Social Support in Quality of Life among Breast Cancer Patients after Diagnosis: A Bibliometric Analysis

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ABSTRACT

In terms of bibliometric analysis, there are no studies related to the impact of social support on breast cancer survivors' quality of life. Therefore, this study aims to provide a bibliometric assessment of results on social support in quality of life in breast cancer patients. The studies for the dataset were selected from Scopus published in the year 2001–2021 based on their relevancy to the established subjects. The VOSviewer software was used for bibliometric analysis to represent the performance of publications covering annual outputs, mainstream journals leading countries, institutions, research tendencies, and hotspots. The analysis of the findings indicated only 45 articles over the range of 2001-2021. We highlighted that the highest number of publications was published in 2021, and the lowest was in 2002-2004 and 2006. Social support strongly correlates with the psychological adjustment of adherence to cancer treatment. Only one study failed to find an association between social support and suicide after a cancer diagnosis. Meanwhile, China, the USA, and Hong Kong contributed to social support. Instrumental, financial, information, and emotional support were reported as domains needed to support breast cancer patients. This bibliometric analysis provides the results of thoughts and insights about the development needed by breast cancer patients to prolong survival.

Keywords: Breast cancer; bibliometric analysis; social support; quality of life; journal; Scopus (Siriraj Med J 2023; 75: 529-537)

INTRODUCTION

Cancer is the leading cause of mortality before the age of 70 in 112 nations worldwide. Breast cancer was diagnosed in 2,261,419 or 11.7% of total type of cancer in 2020 and resulted in 684,996 or 6.9% deaths.[1] Due to the frequency of the disease and its favorable prognosis, it is anticipated that 4.4 million women will live with breast cancer for at least five years after being diagnosed.[2] Moreover, the top five countries with the highest incidence were Asia, ranking first at 49.3%, followed by Europe with an incidence of 22.8%. In 2020, it was also reported to cause 684,996 or 58.3% cancer-related deaths worldwide.[1]

Many factors influence the incidence and mortality of cancer, including aging and population growth, as well as changes in the importance and distribution of the principal risk factors.[3] The previous study revealed that the high incidence had been associated with factors related to diet and population aging, including healthy-life changes such as physical inactivity, obesity, tobacco use, and alcohol consumption.[4,5] Several approaches have been used to improve cancer patients' overall survival, including surgery, radiotherapy, and chemotherapy.[6] However, these methods cannot totally tackle the cancer problem, which is not yet fully considerable.

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Received 23 March 2023 Revised 17 May 2023 Accepted 17 May 2023
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https://doi.org/10.33192/smj.v75i7.261979

Patients with breast cancer should undergo therapy and treatment for recovery, such as radiotherapy as the primary curative treatment, in combination with chemotherapy, hormone therapy, immunotherapy, and surgery.[7-11] The therapy and treatment have been shown to significantly prolong their survival.[12,13] Apart from the beneficial effects, various physical, psychological, and social problems can affect the patient's quality of life.[14] Evidence supports the unfavorable impact of breast cancer treatment, such as patients having radiation frequently reporting sleep disorders such as insomnia and excessive drowsiness.[15-17] Other physical effects encountered by breast cancer patients, such as pain, exhaustion, and lymphedema, were seen in the prior study.[18] It also indicated that discomfort in the anterior thorax, axilla, and upper arms generates persistent pain for more than three months.[19] Meanwhile, helplessness, anxiety, embarrassment, self-esteem, stress, fear of being abandoned by a spouse, sexual dysfunction, and dread of confronting the future and mortality are all common psychological and social effects of the therapy.[20]

The burden of physical and psychological symptoms during the treatment contributes to poor quality of life (QoL).[21] A study in Norway explains that optimism is one of the keys to improving the quality of life of breast cancer patients.[23] According to a Chinese study, social support has a role in reducing psychological stress in cancer patients.[24] Furthermore, breast cancer also poses psychological challenges for sufferers related to female body image, sexuality, and motherhood.[25] According to Eom *et al.* (2013), there is a decrease in quality of life in survivorship associated with a decrease in emotional support.[26] Furthermore, a previous study in India showed that 93.6% of the 768 patients suffering from various cancers were depressed and anxious due to facing many financial difficulties.[27] It can be a key factor in social support as one strategy to improve quality of life after diagnosis. A study in China explains that social support plays a role in minimizing psychological stress. Knowing a patient's quality of life (QOL) might help clinicians identify people at high risk of recurrence or death but many studies have shown inconsistent results.[28-30,21,31,32] Therefore, this study tries to map the trends of several studies related to the role of social support in the quality of life of breast cancer patients.

