses in clinical trials, remain substantial barriers to establishing robust evidence. **Conclusion** This study highlights the continuous growth in research on CAM interventions in palliative care. Future studies are essential to establish the clinical evidence for individual interventions and future emerging and under-evaluated approaches in this field.

KEYWORDS

complementary and alternative medicine, palliative care, hospice, bibliometric analysis, cancer, integrative medicine

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1. Introduction

Hospice care plays an important role in enhancing the quality of life of advanced or terminal-staged cancer patients through management of pain, distress and other physiological and psychological symptoms. As the burden of cancer continues to rise, the demand for effective and patient-centered symptom management strategies has grown substantially. Conventional oncology and palliative medicine have increasingly acknowledged the limitations of pharmacological intervention alone and the potential value of integrative and complementary approaches in end-of-life care. Since the hospice concept first emerged in 1964 and was formally defined by the World Health Organization in 1990, hospice care has evolved beyond the management of physical symptoms to encompass emotional, social, and spiritual dimensions.¹ During this evolution, the principles of patient-centered care have become increasingly prominent, underscoring the need for diverse therapeutic approaches and interprofessional collaboration. Within this context, integrative palliative care has gained recognition as a valuable component of hospice services for patients with advanced cancer. It incorporates nonpharmacologic interventions, provides supportive interactions that foster calm and comfort, and utilizes evidence-based mind-body techniques that

enhance patient well-being.²

Complementary and alternative medicine (CAM) and integrative medicine include a broad range of interventions which have been used to relieve symptoms and improve psychosocial well-being in this population. Clinical evidence has gradually accumulated regarding the utility of these interventions in hospice care. CAM interventions showed positive effects on reducing pain and dyspnea but limitations including publication bias and a paucity of clinical studies have been suggested.³ Clinical evidence on the acupuncture-related interventions, breathing exercise, hypnotherapy and meditation showed short-term benefits in symptom improvement only and suggested potential limitations in the evidence due to heterogeneity among included studies and problems in the selection of control groups, high attrition rates and small sample sizes.⁴ Although current evidence remains limited, in the context of end-stage cancer where complete cure is no longer expected, providing CAM interventions alongside conventional treatments tailored to each patients' individual symptoms offers significant benefits for improving quality of life and supporting patient dignity. Therefore, it is important at this stage to explore the existing evidence, identify gaps in the research area and investigate potential therapeutic approaches that many enhance the care of terminal cancer patients.⁵

Given the rapid growth of research publications on integrative and complementary medicine in end-of-life care, a bibliometric analysis can provide a comprehensive map of research trends and thematic evolution, illustrating the overall research status in this field. Such an approach allows the quantification of the current state of evidence, identification of influential studies,

✉ Corresponding author.

E-mail address: rockandmineral@gmail.com (TH. Kim)

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and detection of research gaps.⁶ The purpose of this study was to explore the current state of research and the existing research gaps regarding palliative care for end-stage cancer patients with CAM and integrative medical approach.

2. Methods

2.1. Protocol registration

This study was registered with INPLASY (registration no. 2025100046; protocol: <https://inplasy.com/wp-content/uploads/2025/10/INPLASY-Protocol-8372.pdf>).

2.2. Searching strategy

The Web of Science (WoS) database was searched for publications from 1995 up to October 2025 (including any articles in press for 2026). In bibliometric analysis, the consistency and quality of data are essential. Since the analytical tool used in this study, bibliometric, is basically designed based on WoS input, WoS-formatted bibliographic data were required to perform various analyses. Therefore, only publications indexed in the WoS were available for this analysis. Other databases such as PubMed or Embase were not searched, and grey literature was excluded.

The following search strategy was used for WoS database: (("palliative" NEAR/3 (care OR medicine OR service* OR support*)) AND (cancer OR neoplasm* OR oncolog* OR tumor* OR malignan*)) AND (("integrative" NEAR/3 (medicine OR oncology)) OR ("complementary" NEAR/3 medicine) OR ("alternative" NEAR/3 medicine) OR ("traditional" NEAR/3 (medicine OR therapy OR practice)) OR "traditional Chinese medicine" OR "Chinese herbal medicine" OR "Korean medicine" OR "traditional Korean medicine" OR Kampo OR "Japanese Kampo" OR acupuncture OR moxibustion OR "herbal medicine" OR phytotherapy OR "mind-body" OR "music therapy" OR "aromatherapy" OR "massage therapy" OR meditation OR yoga OR reiki OR reflexology)).

