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REVIEW

Global Trends and Research Hotspots in Social Isolation Among Cancer Patients: A Bibliometric Analysis (2005–2024)

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Background: The psychosocial impact of cancer, particularly social isolation, has gained increasing recognition in oncology research. This bibliometric analysis maps the global research landscape and evolving trends in social isolation among cancer patients over two decades.

Methods: We retrieved original research articles and review papers on cancer research associated with social isolation from Web of Science database between 2005 and 2024. Utilizing bibliometric platforms such as CiteSpace, VOSviewer, and bibliometric websites, we analyzed the annual publication trends, leading journals, countries, institutions, and authors in this field. Additionally, by analyzing keyword visualizations and keyword bursts, we identified the emerging and popular research areas related to social isolation in cancer research.

Results: We systematically analyzed 1219 publications from 2005 to 2024. Globally, the United States accounted for the highest proportion of research output (34.78%), ahead of England (16.57%) and China (7.71%). In terms of institutional contributions, the top three positions were held by the University of London (58 publications), the University of California System (54 publications) and French National Institute of Health and Medical Research (Institut National de la Santé et de la Recherche Médicale, INSERM; 52 publications). *Supportive Care in Cancer* was the journal with the highest number of publications (52 papers). Keyword co-occurrence analysis revealed six major research clusters: social deprivation, palliative care, social isolation, social support, physical activity, and cognitive function. The research focus is transitioning from "risk factors" (2005–2014) to "psychosocial interventions" (2015–2024), with emerging focus on disparities, social determinants of health, and symptom management.

Conclusion: This study reveals accelerating global interest in cancer-related social isolation and highlights the need for multi-disciplinary approaches that integrate biological and psychosocial perspectives in cancer survivorship care, particularly through targeted interventions for vulnerable populations.

Keywords: cancer, social isolation, loneliness, hotspots, bibliometric

Introduction

Cancer has emerged as one of the most pressing global health challenges of 21st century, affecting global society, healthcare systems, and economic stability. Recent statistics indicated that 20 million new cancer diagnoses and 9.7 million fatalities in 2022 alone, with China contributing 4.82 million new diagnoses and 3.21 million fatalities.[1] Experts forecast these numbers could grow to 6.85 million new cases and 5.07 million deaths in China by 2050, indicating a worsening situation in coming decades.[2] Although advancements in cancer therapeutics have improved

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survival rates, many patients struggle with treatment side effects and mental health challenges, particularly social isolation.[3–5] Therefore, comprehensive patient care must address both clinical outcomes and psychosocial wellbeing, with special attention to social isolation among cancer patients.

Social isolation was defined as the objective lack of social connections and subjective experience of loneliness.[6] It has been extensively examined across various academic domains including sociological research, medical sciences, and nursing practice.[7] Evidence indicates that social isolation is prevalent across various cancer types. For example, studies have shown that a considerable proportion of patients including those with breast, lung, or gynecologic cancers experience moderate to severe symptoms of social disconnection.[5,8,9] Qualitative findings further reveal that isolation is frequently associated with high symptom burden, extended hospitalization, and subsequent psychological distress.[8,9] This condition often manifests as pervasive pessimism, self-stigmatizaion, and social withdrawal, creating a vicious cycle that exacerbates patient's mental health burden.[10] Crucially, social isolation has been identified as an independent risk factor for depression, reduced life satisfaction,[4,11,12] and even increased mortality, particularly from cardiovascular causes.[13,14] These findings underscore the urgent need to integrate psychosocial support into standard oncology care paradigms.

Despite growing awareness of social isolation as a key aspect of cancer survivorship, there remains a notable lack of comprehensive and mapping analyses of the existing literature. Bibliometric analysis has become a valuable methodology for identifying leading contributors, mapping collaborative networks, and tracing conceptual trends within a field of research.[15] This study addresses a significant research gap by providing the first comprehensive bibliometric analysis focused specifically on social isolation among cancer patients. While previous bibliometric studies have examined broader psychosocial aspects of cancer care,[16–18] none have specifically mapped the knowledge structure, research trends, and collaborative networks in cancer-related social isolation. Therefore, this study employs advanced bibliometric techniques to analyze publication trends across countries, institutions, and journals, identify research hotspots through keyword co-occurrence and citation networks, and illuminate emerging frontiers in social isolation among cancer patients. By offering a structured overview of the intellectual landscape and highlighting multidisciplinary intervention strategies, the analysis aims to guide future research and foster collaborative efforts to address this complex issue.

Methods

Data Sources

For this bibliometric analysis, we utilized the Science Citation Index expanded (SCI-Expanded) collection within Web of Science (WOS), covering publications from 1999 onward. This database was selected due to its reputation as a premier multidisciplinary research platform offering extensive coverage of high-impact scholarly literature. Using a single database may introduce selection bias, as it might not capture all relevant publications from other sources. WOS provides comprehensive coverage of high-quality journals in the field of oncology and psychosocial research, making it suitable for analyzing major research trends and patterns.

All the data incorporated in the study were obtained from the WOS through the following search queries: neoplasm (topic), cancer (topic), carcinoma (topic), tumor (topic), neoplasia (topic) or neoplasms (topic) or malignancy (topic) or tumor (topic); "social isolation" (topic) or ostracism (topic) or loneliness (topic) or "social alienation" (topic) or "social deprivation" (topic) or "psychosocial deprivation" (topic) or "social segregation" (topic) or "emotional isolation" (topic). To minimize bias from database updates, two independent researchers completed literature search and data download within a 24-hour period on November 11 2024.

Retrieval Strategies

We applied rigorous selection criteria to ensure data quality and relevance. Inclusion criteria comprised: (a) themes of literature are related to cancer and social isolation; (b) the publications were restricted to English-language publications between January 1, 2005, and November 10, 2024; (c) literature represented either original empirical studies or critical reviews. Exclusion criteria eliminated: (a) non-research publications including opinion pieces, brief communications, and meeting abstracts; (b) duplicate or retracted studies; (c) non-English documents.

The analysis covers publications from 2005 to 2024. Twenty-year timeframe was selected to capture the most recent era of research in psychosocial oncology, reflecting the accelerated integration of psychosocial aspects into cancer care and a marked increase in published outputs addressing social isolation in cancer populations. This period encompasses significant developments in the field, including the growing recognition of social determinants of health, the impact of the COVID-19 pandemic on social isolation research (2020–2022), and the emergence of dedicated research on cancer-related loneliness and social disconnectedness. Although studies on this topic existed prior to 2005, this window allows for a focused examination of contemporary research trends and emerging themes within the current clinical and academic landscape.

Data Collection and Analysis

The exported records encompassed comprehensive metadata including document titles, author affiliations, keywords, journals information, abstracts, publication years, geographical origins, citation networks and funding sources. Our quantitative assessment incorporated multiple scientometric indicators: annual publication trends, national/regional productivity, journal distributions, citations per publication (CPP), and H-index values extracted from Web of Science Core Collection. Journal impact metrics were standardized using 2023 Journal Citation Reports (JCR 2023) data, incorporating both impact factors (IF) and discipline-specific quartile rankings to ensure comparative accuracy across research domains.

