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CURRENT TOPIC

# Global Research Trends in Nursing Interventions to Improve Quality of Life Among Cancer Survivors: A Bibliometric Analysis, 2005–2025

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## Abstract

A bibliometric overview of nursing-intervention research relating to quality of life among cancer survivors was undertaken. Records published between January 2005 and July 2025 were retrieved from the *Web of Science Core Collection*. The reported set contained 7,799 publications. Selection was summarised in a flow diagram, and publication counts and keyword networks were examined using Microsoft Excel and *VOSviewer* 1.6.20. The number of publications increased overall, with the highest annual count reported for 2024 (744). The United States and China contributed the largest numbers of publications. In the keyword maps, quality of life was a prominent term; intervention-related terms clustered around physical activity, self-efficacy, self-care, social support and information provision. Lower-density terms included clinical decision making, high-intensity exercise and insomnia treatment. The maps describe patterns in the literature rather than the comparative effectiveness of interventions. Research on the implementation and effectiveness of less-studied strategies in varied settings may be warranted.

**Key words:** Bibliometrics; Cancer survivors; Oncology nursing; Quality of life.

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## Introduction

Cancer is a major global public health concern. In 2020, nearly 10 million deaths were attributed to cancer.[1] In the National Cancer Institute (NCI) Dictionary of Cancer Terms, a person is considered a cancer survivor from diagnosis until the end of life.[2] This definition encompasses the period of active treatment as well as later survivorship. The population of cancer survivors has grown alongside advances in detection and treatment.[3] Cancer and its treatment may affect physical, psychological and social aspects of quality of life (QoL), as well as practical and financial aspects of daily living.[4] Quality of life is therefore an important consideration when evaluating cancer care and longer-term outcomes.[5]

Nurses support patients and survivors across care settings, including transitions from hospital to community care.[6] Nursing interventions may involve education, psychological support, symptom management and rehabilitation. Nurse-led non-pharmacological pain interventions and tailored interventions have been evaluated in people with cancer.[7, 8] In a comparative meta-analysis,

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exercise and psychological interventions were associated with reduced cancer-related fatigue during and after treatment.[9] These examples address different needs along the survivorship trajectory rather than a single uniform intervention.

Evidence on nurse-led interventions spans different populations, symptoms and delivery models. A systematic review of nurse-led telehealth interventions assessed symptom management in patients receiving systemic or radiation therapy.[10] A breast cancer screening and navigation programme for women from under-resourced communities illustrates another model of cancer-related care.[11] However, the diversity of interventions and populations complicates comparisons across studies. Barriers to using nursing research in practice have also been reported.[12] An overview of published research can help locate recurrent topics, changes in research emphasis and areas that receive comparatively little attention.

Psychological interventions are among the approaches investigated in patients receiving chemotherapy.[13] Although intervention studies and reviews address specific clinical questions, they do not necessarily provide an overview of global publication patterns. The present bibliometric analysis therefore examined research concerning nursing interventions and QoL in cancer survivorship from 2005 to July 2025. Its objectives were to describe annual output, identify leading countries and institutions and examine author networks and co-occurring keywords. The findings may inform the selection of topics for future clinical and implementation research, but bibliometric patterns alone cannot establish intervention effectiveness.

# Methods

A bibliometric analysis was undertaken to describe publications concerning nursing interventions and QoL in cancer survivorship. The process comprised three stages: record retrieval, screening by publication characteristics and topic, followed by descriptive and network analyses. The unit of analysis was the indexed publication rather than a patient or an individual intervention outcome.

## Paper search

Records dated from 1 January 2005 to July 2025 were retrieved from the *Web of Science* Core Collection (WoS Core; https://www.webofscience.com/wos/). This database supports citation tracing and has been used for bibliometric analyses in other subject areas.[14, 15] The topic-field search was: TS = ((nurs* OR "oncology nursing" OR "nurse-led" OR "nurse navigator" OR "healthcare intervention" OR "care program" OR "patient education") AND ("quality of life" OR "life quality" OR "health-related quality of life" OR "functional status" OR "patient-reported outcome") AND (cancer* OR neoplasm* OR tumor* OR malignant* OR "cancer survivor*" OR survivorship OR "life after cancer" OR "cancer rehabilitation")). The complete topic-field strategy was given to support reproducibility. The selection process is shown in Figure 1.