2.3. Inclusion criteria

This study was a bibliometric analysis of research conducted on integrative palliative care for cancer patients. The following types of research were included for analysis:

Population: End-stage cancer patients. Interventions targeting caregivers (family members) were excluded. But caregiver education programs related to patient care were included.

Intervention: Hospice or palliative care combined with integrative medicine or CAM, including acupuncture, herbal medicine, aromatherapy, music therapy, massage, and mind-body therapies.

Comparator: No specific restrictions.

Outcomes: Various indicators such as effectiveness, safety, cost, perceptions, and satisfaction.

Study design: No specific limitations were applied to study design; clinical studies (including case reports, observational studies, and randomized controlled trials), surveys, experimental studies, and systematic reviews (SRs) were eligible for inclusion. Publications of research protocols were excluded. Studies that did not meet the inclusion criteria for population, intervention, comparator, outcome, or study design were excluded. For example, publications were excluded if the intervention was not administered to patients receiving hospice care or if the evaluated intervention was not a CAM intervention (e.g., acupuncture, massage, music therapy, etc.). Publications with missing data were excluded.

2.4. Bibliometric analysis

For the bibliometric analysis, basic bibliographic information—including title, author, author affiliations, country, source title, publication year, document type, DOI, and language—was extracted. Additionally, content data such as author keywords and abstracts were retrieved. For citation analysis,

information such as cited references, times cited per article, cited reference counts, and citing articles were collected.

Bibliometric data retrieved from the WoS Core Collection was analyzed using the Bibliometrix R package (version 4.1.3) and its web-based interface, Biblioshiny. A full record dataset including cited references, author information, keywords, and affiliations were imported into R for quantitative analysis. Descriptive indicators such as annual publication output, document types, and the most productive countries, institutions, authors, and journals were computed. For a structural understanding of the evolution in the topics within this research field, thematic evolution analysis was conducted. To examine how research themes have changed over the past five years, the analysis compared the periods before and after 2020 in this study. Those publications already accepted and in press for 2026 were included. Using keywords of the included publications, co-word networks were constructed and clustered based on the density (development degree) and centrality (relevance degree) which were calculated as the mean strength of internal keyword connections within a cluster for the density and the sum of link strengths connecting a cluster to others for centrality. Each cluster in each period was categorized by four dimensions including motor themes (high centrality and high density), basic themes (high centrality and low density), niche themes (low centrality and high density) and emerging/declining themes (low centrality and low density). Subsequently, the Jaccard similarity coefficient was used to quantify the overlap of keywords between clusters across two time periods, enabling the visualization of thematic continuity, emergence, or decline over time. In the thematic evolution map, a connection line between two time periods was drawn when the Jaccard similarity coefficient was over 0.3. To evaluate the current state of evidence, the most highly cited publication within each intervention category was descriptively reviewed and the limitations identified in those studies were examined in comparison with more recent research to assess progress in methodological quality and evidence consistency.

Results were presented through a combination of statistical summaries, tables, and visual maps generated by Biblioshiny. Temporal publication trends were displayed as bar charts. Keyword co-occurrence and thematic evolution were visualized using cluster and trend maps to highlight core and emerging research themes.

3. Results

3.1. Bibliometric analysis results

In this bibliometric analysis, a total of 588 publications from 217 different sources between 1995 and 2026 were included (Figure 1). The annual growth rate of publications estimated using the log-linear model indicated an average annual growth rate of approximately 9.67% (Appendix 1). Average age of publication was 7.71 years and average citations per publication was 23.44. Most publications were original articles published in journals (Table 1).