For data visualization and network analysis, we implemented a tripartite analytical approach utilizing CiteSpace software (version 6.2.R4), VOSviewer software (version 1.6.19), and a bibliometric website (http://bibliometric.com). CiteSpace enabled temporal citation network analysis of countries/regions, institutions, and authors, along with keyword cluster detection and emerging keyword trends.[15,19] This software facilitated the mapping of knowledge development trajectories, allowing visualization of conceptual frontiers and prediction of future research directions through reference and keyword co-citation patterns.[20,21] VOSviewer provided complementary network, overlay, and density visualization,[22] particularly for examining international collaboration network, institutional partnerships, author citation relationship, and keyword co-occurrence metrics. The web-based bibliometric platform enhanced geospatial mapping capabilities that identified strongly interconnected research ecosystems.[23] For foundational data organization and frequency analysis, we employed Microsoft Excel to generate structured tabulations of key metrics. This study analyzed publicly available bibliometric data, constituting non-human subjects research that exempts it from ethical review requirements.

Results

Global Research Contribution and Trends

Our analysis identified 1219 relevant publications from January 2005 to November 2024. Figure 1 demonstrates a consistent upward trajectory in annual publication volume throughout the study period, with minor variations observed intermittently. It is worth noting that publication volume reached its peak in 2023. Correspondingly, citation metrics exhibited parallel trajectory and achieving maximal values in the same calendar year.

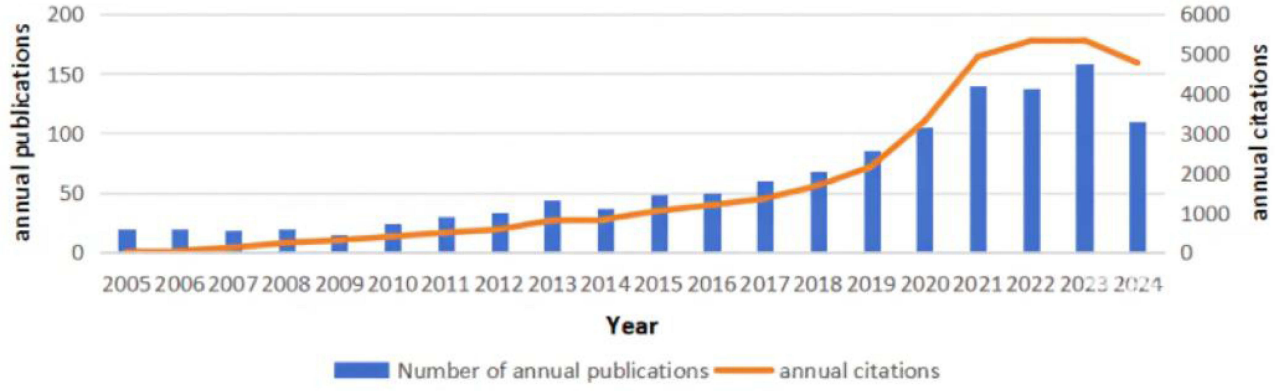

Figure 1 Time sequence of relevant papers and trends in annual citations related to social isolation in cancer patients.

Table 1 Detailed Rankings of Top Contributing Countries in the Field of Social Isolation in Cancer Research

Rank	Country	Counts	Percentage	Total Citations	Average Citation per Paper	TLS	H-Index
1	USA	424	34.78%	14,156	33.39	643	60
2	England	202	16.57%	8921	44.16	292	45
3	China	94	7.71%	3319	33.18	302	22
4	Canada	82	6.73%	1390	16.95	147	22
5	France	76	6.23%	1633	21.49	55	19
6	Australia	56	4.59%	1215	21.7	99	19
7	Germany	52	4.27%	1980	38.08	98	20
8	Scotland	45	3.69%	2951	65.58	44	21
9	Netherlands	42	3.45%	2901	69.07	187	18
10	Italy	41	3.36%	1376	33.56	63	12

Analysis of Countries/Regions

The publications originated from 81 countries/regions. Table 1 presents the top ten countries/regions based on publication output. The United States contributed the highest number of publications, accounting for 34.78% of total publications (424 papers), with the highest citation count (14156) total link strength (643) and H-index (60). England ranked second (16.57% of all publications, with 202 papers), followed by China (7.71% of all publications, with 94 papers). Figure 2 identifies the top ten annual national publication outputs, highlighting that the United States also led yearly publication. Notably, China demonstrated remarkable growth in 2024, exceeding England's output. International collaboration networks revealed the strongest cooperative ties between the US and England, with France, Canada, and China forming secondary partnerships (Figure 3). The US served as the central hub for international cooperation in this research domain.

Analysis of Institutions

Table 2 lists the top ten institutions by the number of publications in the field. The University of London led institutional contributions with 58 papers, followed closely by the University of California system (54), Institut National de la Santé et

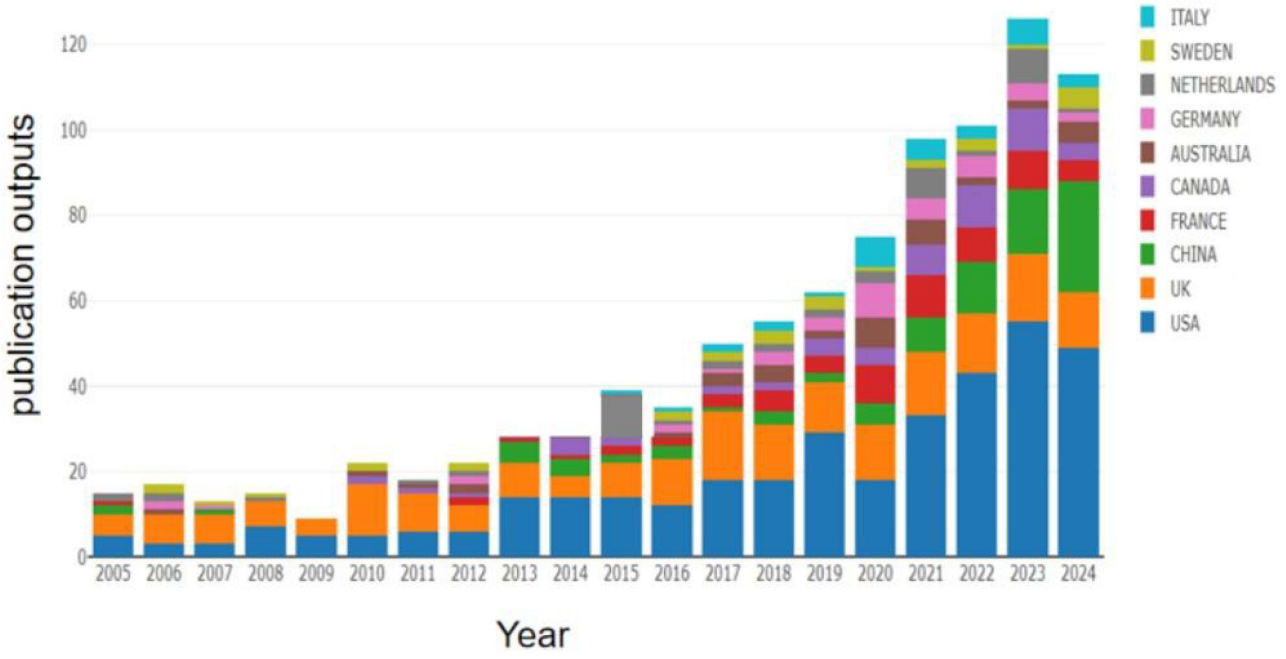

Figure 2 The number of annual publications and growth trends of the top 10 countries regions in field of cancer isolation from 2005–2024. The colors of different countries are based on the average year they published or the average year they published the articles.