The stated eligibility criteria were English-language publications from the specified period that addressed nursing-related interventions and QoL in people with cancer or cancer survivorship. Original articles and reviews were described as eligible. Book chapters, book series, letters, articles in press, retracted items, non-English records, records outside the date range and publications unrelated to cancer or QoL were described as excluded. The authors reported that 8,127 records were retrieved and downloaded in RIS format before screening. The flow diagram lists 328 exclusions across the reported categories and 7,799 retained records.

Records were screened by publication type, language, year and topic. The reported final set comprised 7,799 publications. The characteristics of the included publications are described in the Results.

## Data analysis

*VOSviewer* version 1.6.20 was used to visualise co-authorship and keyword co-occurrence networks, including network, time-overlay and density maps. Microsoft Excel was used for descriptive summaries of annual publication counts, country and institutional contributions and the publication output of individual researchers. The reported procedure did not apply a minimum occurrence threshold. Descriptive rankings of the 10 most productive countries and institutions are

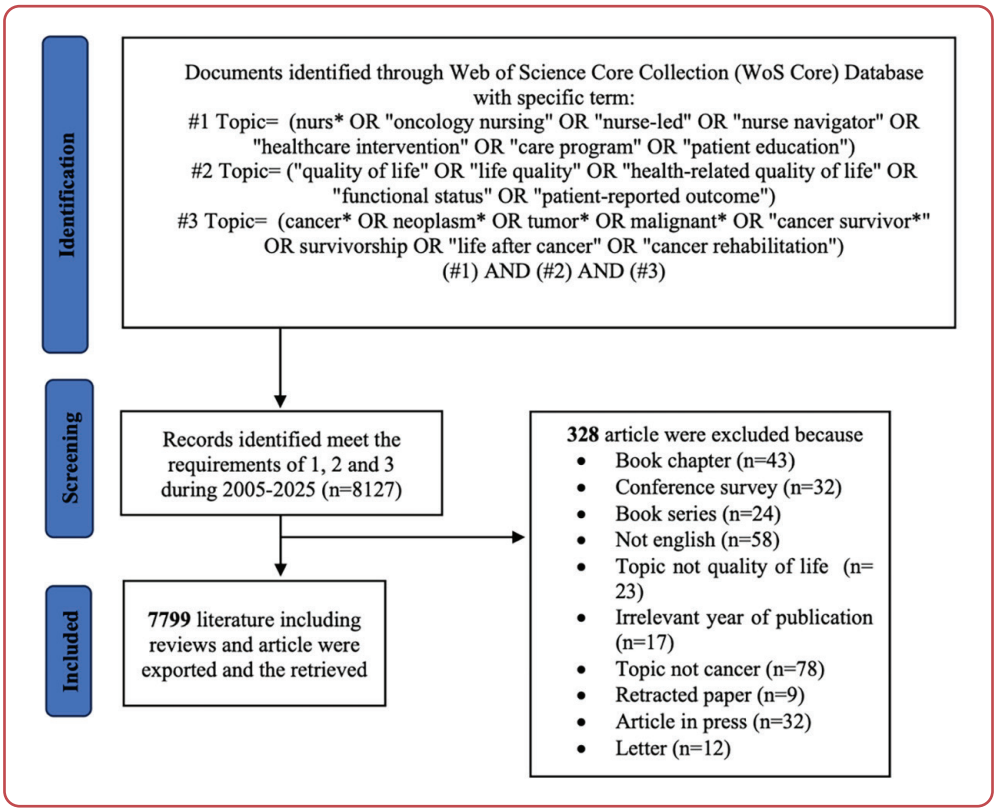



*Figure 1: Record identification and selection flow diagram*

provided in the tables; the network maps display multiple labelled nodes. Annual growth-rate statistics were not calculated. Co-occurrence analysis was used to describe groups of frequently associated terms, whereas density visualisation was used to identify more and less prominent regions of the intervention-term network. No formal evaluation of the quality or effect sizes of the indexed clinical studies was reported.