Bibliometrics were used to determine trends in social support research and quality of life for breast cancer patients. The analysis is a widely used tool to assess the academic status of a specific field.

MATERIALS AND METHODS

Bibliometric methods were conducted in this study. In research, bibliometric methodology has been widely used to analyze scientific publications such as research articles, books, conference papers, and journals.[33,34] This method has powerful capabilities used for a variety of purposes, including spotting emerging trends in article and publication performance, collaboration patterns, and research features, as well as examining the intellectual structure of a particular field in the current literature.[35]

Furthermore, it obtains high-impact research articles quickly, finds research directions that concern their peers, identifies previous research performance with developing trends in publications related to institutions, countries, people, funders, and disciplines related.[36] In this study, the core collection of Scopus databases was used as a source for articles published between 2003 and 2021.

This study searches the document from the Scopus database with keywords "quality of life" AND "breast cancer" OR "mammary" OR "breast carcinoma" AND "social support". Inclusion criteria for further analysis were based on: 1) articles describing the relationship between social support and quality of life of breast cancer patients; 2) original articles; and 3) all publications in English. However, those related to animal experiments, editorial materials, letters, or guidelines are excluded.

The data were downloaded from the Scopus database from September to December 2021. Furthermore, this database was selected because it is more significant than PubMed or Web of Science with the most extensive catalogs. The search engine of SciVerse Scopus provides a wide range of views that allows for the retrieval of related documents in the most efficient way possible. This study found 45 documents, with most of the types being articles.

Statistical analysis

To map the construction of a keywords network and its clustering, raw data in Bibtex, RIS, and CVS files were extracted and examined with VOSviewer version 1.6.0 software. The research analyzed and represented the number of publications each year, citation analysis, co-authorship, common citation network, and topic trends.[37] The bibliometric software is used to construct data visualization of co-authorship maps of authors, countries, citation analysis, and co-occurrence keywords.

RESULTS

Annual number of publications.

Fig 1 shows an architectural diagram of the data collection process, which presents the selection of specific articles. A total of 45 articles on health-related quality of life in breast cancer were published from 2001 to 2021 (Fig 1). Fig 2 presents the trend of publication number from 2001 to 2021. It can be seen that most publications were in 2021 and the lowest ones were in 2002-2004 and 2006. Social support strongly correlates with the psychological adjustment of adherence to cancer treatment (PMID: 23098436). Additionally, most of the documents on social support and cancer treatment were published in 2013. The first systematic review was published in 2013 with 14 original studies (PMID: 23097417 and this is normal since the previous year's publications were limited. The systematic review mentioned that social support was crucial in promoting cancer patients' emotional, functional, and physical functions (PMID: 23097417).

Subsequently, Fig 3 shows the manuscript that minimally had 1 publication from 2001 to 2021, and the documents were published in 2017-2018.