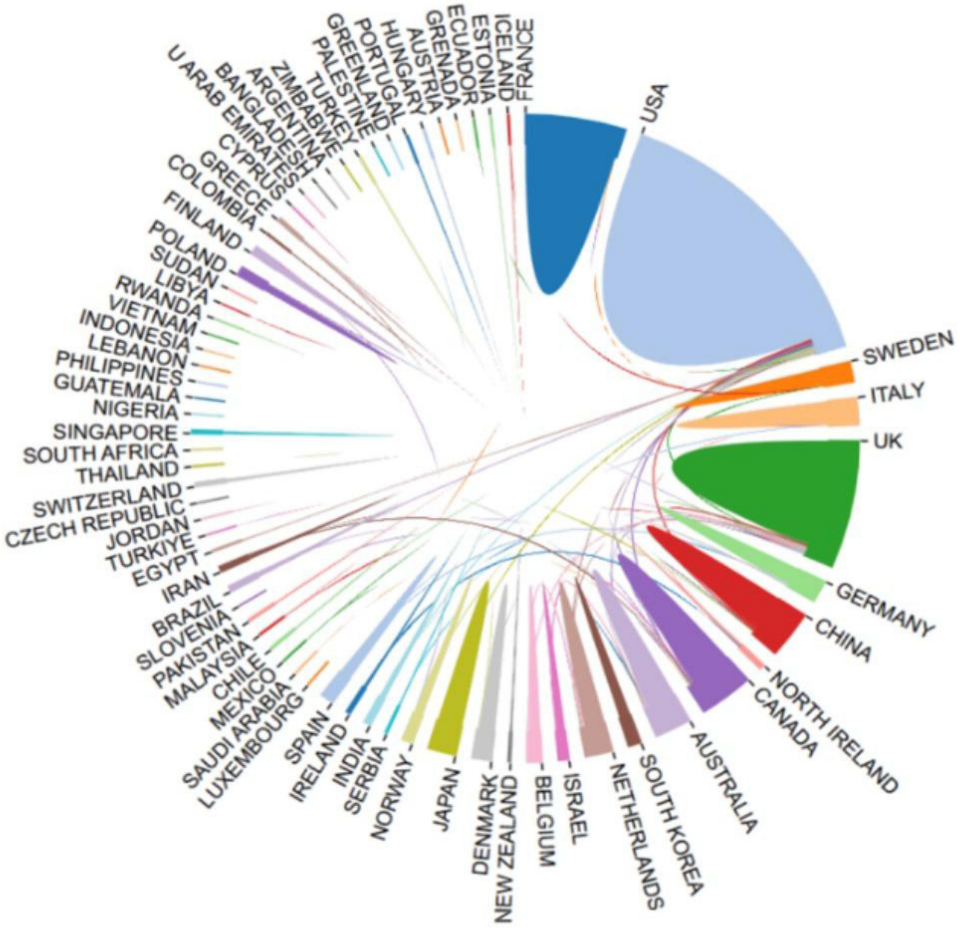

Figure 3 International network cooperation between countries, exported the results from the website of bibliometrics. Nodes represent countries/regions, with size proportional to their publication output. Connecting lines indicate collaborative relationships, where thicker lines reflect stronger cooperation.

de la Recherche Médicale (INSERM) (52), Harvard University (49), and the University of Texas System (38). Half of the top ten institutions were based in US, which also maintained the highest citations per publication. A visual representation of the institutional network is presented in Figure 4 to delve deeper into the relationships between these institutions. Network analysis of 291 interconnected institutions with 721 connections revealed a relatively dispersed distribution of research teams across institutions, suggesting significant opportunities for enhanced interdisciplinary collaboration.

Table 2 The Leading Institutions in Research on Social Isolation Among Cancer Patients

Rank	Institution	Counts	Percent of All	CPP	H-Index	Location
1	University of London	58	4.76%	63.09	29	UK
2	University of California System	54	4.43%	51.96	23	USA
3	Institut National de la Santé et de la Recherche Médicale	52	4.27%	23.54	14	France
4	Harvard University	49	4.02%	25.37	18	USA
5	University of Texas System	38	3.12%	84.47	18	USA
6	Imperial College London	32	2.63%	52.03	21	UK
7	University System of Ohio	31	2.54%	42.29	16	USA
8	Unicancer	31	2.54%	11.58	11	France
9	Universite Paris Cite	25	2.05%	13.84	9	France
10	Memorial Sloan Kettering Cancer Center	25	2.05%	15.5	11	USA

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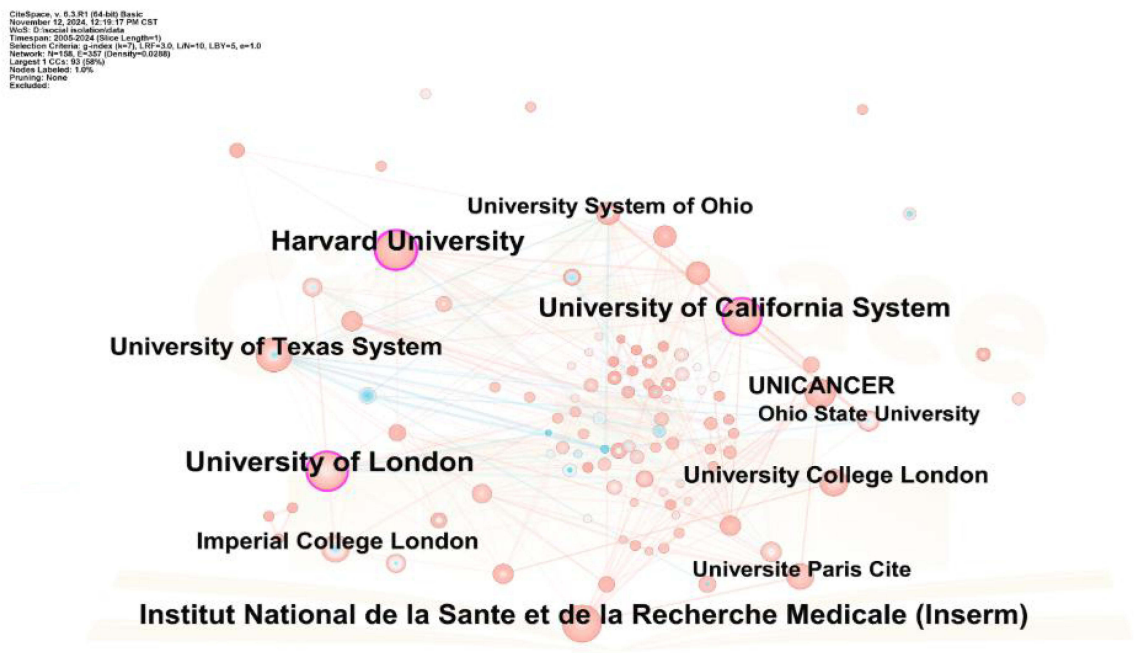

Figure 4 Collaboration network analysis of institutions in field of cancer isolation from 2005–2024. Nodes represent institutions, and their size reflects publication volume. Lines between nodes indicate collaborative ties, with thicker lines denoting stronger collaboration.