# Results

## Publication output

The reported set of 7,799 publications comprised 6,445 original research articles, 1,216 review articles, 84 proceedings papers, 53 editorials and one data paper. Annual output rose overall from 2005 to 2024, although the increase was not uninterrupted (Figure 2). The highest annual count was reported for 2024 (n = 744). The value shown for 2025 (n = 485) represents an incomplete year because records were retrieved only until July 2025.

## Country and institutional contributions

Publications were attributed to 100 countries. The United States accounted for 2,427 publications (31.12 %) and China for 1,342 (17.21 %). The United Kingdom (585), Australia (556) and Canada (526) were the next highest contributors. The 10 countries with the highest reported output are listed in Table 1. These country counts describe affiliations represented in the records and need not denote independent publications where papers have authors from more than one country.

*Table 1: Ten countries with the highest reported publication counts*

| No | Country | n | % |
|---|---|---|---|
| 1 | United States | 2,427 | 31.12 % |
| 2 | China | 1,342 | 17.21 % |
| 3 | United Kingdom | 585 | 7.50 % |
| 4 | Australia | 556 | 7.13 % |
| 5 | Canada | 526 | 6.74 % |
| 6 | Netherlands | 321 | 4.12 % |
| 7 | Germany | 248 | 3.18 % |
| 8 | South Korea | 234 | 3.00 % |
| 9 | Italy | 232 | 2.97 % |
| 10 | Turkey | 232 | 2.97 % |

*Percentages are based on the reported total of 7,799 publications.*




*Figure 2: Annual number of publications, 2005–2025 (2025 incomplete)*

The researcher-level co-authorship network is shown in Figure 3. It contains several clusters of authors, with a number of nodes separated from the larger groups. The figure identifies individual researchers by name rather than mapping collaboration between countries. It therefore supports a description of author-level relationships but does not independently demonstrate which countries collaborated most strongly.

Harvard University was reported as the most productive institution (455 publications; 5.83 %), followed by the University of California (209; 2.68 %) and the University of Toronto (187; 2.40 %). The University of Texas (184; 2.36 %) and the University of London (150; 1.92 %) were also among the leading institutions. The 10 institutions with the highest reported output are listed in Table 2.