About the integrative medicine in the hospice care, Ben-Arye E was the most relevant author ranked first in the publication count ($n = 33$) and Kessler J and Warth M showed the highest count of citations ($n = 77$) in the included analyzed dataset. The leading affiliations assessed by the publication counts was Clalit Health Services ($n = 77$) and was followed by the University of Texas System ($n = 53$), University of Texas MD Anderson Cancer Center ($n = 48$). The United States of America (USA, $n = 150$), China ($n = 62$) and United Kingdom (UK, $n = 48$) were most productive countries in the count of publications (USA, $n = 150$; China, $n = 62$; UK, $n = 48$) and citation impact (USA, $n = 5265$; UK, $n = 1979$; China, $n = 1487$). In addition, countries such as Germany ($n = 47$), Israel ($n = 35$), Canada ($n = 24$), Japan ($n = 23$), Australia ($n = 17$), South Korea ($n = 15$), and Iran ($n = 13$) appear to be actively producing research evidence in this field. *Journal of Pain and Symptom Management* and *Supportive Care in Cancer* were two most relevant sources in the count of publication and citation. *The Journal of Clinical Oncology* was one of the highest ranked sources in citation count ($n = 880$) but did not appear in the list of the journals with highest publication counts. This suggests that although the journal publishes impactful researches on hospice care, it has not published many studies evaluating CAM interventions (Table 2).

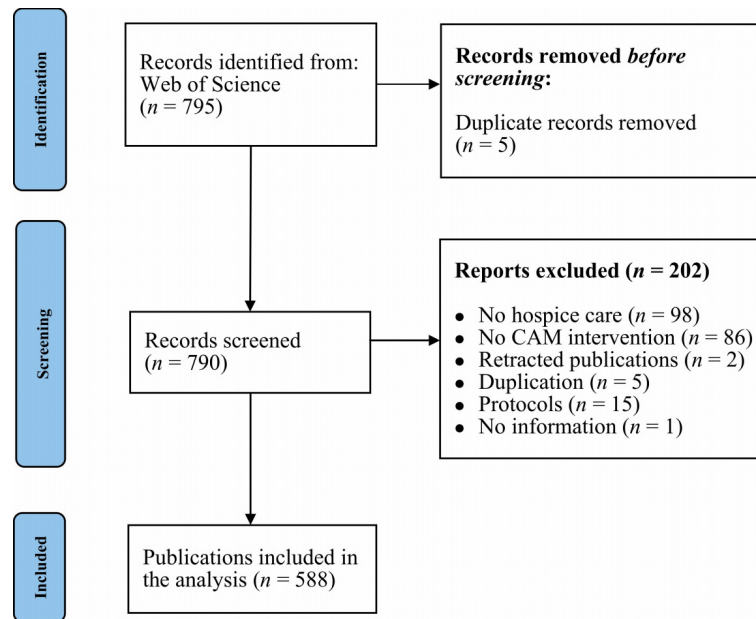


Figure 1 Flow diagram of the selection process

Notes: CAM: complementary and alternative medicine.

Table 1 Summary of the included publications

Characteristics	Summary
Number of sources (journals, books, etc.)	217
Number of total publications included	588
Average age of publications included	7.71
Average citations per publication included	23.44
The total number of references included in the publications	20 968
The total number of authors across all publications	2505
Publication types (n)	
Original article	388
Book review	1
Correction	1
Editorial material	16
Letter	3
Meeting abstract	12
Proceedings paper	3
Review	164

Notes: The publication types were classified according to the Web of Science categories.

Based on the most frequently cited publications, studies on music therapy,^{7,8} aromatherapy, massage^{9,10} and acupuncture^{11,12} were found to play a central role in integrative palliative care research. Although studies on psychotherapy,¹³ Chinese herbal medicine,¹⁴ and Reiki therapy¹⁵ were also frequently cited, they were not cited as extensively and frequently as music therapy, aromatherapy and acupuncture.¹⁵ Randomized controlled trials (RCTs) and review were predominantly observed study types among cited publications (Table 3). In the top 10 most frequently cited papers, music therapy, aromatherapy, massage and acupuncture were the most examined interventions. Similarly, RCTs were the most common type of study design and reviews including SRs and narrative reviews were also included. Except for two studies,^{8,16} all RCTs recruited fewer than 200 participants indicating relatively small sample sizes (Appendix 2). Based on the keyword analysis on the therapeutic interventions, music therapy, acupuncture, aromatherapy, mas-

sage, herbal medicine, mind body medicine, spiritual care, exercise, psychotherapy, reiki, hypnosis, yoga, art therapy were assessed in the included publications more than five times (Appendix 3). From the thematic evolution between 1995–2020 and 2021–2026 (in press), RCTs had been included among the motor themes, whereas SRs occupied the domain of basic themes in recent five years, implying movement in the research methodology for integrative hospice care. In terms of interventions, mindfulness, meditation, and Reiki appeared as motor themes, while yoga, Ayurvedic medicine, and herbal medicine were classified as niche themes, which showed significant changes in the recent 5 years. Traditional Chinese medicine and acupuncture were positioned as basic themes, and end-of-life care, herbal medicine, mind-body therapy, mindfulness, and nursing support were identified as motor themes. Meanwhile, digital health and telemedicine have emerged as new focus area and the recent rise of diversity, equity and caregivers as niche themes suggested growing attention to the ethical and social dimensions of integrative hospice care (Appendix 4).