Analysis of Funding Organizations

Funding organizations play a crucial role in conducting research and publishing papers. Figure 5 summarizes the top 10 funding organizations for research publication outputs. Half of the top ten organizations originate from the USA, featuring the Department of Health and Human Services (DHHS), National Institutes of Health (NIH), and National

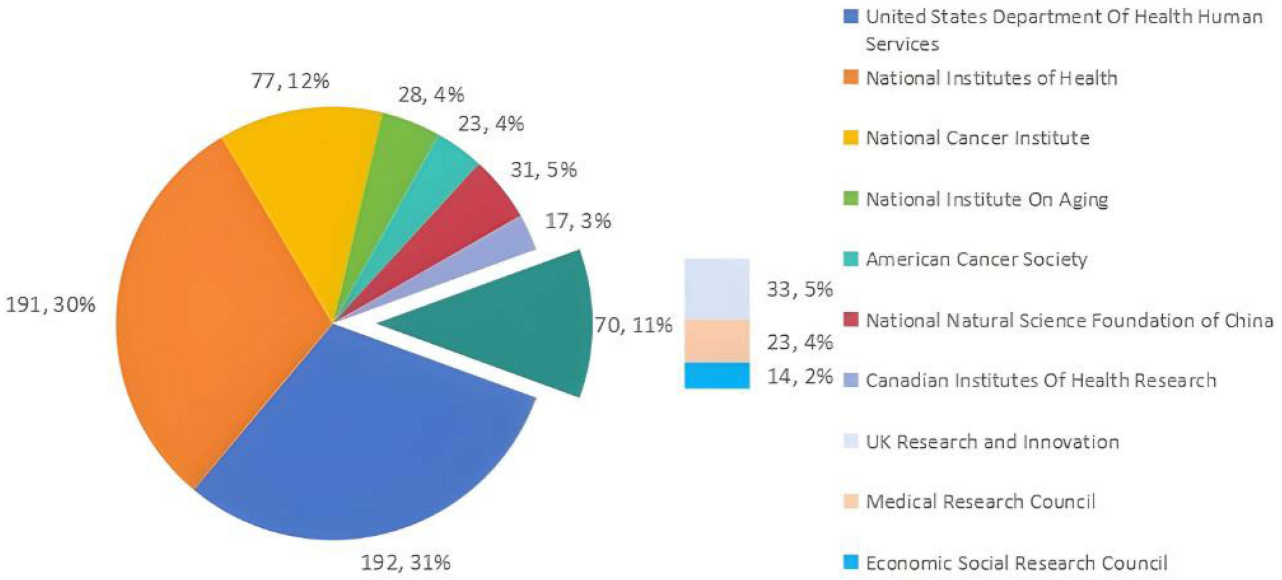

Figure 5 The top 10 funding organizations in terms of research publication outputs. Each segment represents a funding organization, with the arc size corresponding to its relative contribution (%) to the total number of publications supported.

Cancer Institute (NCI) as the top three. However, these entities are interrelated. The NIH operates under DHHS while NCI functions as a component of NIH.

Analysis of Journals

Table 3 lists the top ten journals by the number of publications in the field. The study retrieved publications from 237 journals in this field, with *Supportive Care in Cancer* being the most prolific outlet (52 papers), ahead of *Psycho-Oncology* (42 papers), *PLOS ONE* (26 papers), and *International Journal of Environmental Research and Public Health* (24 papers). Half of these frequently published journals were ranked in the top two quartiles (Q1 and Q2). Further, *Supportive Care in Cancer* boasted the highest H-index value of 20 and *Psycho-Oncology* demonstrated the greatest CPP at 28.07.

Analysis of Authors

Table 4 lists the top ten authors, ranked by the number of publications in the field. Aylin P and Cole SW were the most prolific authors, with 11 publications. VOSviewer analysis identified 5124 contributing authors across the publications, with only 63 meeting our inclusion criteria of ≥2 publications and citations. Network visualizations highlighted Holt-Lunstad J (104 citations), Cacioppo JT (90 citations), and Steptoe A (62 citations) as the most influential co-cited authors (Figure 6), reflecting their foundational contributions to understanding social isolation in cancer populations.

Analysis of Cited References

The citation network analysis revealed a complex structure comprising 275 reference nodes connected by 730 citation links (Figure 7). CiteSpace was utilized to generate timeline visualization of the cited references in cancer-related social

Table 3 The Top 10 Most Prolific Journals

Rank	Journal Title	Count	CPP	H-Index	Category Quartile	IF (2023)
1	*Supportive Care in Cancer*	52	23.08	20	Q2	2.8
2	*Psycho-Oncology*	42	28.07	18	Q2	3.3
3	*PLOS ONE*	26	17.07	13	Q1	2.9
4	*International Journal of Environmental Research and Public Health*	24	9	8	Q2	4.61
5	*European Journal of Oncology Nursing*	23	14.57	10	Q3	2.7
6	*Cancer Nursing*	22	13.05	11	Q3	2.4
7	*European Journal of Cancer Care*	22	14.57	10	Q3	2.7
8	*BMJ Open*	21	21.57	11	Q2	2.4
9	*Journal of Cancer Survivorship*	17	9.71	6	Q2	3.1
10	*Cancers*	15	10.6	8	Q1	4.5

Table 4 The Leading Contributors in the Field of Social Isolation on Cancer Research

Rank	Author	Counts	Co-Cited Author	Frequency
1	Aylin P	11	Holt-Lunstad J	104
2	Cole SW	11	Cacioppo JT	90
3	Bottle A	10	Steptoe A	62
4	Van den akker M	9	Deckx L	59
5	Faiz O	8	Hawkley LC	57
6	Mcclintock MK	8	Cohen S	54
7	Sood AK	8	Russell DW	53
8	Dejardin O	7	Berkman LF	48
9	Launay L	7	Kroenke CH	46
10	Lutgendorf SK	7	Cole SW	45