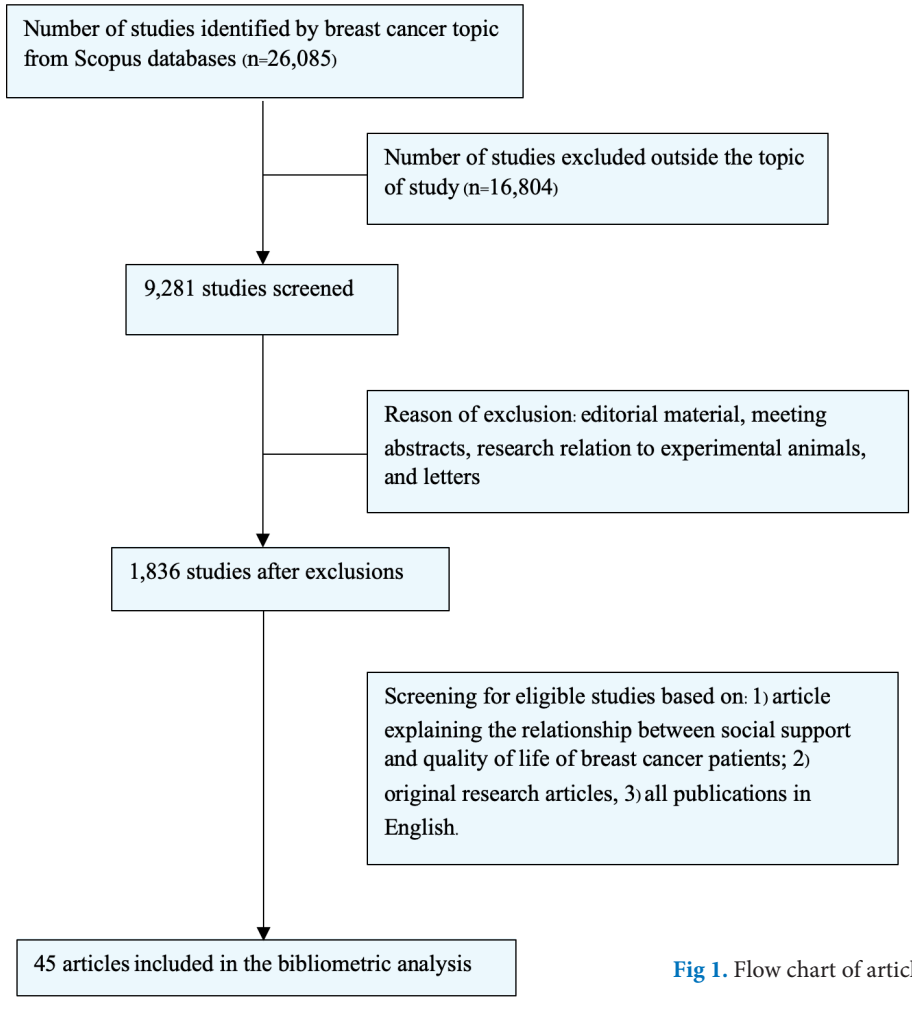

Fig 1. Flow chart of article selection.

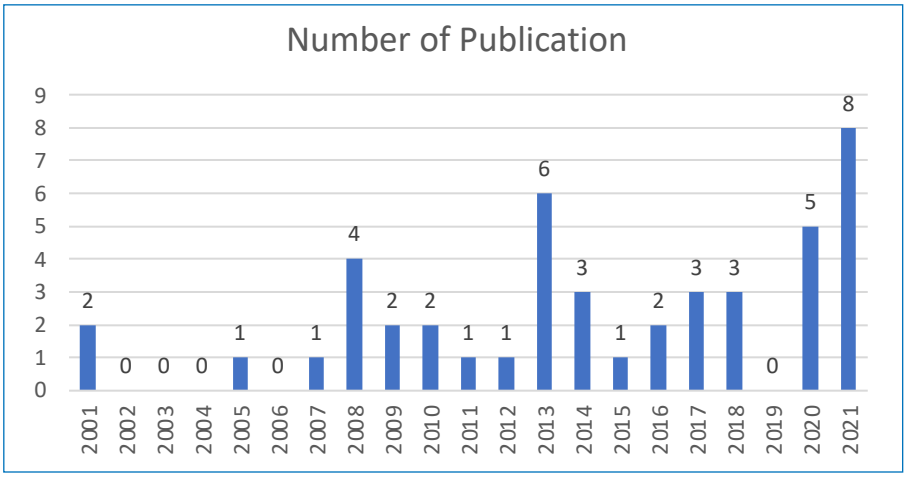

Fig 2. Annual number of publications related social support in quality of life among breast cancer patients after diagnosis from 2001-2021.