3.2. Analysis on the current evidence status of the key interventions among the most frequently cited publications

3.2.1. Music therapy

Music therapy appears to be the most frequently cited intervention among those categorized under integrative palliative care. In the 2005 review, which was the most highly cited review included in this study, a total of 11 clinical studies were analyzed. The review reported that music therapy was effective in alleviating pain, improving physical discomfort and fatigue, reducing anxiety, enhancing mood and spiritual well-being, and improving quality of life. However, it also noted several limitations, including the small number of participants and methodological issues such as inadequate randomization, concluding that further efforts were needed to establish stronger evidence.⁷ In contrast, a SR published in 2022 analyzed 16 studies, including nine RCTs, and reported that music therapy reduced severe agitation, pain, and anxiety as well as improving quality of life. The more recent studies also emphasized the importance of proper training for music therapists and, consistent with earlier findings, highlighted methodological limitations such as issues related to blinding.⁴¹

3.2.2. Aromatherapy and massage

An RCT on the effect of combined lavender-oil aromatherapy with mas-

Table 2 Most relevant authors, affiliations, countries and sources in the publication and citations (top 10 list)

Rank	Author (publications)	Author (citations)*	Affiliation (publications)	Country (publications)	Country (citations)*	Sources (publication)	Sources (citations)*
1	Ben-Arye E (33)	Kessler J (77)	Clalit Health Services (77)	USA (150)	USA (5265)	<i>Journal of Pain and Symptom Management</i> (55)	<i>Journal of Pain and Symptom Management</i> (900)
2	Samuels N (25)	Warth M (77)	University of Texas System (53)	China (62)	United Kingdom (1979)	<i>Supportive Care in Cancer</i> (43)	<i>Journal of Clinical Oncology</i> (880)
3	Kessler J (14)	Hilliard RE (72)	University of Texas MD Anderson Cancer Center (48)	United Kingdom (48)	China (1487)	<i>Journal of Palliative Medicine</i> (20)	<i>Supportive Care in Cancer</i> (803)
4	Warth M (13)	Bardenheuer HJ (66)	Technion Israel Institute of Technology (41)	Germany (47)	Germany (794)	<i>Palliative Medicine</i> (18)	<i>Palliative Medicine</i> (574)
5	Bardenheuer HJ (11)	Ernst E (65)	Chinese University of Hong Kong (37)	Israel (35)	Canada (581)	<i>American Journal of Hospice & Palliative Medicine</i> (17)	<i>Journal of Palliative Medicine</i> (423)
6	Bruera E (11)	Ben-Arye E (57)	Ruprecht Karls University Heidelberg (35)	Canada (24)	Japan (393)	<i>Journal of Alternative and Complementary Medicine</i> (17)	<i>Integrative Cancer Therapies</i> (413)
7	Ernst E (10)	Chung VCH (56)	Rappaport Faculty of Medicine (34)	Japan (23)	Australia (367)	<i>Integrative Cancer Therapies</i> (12)	<i>Psycho-oncology</i> (392)
8	Cohen L (9)	Wilkinson S (56)	Harvard University (25)	Australia (17)	Spain (350)	<i>BMC Palliative Care</i> (11)	<i>Cochrane Database of Systematic Reviews</i> (314)
9	Ditzen B (9)	Wu JCY (56)	University System of Ohio (24)	South Korea (15)	South Korea (288)	<i>BMJ Supportive & Palliative Care</i> (11)	<i>Cancer-American Cancer Society</i> (313)
10	Schiff E (8)	Hui EP (52)	Carmel Medical Center (21)	Iran (13)	Israel (287)	<i>Palliative & Supportive Care</i> (11)	<i>Journal of Alternative and Complementary Medicine</i> (308)