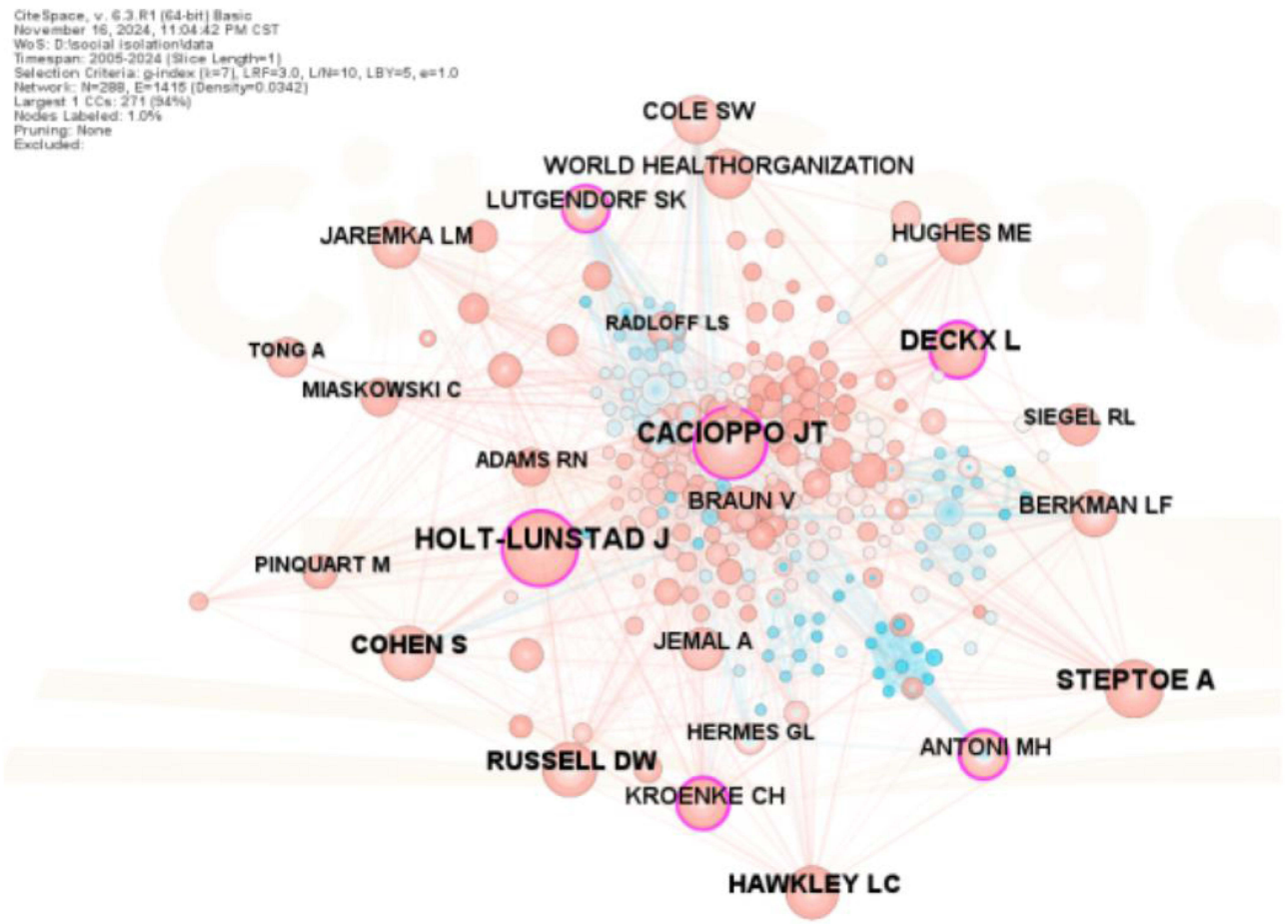

Figure 6 Visualization map of cited-authors in the field of social isolation on cancer research. Nodes represent cited authors, with their size proportional to the citation frequency. Lines between nodes indicate co-citation relationships.

isolation (Figure 8). The timeline's bold segments indicated periods of concentrated research activity. Analysis revealed six distinct research domains through log-likelihood ratio testing, with particularly strong conceptual relationships between COVID-19 (#1) and mortality (#6) clusters. Additional clusters: health behaviors (#0), immune system (#2), social genomics (#5), and stress (#8) offered mechanistic insights into social isolation pathways.

Analysis of Keywords

Complementary keyword co-occurrence analysis of 4918 terms meeting the minimum occurrence threshold (n=448) yielded significant understanding of the field's conceptual evolution. The overlay visualization (Figure 9) demonstrates that social isolation research constituted the predominant thematic focus. Cluster analysis delineated major conceptual groupings led by "social deprivation" (cluster#0), followed by "palliative care", "social isolation", "social support", "physical activity", and "cognitive function" (Figure 10). Temporal keyword analysis revealed an evolutionary trajectory from early focus on cancer (2005–2011, burst strength=6.48) to contemporary emphasis on "social determinants of health", "management", "disparity", "association", "public health", "symptoms", and "stage" as dominant post-2020 research themes (Figure 11). This reflected the field's progressive expansion from disease-specific to broader psychosocial and healthcare system considerations.

Discussion

This scientometric study provides the first comprehensive overview of research trends and knowledge structures concerning social isolation among cancer patients from a global perspective. When compared to existing bibliometric

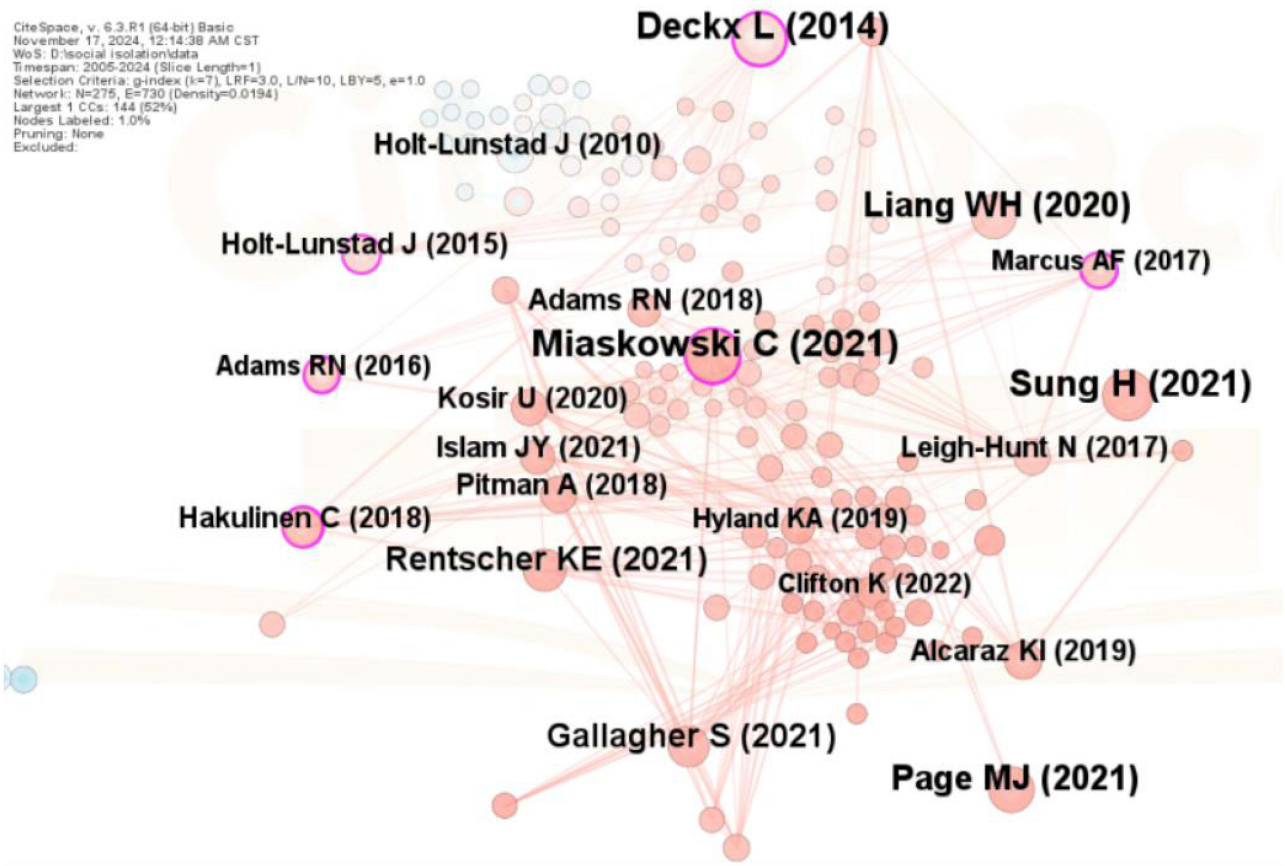

Figure 7 Network visualization map of cited references in the field of social isolation on cancer research. Nodes represent individual cited references, with size proportional to their citation frequency. Connecting lines indicate co-citation relationships between references, with thicker lines denoting stronger thematic connections.