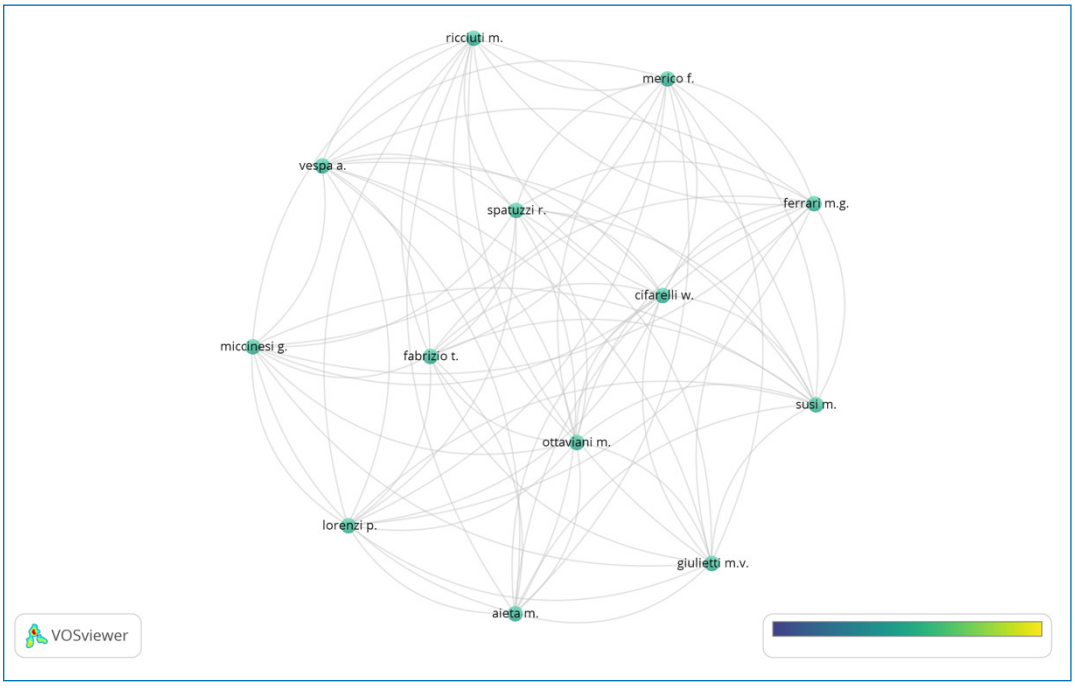

Fig 3. The manuscript's authors, which had 1 publication minimally from 2001 to 2021.

Yellow: current years. Dark colour: last years

This analysis identified the top ten distributions by year, screened them with one publication, and were published between 2012 and 2013. The newest meta-analysis and systematic review presented no correlation between social support and suicidal ideation in cancer patients (PMID: 33277772). However, social support was suggested as part of health care promoting patients' quality of life.

Fig 4 presents the top 10 countries with many publications. The United States has the most publications with 18 articles, compared to China and Hong King with 5 and 3, respectively. In the USA cancer is the most common cause of death, and in 2013, around 1.5 million new cases were expected to be diagnosed, and around 1,600 patients were projected to die.

Cancer is a major worldwide health concern and cause of mortality in China, accounting for 19,292,789 cases and 9,958,133 deaths. Lung, liver, stomach, esophageal, and colorectal cancers are the leading five causes of mortality. About 45.2% of cancer deaths in China are occurred in adults aged 20 years or older.

Fig 5 shows that China had the newest publications in 2018; meanwhile, the documents from The United States were published in 2012.

Fig 6 depicts the affiliations, and the majority of which were obtained from the university. The university has a good funding and facilities capacity for supporting the conduction of studies. Furthermore, some countries, like Indonesia have mandatory work for doing the research and publication to reach a higher degree.