Notes: USA: United States of America. *Citations were the local citation count which implies that the total number of citations a publication has been cited by other documents within the same dataset analyzed in the included publications.

sage, which was the highest citation among the same intervention category, evaluated 42 patients in a hospice setting and no significant improvement in the pain intensity, sleep quality and anxiety score compared with single massage treatment.¹⁰ Current SR on the evidence of aromatherapy, massage and other reflexology analyzing 22 clinical trials suggested that aromatherapy and massage showed inconclusive evidence in reducing pain and anxiety as well as improving quality of life in people with hospice care. Small sample sizes and heterogeneity among the clinical trials included in the meta-analysis were critical factors for this limited evidence.⁴²

The most frequently cited study on the effect of massage was an RCT with 380 advanced cancer patients which suggested immediate response in pain and mood but no effect in suspended pain, quality of life and symptom distress. The authors pointed that this immediate effect in pain and mood might have been introduced by bias due to the unblinded research personnels.¹⁶ Current SR suggested limited numbers of clinical trials on massage therapy for this population and only short-time improvement in pain highlighting methodological limitations.⁴¹

3.2.3. Acupuncture

Acupuncture is one of the most widely used interventions for various conditions. In hospice care, many publications on acupuncture were listed to have more frequent citations than other interventions (Table 3). The most highly cited review among the included publication of this study was the 2013 overview of SRs evaluating the evidence of acupuncture in palliative care. This overview included 17 reviews and concluded that acupuncture showed beneficial effects for various cancer-related (or cancer treatment-related) symptoms such as nausea and vomiting, pain control, fatigue, xerostomia and anxiety. However, methodological limitations of the included clinical trials and heterogeneity in study settings and acupuncture methods were identified as important factors affecting the certainty of evidence. In this sense, the authors emphasized the need to improve the methodological quality of RCTs, ensure appropriate application of this intervention, and enhance the com-

pleteness of reporting to strengthen future evidence.¹² Recent reviews also reported the positive effect and safety of acupuncture in alleviating pain, fatigue and improving quality of life.⁴³⁻⁴⁵ However, there still appear to be areas for improvement, particularly regarding the heterogeneity of interventions evaluated in clinical trials and methodological limitations in the study design.

3.2.4. Other interventions

In addition to the interventions mentioned above, publications on psychotherapy, Chinese herbal medicine, and Reiki therapy have also been frequently cited. A 2012 study comparing psychotherapy and massage among 120 patients with stage III–IV cancer reported that the psychotherapy group showed short-term benefits in spiritual well-being, symptom burden, and symptom-related distress. However, the study was limited by its small sample size and lack of blinding of therapists.¹³ A more recent systematic review investigating the effects of psychotherapy on quality of life and survival in cancer patients found that while psychotherapy significantly improved quality of life, it had little effect on survival outcomes. This review also noted limitations such as insufficient statistical power, heterogeneity in psychotherapy approaches, and the use of diverse outcome measures across included studies.⁴⁶ A 2016 SR on herbal medicine reported that Chinese herbal medicine appeared to be effective in reducing pain, relieving constipation, and alleviating fatigue in cancer patients, though it did not show improvement in anorexia. However, all included studies were conducted in China, raising concerns about generalizability, and the review also noted limitations such as poor reporting quality and lack of blinding.¹⁴ In the area of Reiki therapy, a 2017 observational study on pediatric palliative care—which reported a reduction in pain—was the most frequently cited publication in this domain. Nevertheless, the study was limited by its small sample size, single-group design without a control, and reliance on subjective outcome measures.¹⁵ A subsequent randomized controlled trial involving palliative care patients reported significant improvements in pain, analgesic use, and fatigue. How-