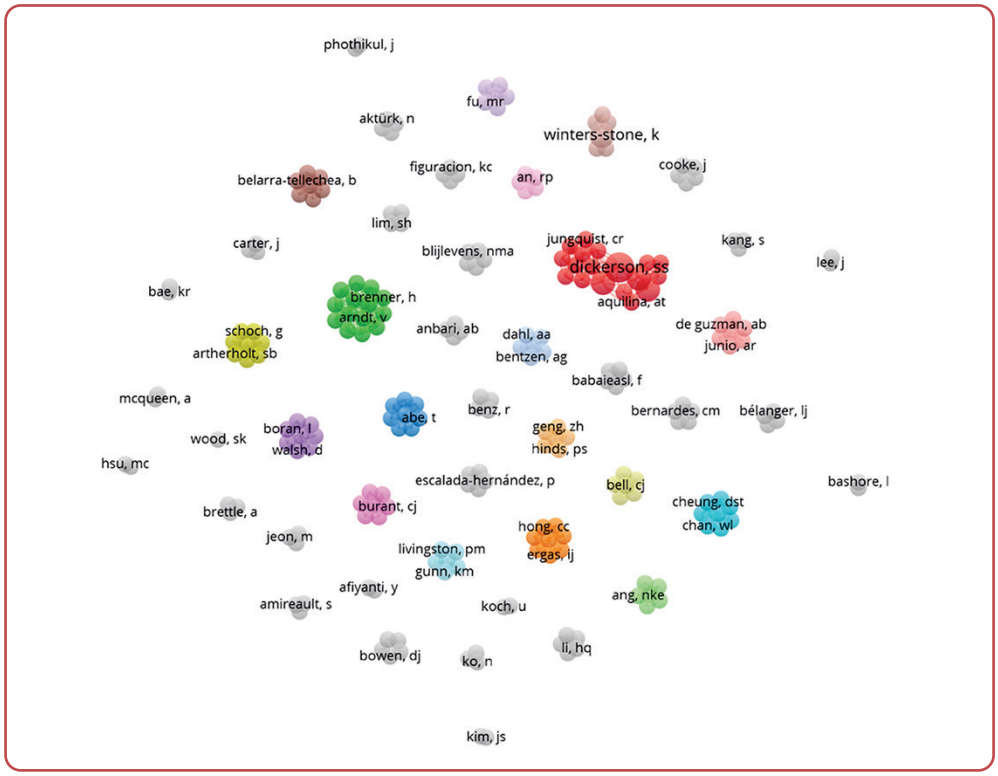



*Figure 3: Researcher-level co-authorship network*

*Table 2: Ten institutions with the highest reported publication counts*

| No | Institution | n | % |
|---|---|---|---|
| 1 | Harvard University (USA) | 455 | 5.83 % |
| 2 | University of California (USA) | 209 | 2.68 % |
| 3 | University of Toronto (Canada) | 187 | 2.40 % |
| 4 | University of Texas (USA) | 184 | 2.36 % |
| 5 | University of London (UK) | 150 | 1.92 % |
| 6 | University of Sydney (Australia) | 137 | 1.76 % |
| 7 | University of North Carolina (USA) | 136 | 1.74 % |
| 8 | University of Ohio (USA) | 134 | 1.72 % |
| 9 | University of California, San Francisco (USA) | 128 | 1.64 % |
| 10 | Dana-Farber Cancer Institute (USA) | 127 | 1.63 % |

*Percentages are based on the reported total of 7,799 publications.*

## Keyword and intervention mapping

Quality of life occupied a prominent position in the keyword network, alongside terms relating to breast cancer, survivors, women, support and physical activity. The time-coloured overlay is shown in Figure 4. A separate network of intervention-related terms is shown in Figure 5. The cluster-coloured display of the keyword network is shown in Figure 6. The map suggests multiple thematic groupings: terms connected with outcome measurement and validation, psychological distress and recurrence, physical activity and older survivors, self-management and self-efficacy, oncology and knowledge, survivor support and unmet needs, return to work and clinical or methodological topics. The cluster colours describe network groupings and are not clinical categories or measures of effectiveness.

The term quality of life was among the largest and most interconnected nodes in the keyword network (Figure 6). Other visible terms included breast cancer, support, health, survivors, physical activity, unmet needs and self-management. The links between nodes indicate that terms occurred together in the mapped records; the map does not indicate the direction or magnitude of any clinical association.

In the intervention-term density map (Figure 7), intervention was a prominent high-density term. Self-efficacy, self-care, social support, physical activity and information also appeared in denser regions. Less dense regions included clinical decision making, high-intensity exercise interventions, insomnia treatment and brief behavioural treatment. These terms may warrant further