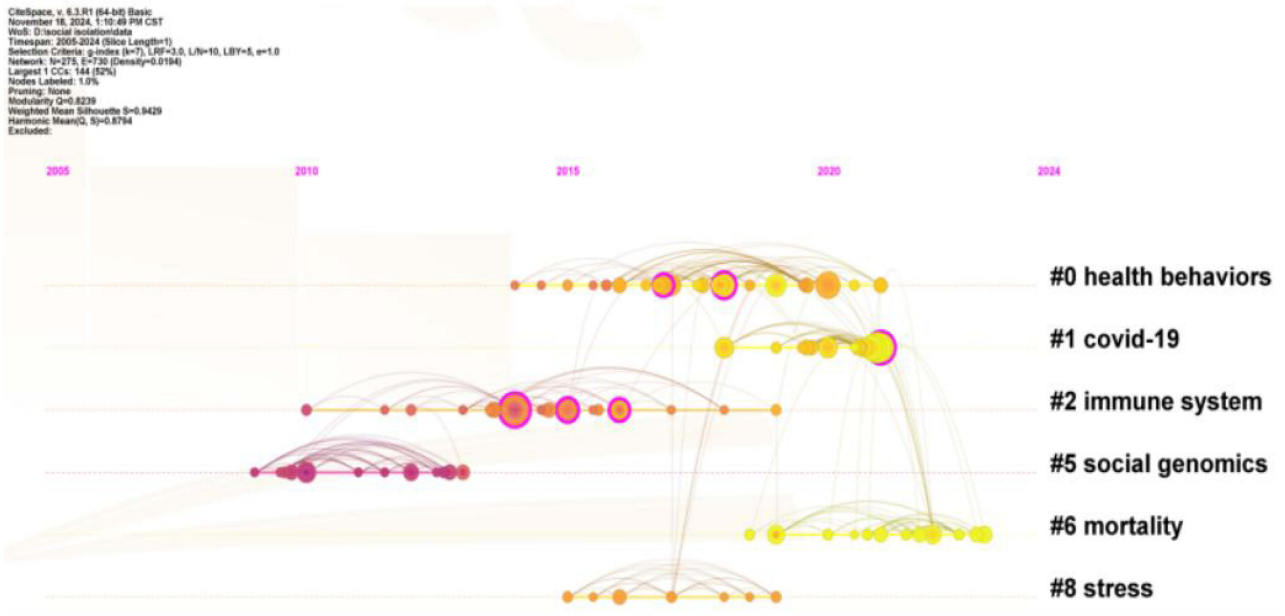

Figure 8 Timeline view of co-cited references in the field of social isolation on cancer research. Each node corresponds to a cited reference, with size proportional to its citation frequency. Major clusters are labeled numerically (eg, #0 Social Support, #1 Palliative Care).

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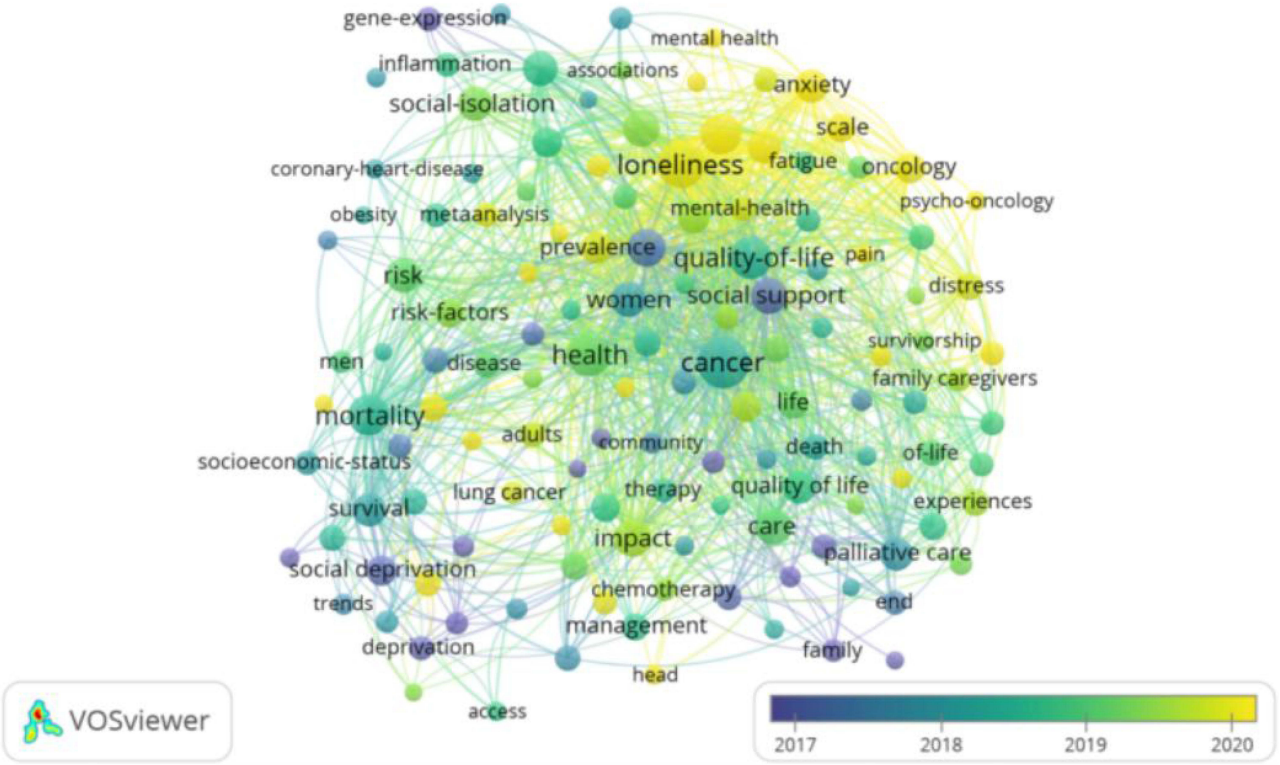

Figure 9 Map of keywords occurrence in the field of social isolation on cancer research from 2005 to 2024. Nodes represent author-provided keywords and terms extracted from titles and abstracts, with node size proportional to their frequency of occurrence in the literature.

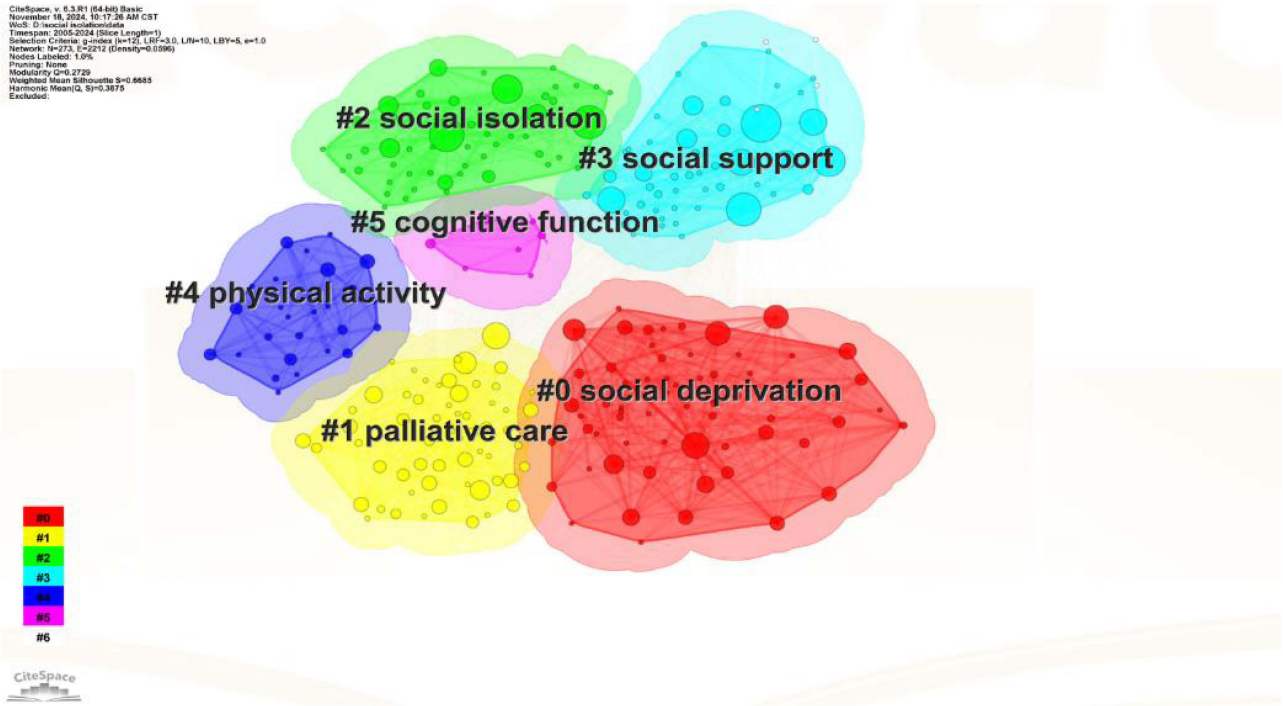

Figure 10 The cluster of keywords in the field of social isolation on cancer research. Keywords are algorithmically grouped into colored clusters reflecting distinct research themes, such as #0 social deprivation (red), #1 palliative care (yellow).