Most of the studies presented the quality of life

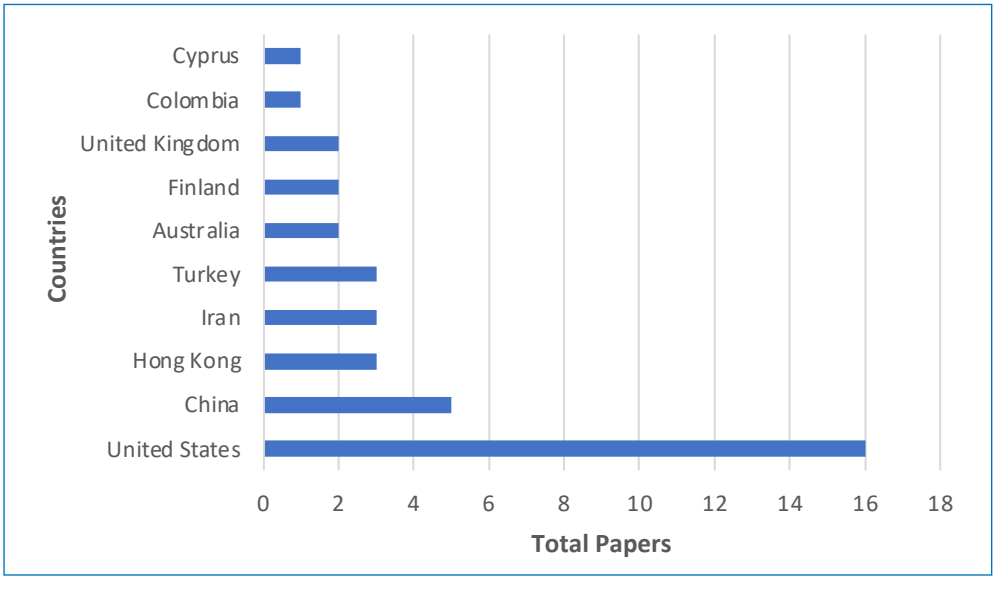

Fig 4. The publications distribution based on country-specific social assistance in quality of life among breast cancer patients following diagnosis.

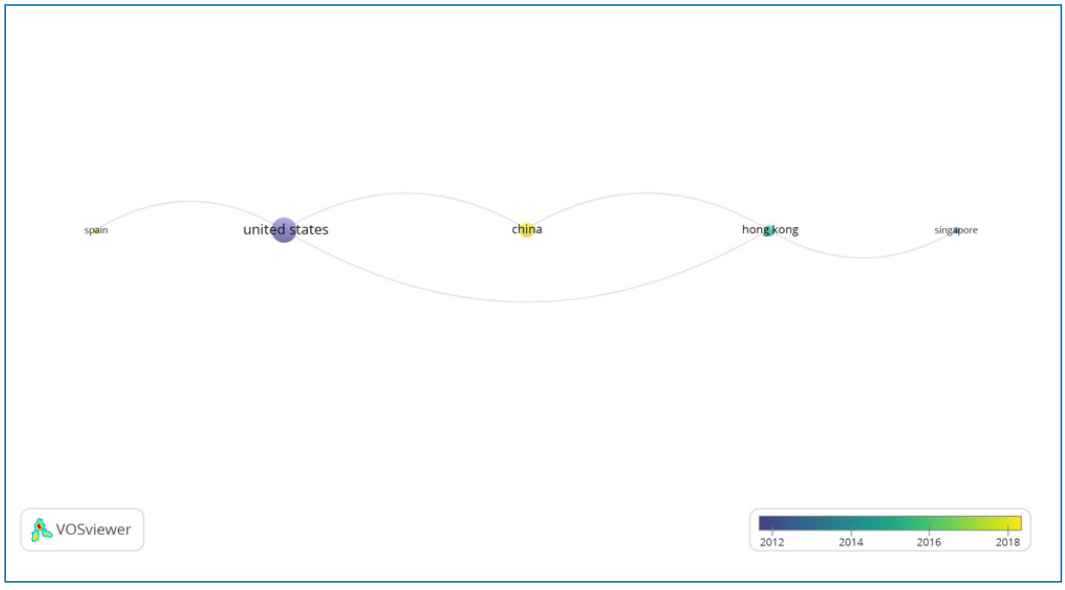

Fig 5. The distribution of the documents based on the countries and year.

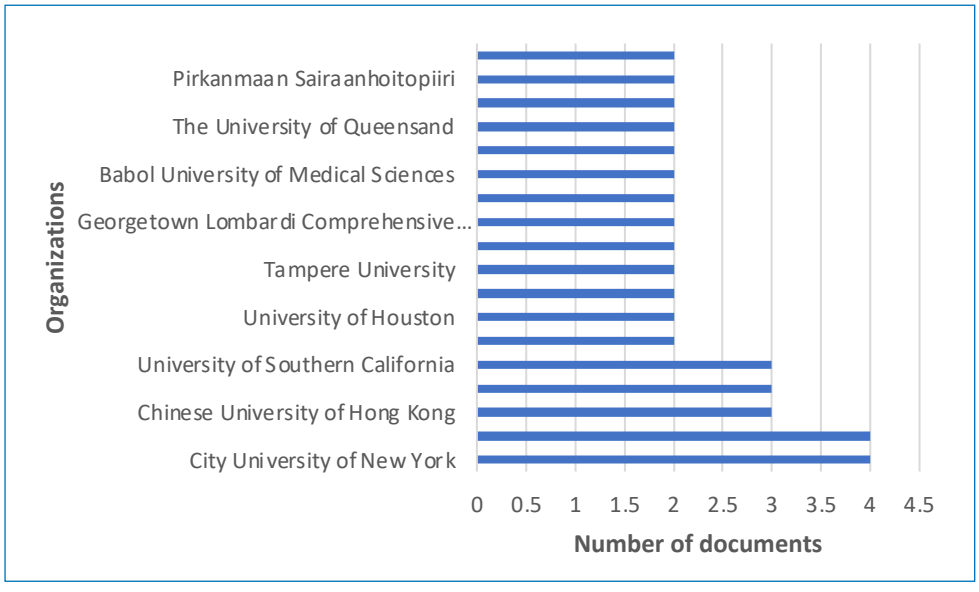

Fig 6. The distribution of the publications based on the authors' affiliation.