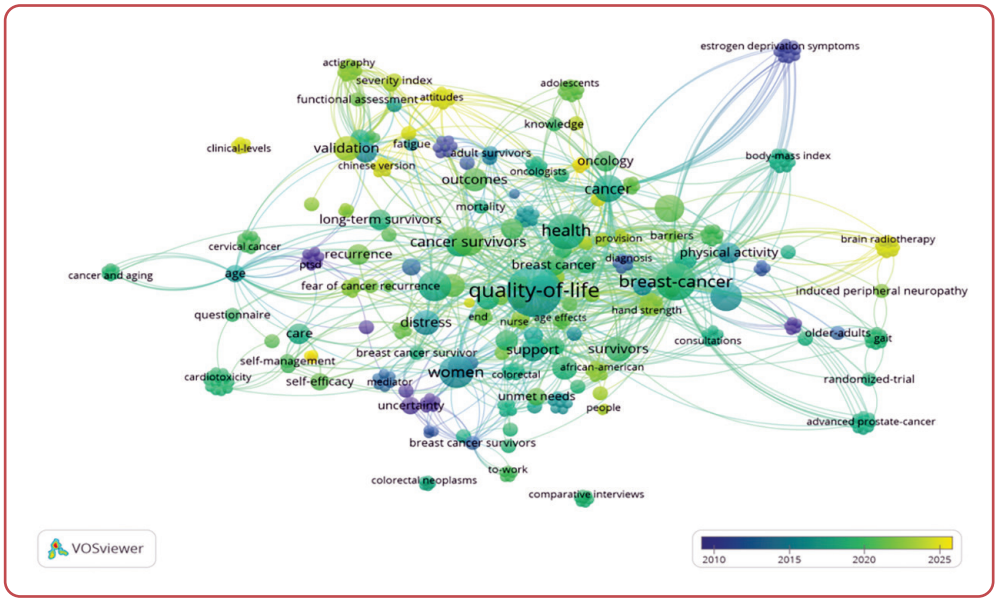



*Figure 4: Time-coloured overlay of keyword co-occurrence*

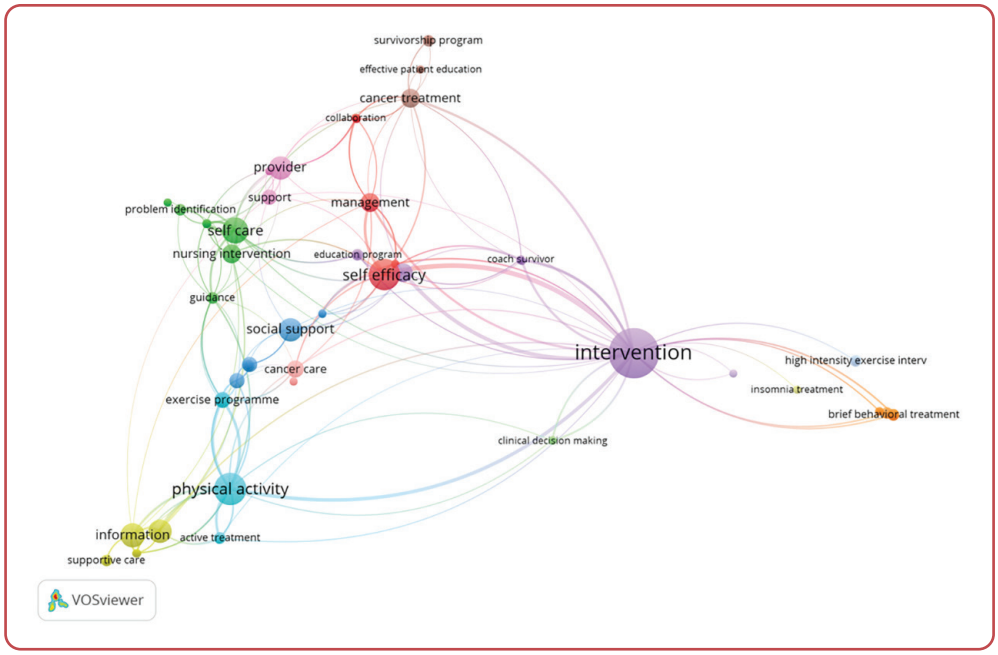



*Figure 5:* *Co-occurrence network of intervention-related terms*

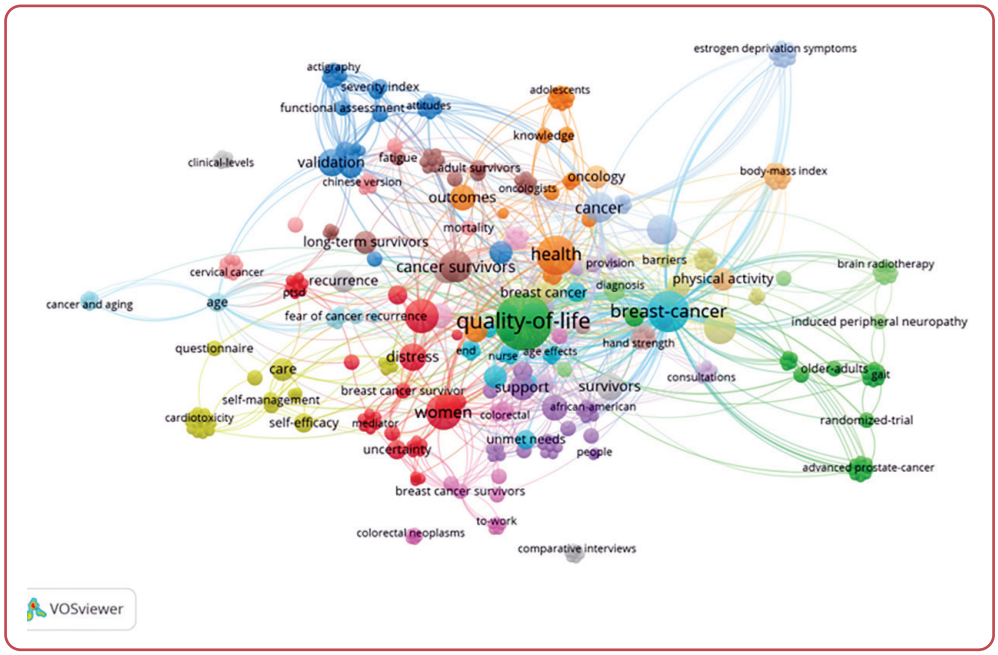



*Figure 6:* *Cluster-coloured network of keyword co-occurrence*

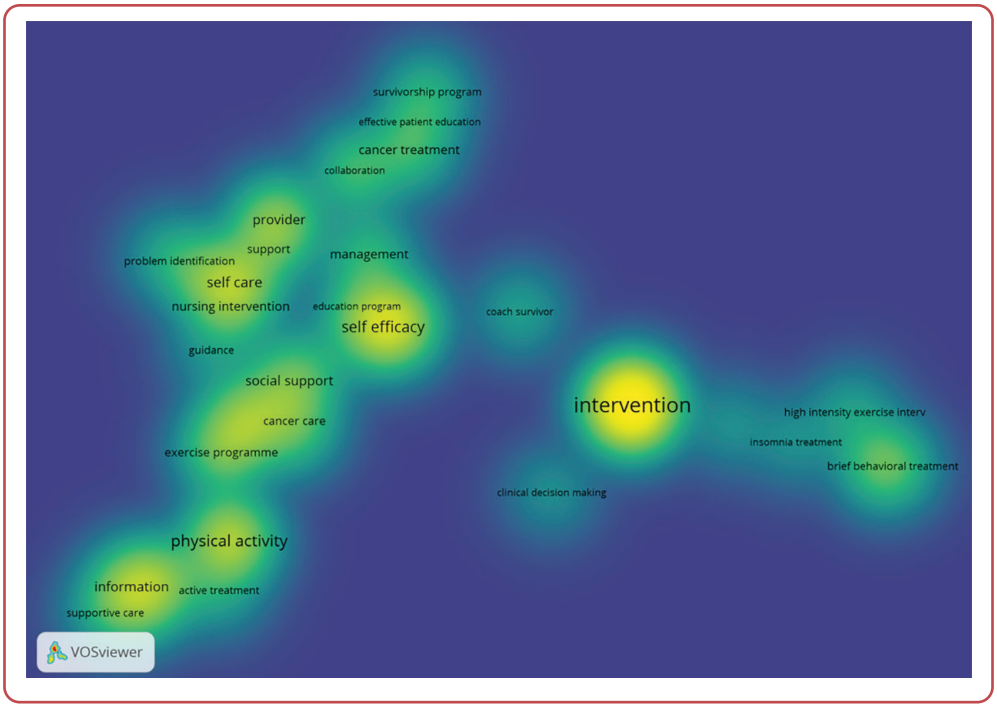



*Figure 7: Density visualisation of intervention-related terms*

examination, but their lower density in this map should not by itself be interpreted as evidence of recent emergence, inferior quality or a lack of benefit.

## Discussion

The reported publication output was greatest in the United States and China, which together accounted for a substantial proportion of the records. The institution rankings likewise included several institutions based in the United States. These results describe where indexed publications were attributed, not necessarily where interventions were implemented or which settings had the strongest clinical evidence. The supplied co-authorship map labels researchers rather than countries; therefore, the degree of international collaboration cannot be established from Figure 3. Publication counts and network links should not be interpreted as measures of research quality.