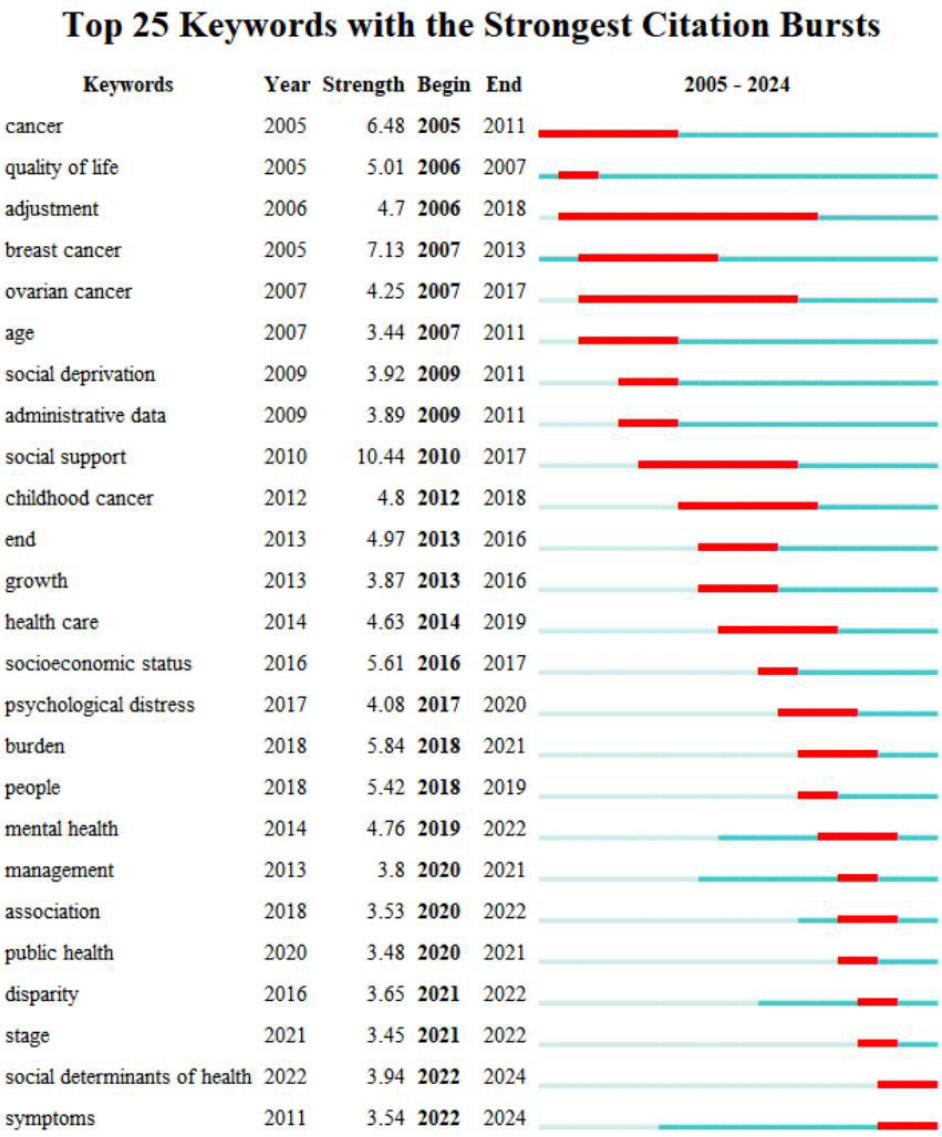

Figure 11 With strongest burst from 2005 to 2024 among the top 25 burst keywords in the field of social isolation on cancer research. Each row represents a keyword, with the red segment indicating the burst period and its intensity.

reviews in psycho-oncology[16–18] our study reveals several distinctive patterns. While previous analyses[16–18] have examined broader psychosocial aspects or specific psychological outcomes, our focused examination of social isolation specifically identifies unique conceptual clusters around social genomics, caregiver burden, and health disparities that have not been prominently featured in earlier reviews. This specificity allows for deeper insights into the biological mechanisms and social determinants underlying cancer-related isolation. The emergence of these themes demonstrates how our study complements and extends previous bibliometric work by providing a more granular understanding of this specific aspect of cancer survivorship. Our analysis demonstrates a progressive expansion of research output since 2005, mirroring the growing adoption of holistic approaches in modern cancer care that integrate psychosocial and biomedical perspectives. The observed publication surge in 2021 directly correlates with the peak COVID-19 pandemic period when public health measures exacerbated isolation among vulnerable cancer populations. The peak in 2023 likely represents a lagged effect of pandemic-era data collection.

Our findings demonstrate the United State's preeminent position in driving scientific inquiry into cancer-related social isolation, evidenced by both quantitative output and qualitative impact metrics. The USA received the highest number

TLS, which underscoring the significance and impact of its research contributions. Notably, five of the top ten contributing institutions were American, underscoring nation's pivotal in establishing research priorities and methodological approaches in this discipline. The high volume of USA publications in inextricably linked to robust funding from federal and private organizations. Financial support enables large-scale studies, longitudinal cohorts, and interdisciplinary collaborations, which disproportionately elevate publication counts. The leadership position stems from systemic advantages: sustained funding, institutional cooperation, and early recognition of psychosocial oncology's importance. This disparity highlights an urgent need for knowledge transfer mechanisms that can translate research insights into practical interventions across diverse healthcare settings, particularly in resource-limited environments where social isolation may be more prevalent but less studied.

Journal analysis revealed that 70% of the leading outlets were oncology-focused, particularly *Supportive Care in Cancer* and *Psycho-Oncology*. It suggested these specialty journals served as primary knowledge dissemination channels for this interdisciplinary field. The strong presence of these journals in Q1/Q2 quartiles indicates both the scientific rigor and growing clinical relevance of social isolation research. The collaborative network of leading authors demonstrates contemporary collaborative trends in this specialized field. Analysis of high-impact researchers providing valuable insights into both current research frontiers and evolutionary trajectories of global social isolation studies. Our findings indicate that the top ten authors by publication and citation counts were primarily affiliated with institutions in high-income countries. Cole SW represent a notable exception as the only researcher exceptional in productivity and citation influence. This differentiation highlights influential authors in social isolation research contribute differently to academic progress through specialized focuses.

The most highly cited references in this domain primarily address predominant themes: the prevalence of isolation across various cancer types.[24] Cancer-related social isolation was associated with multidimensional determinants spanning demographic, clinical, psychosocial, and social support variables.[25]

A growing body of experimental and clinical evidence further establishes significant connections between social isolation and adverse health outcomes including cognitive impairment,[26–28] metabolic disturbances,[29,30] cancer progression,[31,32] and immunological alterations.[33,34] The study underscores the critical need for timely identification and innovative strategies in oncological practice.