Table 3 Most frequently cited publications

Ranking	Study ID (author, year) [*]	Citation (<i>n</i>)	Intervention	Type of publication
1	Hilliard 2003 ⁷	41	Music therapy	RCT
2	Gutgsell 2013 ⁸	35	Music therapy	RCT
3	Pan 2000 ³	30	CAM	Review
4	Horne-thompson 2008 ¹⁷	30	Music therapy	RCT
5	Warth 2015 ¹⁸	29	Music therapy	RCT
6	Soden 2004 ¹⁰	28	Aromatherapy massage	RCT
7	Wilkinson 1999 ⁹	26	Aromatherapy massage	RCT
8	Kutner 2008 ¹⁶	25	Massage	RCT
9	Mansky 2006 ¹⁹	24	CAM	Review
10	Lau 2016 ¹¹	22	Acupuncture	RCT
11	Zeng 2018 ⁴	21	CAM	Review
12	Towler 2013 ¹²	20	Acupuncture	Review
13	He 2020 ²⁰	20	Acupuncture	Review
14	Hilliard 2005 ²¹	19	Music therapy	Review
15	Gallagher 2006 ²²	18	Music therapy	Observational study
16	Lian 2014 ²³	18	Acupuncture	Review
17	Lee 2005 ²⁴	17	Acupuncture	Review
18	Wilkinson 2007 ²⁵	17	Aromatherapy massage	RCT
19	Archie 2013 ²⁶	17	Music therapy	Review
20	Wu 2015 ²⁷	16	Acupuncture	Review
21	Wilcock 2004 ²⁸	15	Aromatherapy massage	Observational study
22	McConnell 2017 ²⁹	15	Music therapy	Review
23	Mao 2022 ³⁰	15	Integrative Medicine	Review
24	Włodarczyk 2007 ³¹	14	Music therapy	Cross-over trial
25	Standish 2008 ³²	14	Acupuncture	Review
26	Choi 2012 ³³	14	Acupuncture	Review
27	Dean-clover 2010 ³⁴	13	Acupuncture	Observational study
28	Burns 2015 ³⁵	12	Music therapy	Observational study
29	Breitbart 2012 ¹³	11	Psychotherapy	RCT
30	Paley 2015 ³⁶	11	Acupuncture	Review
31	Muecke 2016 ³⁷	11	CAM	Survey
32	Chung 2016 ¹⁴	11	Chinese herbal medicine	Review
33	Schmid 2018 ³⁸	11	Music therapy	Review
34	Hyodo 2005 ³⁹	10	CAM	Survey
35	Tao 2016 ⁴⁰	10	CAM	Review
36	Thrane 2017 ¹⁵	10	Reiki therapy	Observational study

Notes: CAM: complementary and alternative medicine; RCT: randomized controlled trial. ^{*}Most frequently cited publications were selected when the article was cited more than 10 times by the included publications in this study.

ever, issues such as inadequate blinding and limited generalizability due to the small number of participating centers were identified as notable limitations.⁴⁷

4. Discussion

In this bibliometric analysis, 588 publications on integrative palliative care were identified between 1995 and 2026 indicating increasing annual growth rate (9.67% per year). USA, China and UK were the most productive countries in this research field. The most frequently cited publications implied that music therapy, aromatherapy & massage and acupuncture were found to play a central role in integrative palliative care research. Currently digital health, telemedicine, diversity, equity and caregivers have emerged as new research area of integrative hospice care.

From this research, music therapy, acupuncture, aromatherapy & massage, mindfulness and meditation were found to have high citation and publication numbers, which showed well-established research area. However, emerging topics including digital health, telemedicine, diversity & ethics and pediatric palliative care needs to be supported by future research. Clinical trials need to include large sample size and to design and implement in more rigorous way. In addition to this, standardization of integrative interventions and outcomes should be considered for overcoming limitations of current research evidence in future clinical studies. Reporting quality of clinical trials and SRs needs to be promoted as well (Figure 2).

Cancer continues to be the leading cause of death globally, irrespective of regional variations. Consequently, the number of patients undergoing the final stages of life in hospice care has been steadily increasing.⁴⁸ The unmet needs of patients and caregivers regarding medical management are widely