around 2013-2014 as indicated in Fig 7. However, the current keywords are psychological, cross-sectional studies, survey and questionnaire, anxiety, and cancer survivors. The current study topics are related to a cross-sectional design, using a questionnaire with a survey method, and some of the topics are related to anxiety and other psychological condition. No countries' names are mentioned in the keyword description, hence there are some possibilities to conduct this study in Indonesia.

Fig 8 presents the types of publications and the number of documents. The Erratum type only has a small proportion of 4.4%. Original articles, reviews, systematic reviews, and meta-analyses were grouped by Scopus.

Fig 9 illustrates the journal which published the documents in the Psychology Oncology and Journal of Oncology Nursing. Until 2021, the number decreased in the European Journal of Oncology Nursing and International Health.

DISCUSSION

Breast cancer remains a major contributing factor to a global burden, as millions of women are battling by seeking treatment and medication for their survival. Women are more likely than any other gender to be diagnosed with this cancer, and it is also the top cause of cancer-related deaths throughout the world.[1] A person diagnosed faces the reality of information that is not readily accepted by the patient and becomes a source of stress including those related to physical rejection, financial difficulties in carrying out care, treatment, and emotional reactions. The previous study has explained that infected people will physically experience significant changes at the time of initial diagnosis and during treatment experience fatigue, nausea, vomiting, pancytopenia, alopecia, weight loss, changes in appetite, and diarrhoea.[38,39] Furthermore, chemotherapy causes hair loss, black skin and nails, and weight loss.[40] Psychological pressures such as the

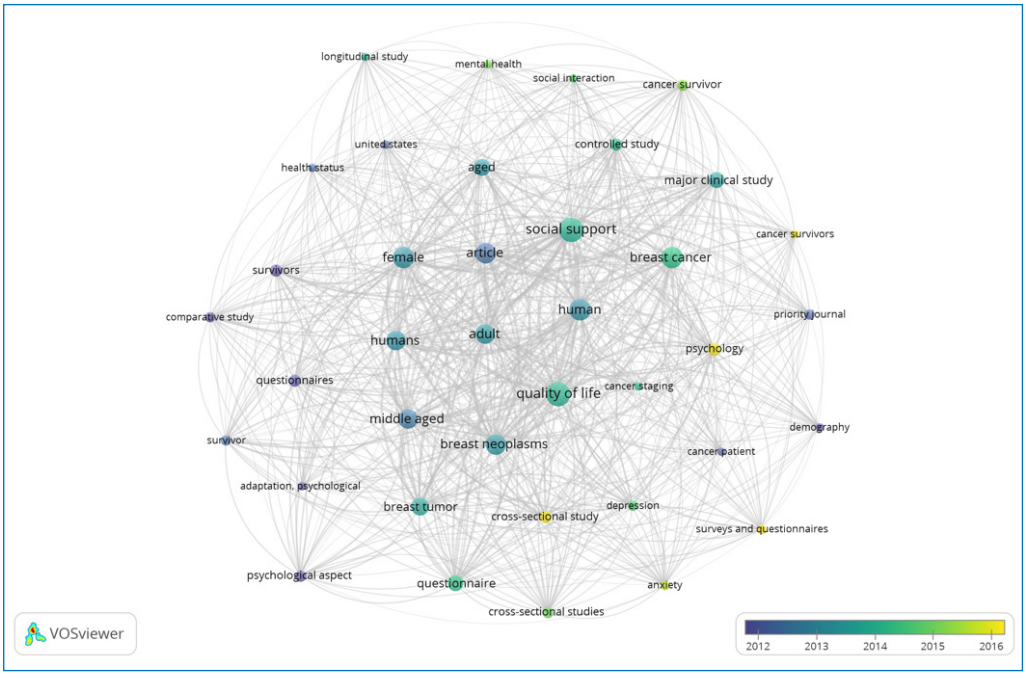

Fig 7. The most common keywords related to the social support for cancer patients