Keyword and citation network analyses identified an important evolution from early biological risk factor studies to contemporary investigations of social determinants of health, care disparities, and symptom management, reflecting the field's maturation toward translation and implementation science. VOSviewer visualization revealed current research priorities through terms such as "social isolation", "loneliness", "cancer", "social support", "social deprivation", "depression", and "gene expression", which epitomize the contemporary hot topics of research. CiteSpace cluster analysis further identified "palliative care" (Cluster #1) and "social support" (Cluster #3) are the most significant thematic groupings. These clusters align with progressive shift toward patient-centered care models that prioritize psychosocial well-being alongside biomedical treatment. The prominence of social support research emphasizes the protective role of interpersonal networks, consistent with existing evidence that robust caregiver and peer support systems improve patient resilience.[35,36] Mechanistic studies have advanced understanding of biological pathways, demonstrating that social isolation correlates with distinct gene expression patterns in leukocytes and diseased tissues.[37] Importantly, subjective and objective isolation likely exert their effects through divergent genetic pathways. Physical isolation correlates with downregulation of antibody production genes, potentially from limited microbial exposure. In contrast, emotional isolation shows upregulated pro-inflammatory genes coupled with suppressed Type I interferon and IgG1 antibody synthesis genes, consistent with sympathetic nervous system-mediated stress responses.[38,39] Clusters around immune function and stress physiology continue to reveal important biological mechanisms. These findings collectively suggest that future research should prioritize development of culturally adapted assessment tools, implementation studies of scalable interventions across resource settings, and deeper investigation of biological-behavioral pathways identified through social genomics and neuroendocrine research. These molecular insights strongly support the development of technology-enhanced strategies to mitigate isolation's detrimental effects while maintaining necessary infection control measures, particularly for immunocompromised cancer patients.

Burst keyword analysis reveals the dynamic evolution of research priorities. Between 2005 and 2014, "adjustment" and "ovarian cancer" represented dominant research themes, accompanied by emerging focus on quality of life, growth, breast cancer, and age. These phases reflected an early emphasis on risk factor identification and palliative care for terminal patients during the initial decade. The Post-2016 period marked a significant expansion of research scope, characterized by rapid emergence of keywords including "family caregivers", "psychological stress", "mental health", "management", and "symptoms". These phases signaled a paradigm shift toward understanding caregiver burdens, mental health comorbidities, and intervention strategies. This transition appears driven by several factors: the maturation of evidence establishing social isolation as an independent risk factor for poor outcomes, growing recognition of psychosocial care as an essential component of cancer survivorship, and increasing emphasis on patient-centered care models. This evolution reflects the field's progression from descriptive epidemiology toward interventional science and implementation research.

Research on social isolation has expanded its focus on cancer caregivers.[40] Nearly one-third of oncology caregivers reported severe loneliness.[41,42] A systematic review further revealed that caregivers commonly experience isolated within their unique roles, including unexpressed anxieties and anticipatory grief.[43] Cancer patients' experience of social isolation stemmed from complex interactions among various determinants spanning demographic attributes, disease characteristics, somatic conditions, mental health status, adaptive strategies, and support systems.[25] Demographic characteristics encompassed age, gender, comorbidity profile, educational attainment, residential local, insurance coverage, personality traits, employment, ethnicity and tobacco use. Socioeconomic elements included household income, parental status, cohabitation situation, marital status, and primary caregiver designation. Elderly patients frequently experienced objective social isolation and support deficiencies that may intensify isolation,[44] while younger counterparts faced distinct vocational and developmental stressors that foster social isolation.[45] Regarding gender disparities, women generally demonstrated greater emotional expressivity and coping channels. However, contrasting perspectives showed that women were vulnerable to emotional outbursts and social isolation. These gender-specific differences warrant further investigation. The Type D personality is marked by negative tendencies.[46] Patients with this personality trait manifested amplified sensitivity to cancer-related stressors and apprehension about physical alterations, leading patients to disengage from their social support systems.[47] Education level and social support systems demonstrate protective effects through enhanced health literacy and emotional sustenance,[48–50] whereas economic constraints and living alone exacerbate isolation risks.[51–53] The absence of children or spouses or living in solitude may also increase the likelihood of social isolation among cancer patients.[48] Poor physical and mental health status have been demonstrated to positively correlate with the degree of social isolation.[50,54] Individuals with poor health often lack the vitality for group activities and prefer solitude. Cancer patients with negative emotions participate in fewer social endeavors,[54] exacerbating feelings of loneliness. As treatment progresses, the level of societal concern and support for cancer patients tends to diminish. This support decline could intensify their sense of isolation due to perceived abandonment or neglect.[48] Across diverse epidemiological periods, cancer patients confront varying pressures, which result in different levels of social isolation.[55] The COVID-19 pandemic further complicated this landscape by introducing distancing measures that amplified isolation while simultaneously accelerating the adoption of technology-mediated solutions. Despite these advances, keyword mapping reveals persistent disciplinary silos between oncology, sociology, and public health, highlighting crucial opportunities for innovative cross-sector collaborations that leverage intelligence and digital platforms to develop scalable, personalized interventions addressing this multifaceted challenge in cancer care.

Strengths and Limitations

There are several merits to our approach. First, we conducted a systematic bibliometric analysis of social isolation in cancer, potentially offering comprehensive recommendations to researchers in this field. Second, we utilized three widely used bibliometric tools (VOSviewer, CiteSpace, and bibliometric website), which enhanced the objectivity of data analysis method. Finally, bibliometric analysis provides a more holistic view of hot spots and frontiers than traditional reviews. However, it is crucial to acknowledge several limitations. First, we may introduce selection bias because only English publications in the WOS, inevitably leading to bibliography omissions. Future bibliometric studies would benefit from cross-validation across multiple databases to ensure more comprehensive literature representation. Second, citation

metrics are influenced by time, with recent articles typically having fewer citations than older ones due to their publication dates. The recency bias in citation metrics particularly affects our ability to capture the most contemporary developments in the field, though keyword burst detection helps mitigate this gap by identifying newly emerging research fronts.

Conclusions

This bibliometric analysis successfully mapped the global research landscape and evolving trends in social isolation among cancer patients from 2005 to 2024. Our findings reveal several critical implications for practice and policy. The concentrated research leadership from the United States presents both a challenge and opportunity. While demonstrating the importance of sustained funding and institutional support, this dominance underscores the urgent need for structured knowledge transfer mechanisms to ensure global equity in addressing cancer-related isolation. Healthcare providers should consider implementing validated screening tools during clinical encounters, particularly for high-risk populations identified in our analysis, including those with specific cancer types, advanced disease stages, or limited social networks. For policymakers, this study highlights the need for funding initiatives that support both basic mechanistic research and implementation science, ensuring that scientific advances translate into practical interventions that reduce the burden of social isolation for cancer patients globally.

Data Sharing Statement

The complete dataset utilized in this study is openly accessible through the Web of Science platform.

Ethics Approval and Consent to Participate

This study did not require institutional ethics committee approval or participant consent as it exclusively analyzed existing published data.

Author Contributions

Each co-author has made substantive intellectual contributions to various aspects of this work, including but not limited to: research conceptualization, methodological design, data collection and processing, analytical procedures, and manuscript preparation. All contributors participated actively in drafting and critically revising the manuscript, approved the final version for publication, consented to journal submission, and accept full responsibility for the scholarly content presented.

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Disclosure

The authors report no conflicts of interest in this work.

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