The overlay and network maps placed physical activity, information and supportive care alongside terms relating to self-care, self-efficacy, treatment and survivorship. Different parts of the time-coloured map are associated with different average publication years. The mapped terms suggest that physical, educational and psychosocial topics occur across the literature, although a change between specific intervals cannot be quantified from the image alone. A systematic review has examined peer-support interventions in relation to QoL, depression, anxiety and self-efficacy in patients with cancer.[16] Other non-pharmacological approaches, including writing interventions for survivors, have been reviewed separately.[17] Neither clinical review establishes the time trend in the present bibliometric dataset.

Survivorship care encompasses support beyond initial treatment. Programmes addressing different groups of survivors have been described at a comprehensive cancer centre.[18] In the present intervention maps, self-efficacy was connected with education and management, whereas self-care was connected with nursing intervention, problem identification and support. Patient education may address illness-related knowledge, symptom recognition and strategies for adapting to treatment. In a systematic review and meta-analysis, health education was associated with improvements in self-efficacy and QoL among patients with breast cancer.[19] A study of self-efficacy intervention combined with humanistic nursing evaluated self-care ability and QoL during chemotherapy.[20] These studies illustrate the kind of clinical work behind some of the mapped terms, although their participants, outcomes and designs should not be treated as interchangeable.

Peer support and self-management constitute additional approaches. Peer-support interventions have been assessed for psychosocial and QoL outcomes in patients with cancer.[16] In a self-management programme, patients may be supported in monitoring symptoms, seeking appropriate care and addressing psychological adjustment. A programme was evaluated in a randomised trial involving patients with colorectal cancer.[21] Tailored interventions have been examined in a systematic review of cancer survivors.[8] Self-management interventions for patients with cancer-related pain have also been systematically reviewed.[22] Adaptation to a particular patient group may be necessary, but the bibliometric map cannot determine the best combination, duration or frequency of support. These clinical studies provide context for the mapped themes; their effects were not estimated by the present bibliometric analysis.

Exercise was another prominent theme in the keyword network. A 12-week multimodal exercise intervention was evaluated in older patients with advanced cancer.[23] An implementation–effectiveness trial protocol has described the planned delivery of physical activity programmes during treatment.[24] Evidence from reviews of exercise programmes in breast cancer survivors has addressed QoL, fitness and body composition.[25] Taken together, these sources concern different populations and phases of care. Exercise programmes are therefore best considered in relation to individual needs, treatment status, capacity and clinical safety rather than assumed to have the same effect in every survivorship setting.

Less dense mapped terms included insomnia treatment, clinical decision making and brief behavioural approaches. A systematic review and meta-analysis evaluated insomnia interventions for patients with cancer and survivors.[26] Cognitive-behavioural therapy for insomnia was assessed in a separate systematic review and meta-analysis of survivors.[27] Approaches to sleep difficulties may include behavioural and cognitive strategies, but their specific effects must be taken from intervention studies, not the co-occurrence map. The low density of a term in the present map indicates lower representation in this network, not necessarily a lack of effective treatments or an intervention that has only recently emerged.

A strength of the study is its combined description of annual publication output, geographical and institutional contributions and related research terms. It may help identify areas in which additional studies or cross-setting comparisons would be informative. Limitations include reliance on a single database, sensitivity to the chosen topic-field search string and screening decisions and the lack of appraisal of the methodological quality of included studies. The incomplete 2025 retrieval period limits comparisons with complete calendar years. Further work in varied settings, including lower- and middle-income contexts, could examine how less-represented nursing approaches are implemented and whether they improve patient-reported outcomes.

## Conclusion

This bibliometric analysis identified quality of life, physical activity, self-efficacy, self-care, information and support as prominent or connected themes in the reported literature on cancer survivorship and nursing interventions. The United States and China contributed the largest reported publication counts. Less dense areas of the intervention-term map included insomnia care and clinical decision making. The maps describe research activity rather than demonstrating that the mapped interventions improve outcomes. Further work may assess the implementation and effectiveness of specific nursing approaches across healthcare settings, while incorporating patient-reported outcomes and appraisal of clinical study quality.

## Ethics

This study was a secondary analysis based on the currently existing data and did not directly involve with human participants or experimental animals. Therefore, the ethics approval was not required in this paper.

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## Conflicts of interest

The authors declare that there is no conflict of interest.

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## Data access

The data that support the findings of this study are available from the corresponding author upon reasonable individual request.

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