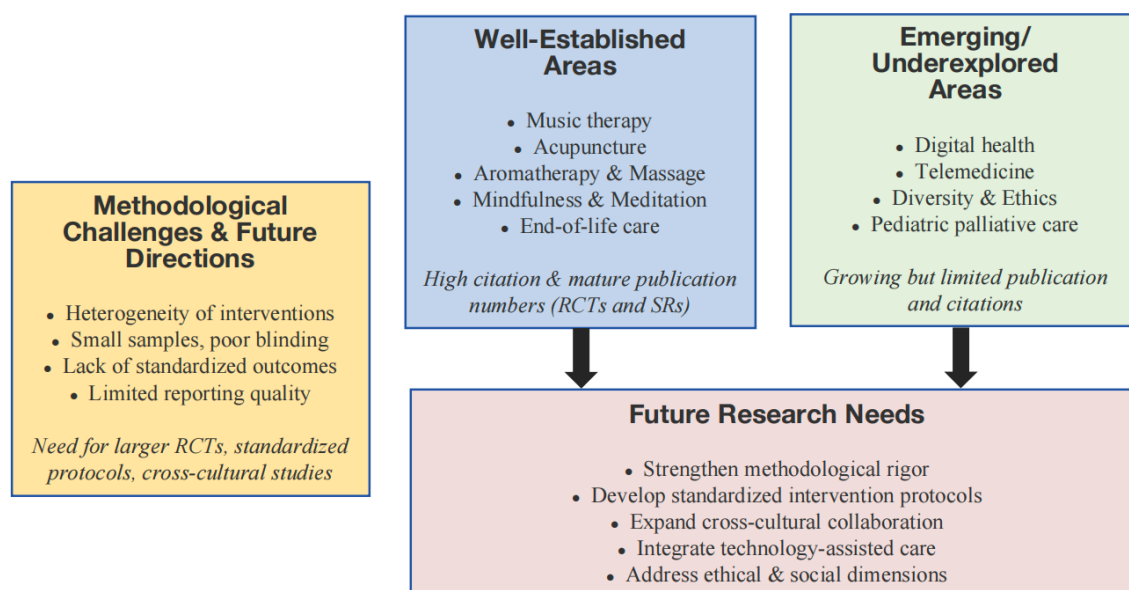


Figure 2 Conceptual research map of integrative hospice and palliative care on cancer patients

Notes: RCT: randomized controlled trial.; SRs: systematic reviews.

acknowledged.^{49,50} In this context, as supported by the evidence from this study, the growing number of research studies on integrative care employing CAM interventions not only signifies the increasing adoption of CAM in hospice settings but also underscores its growing significance within this domain. However, from the viewpoint of healthcare professionals, uncertainty regarding the efficacy of CAM remains a significant impediment to its implementation in hospice settings.⁵¹ Beyond evidence-supported interventions such as music therapy and acupuncture, there is a pressing need for more rigorous clinical trials and SRs to establish the effectiveness and safety of various CAM interventions currently employed in practice. Furthermore, the exploration of emerging technologies such as digital health and telemedicine within the CAM framework is equally necessary.⁵² The physical and psychological burdens experienced by caregivers, both healthcare providers and family members are well-documented issues in hospice care, making them suitable targets for CAM interventions. Future research should also focus on the evidence supporting CAM interventions focused on caregiver management rather than solely on patients themselves. Lastly, from the perspectives of diversity and ethics, it is crucial to examine the value and challenges associated with CAM applications and to comprehend the role of CAM in pediatric palliative care.

This study presents several limitations. Firstly, the bibliometric analysis was conducted exclusively using the WoS database, excluding other core databases such as PubMed, Embase, and local databases. This exclusion may have introduced publication bias and database bias into the findings. The USA and European nations were identified as the most active research countries. However, the results may differ if local databases from Asian or African countries, where traditional medicine and CAM are more prevalent, were included. Nevertheless, the study's objective was to provide a global overview and explore areas that warrant further investigation. Given that WoS offers extensive bibliographic and citation data, it was deemed the most suitable source for presenting a comprehensive snapshot of the current research landscape. Secondly, beyond the bibliometric analysis based on bibliographic and author information, the evaluation of research trends and evidence limitations primarily relied on narrative synthesis. Consequently, future studies should employ SRs or overviews to comprehensively map the limitations and strengths of evidence.

5. Conclusion

Research on integrative palliative care for cancer patients utilizing CAM

has experienced a steady increase. Among the interventions, music therapy, aromatherapy, massage, and acupuncture appear to be the most influential. Future research should focus on enhancing methodological quality to strengthen the evidence base, conducting rigorous clinical trials, and exploring evidence for emerging interventions and caregiver-focused CAM approaches to enhance comprehensive hospice care.

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Author Contribution Statement

Jungho Suh: Data curation, formal analysis, methodology, software, visualization, and writing – original draft. **Tae-Hun Kim:** Conceptualization, methodology, formal analysis, and writing – review and editing.

Declaration of Competing Interest

All authors declare that there is no conflict of interest related to this study.

Electronic Supplementary Material

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