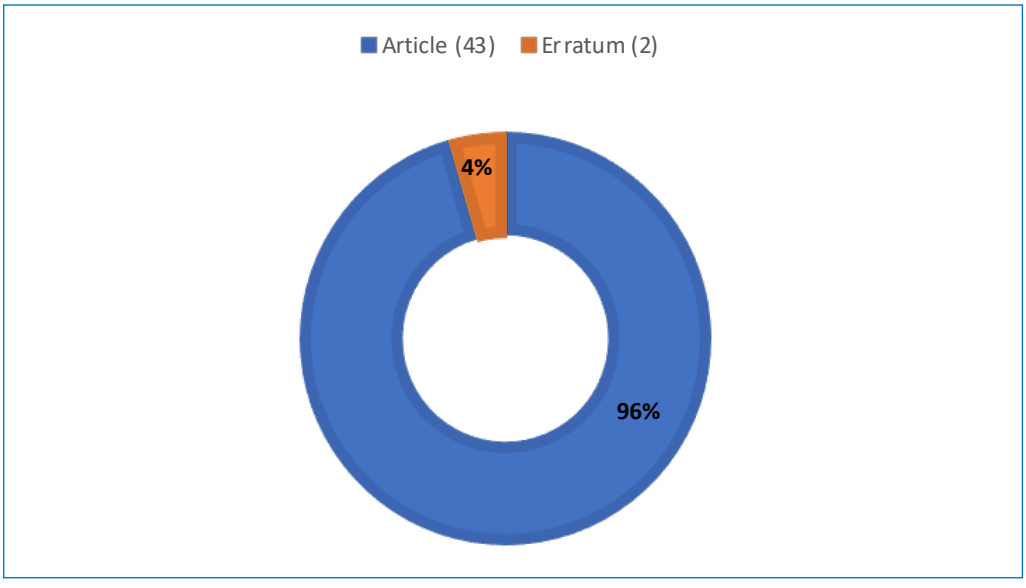

Fig 8. The distributions of the documents based on the article types.

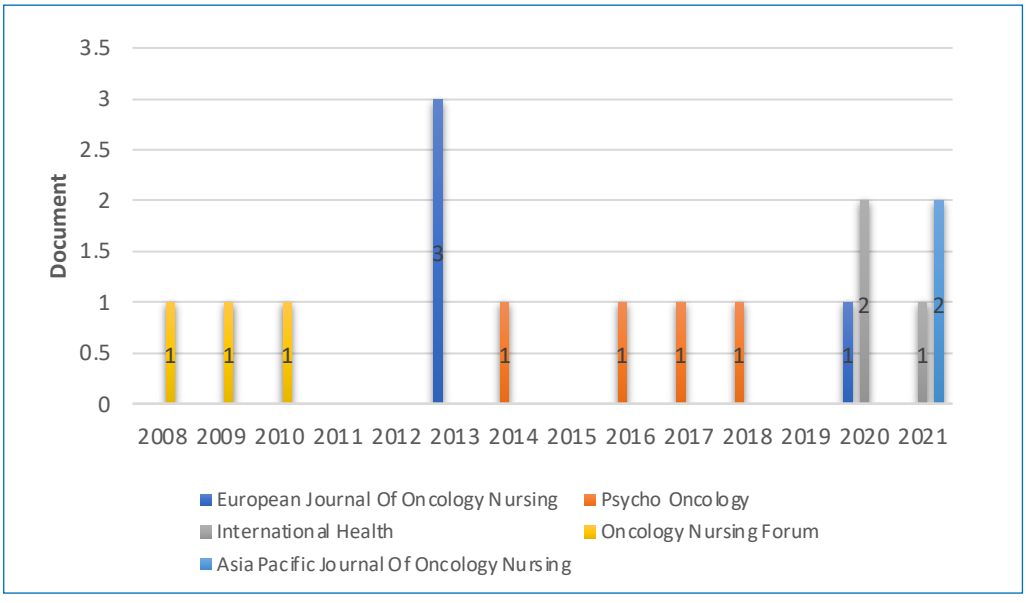

Fig 9. The document distributions are based on the name of the journal.

emergence of negative feelings such as shock, anxiety, anger, protest, and depression are also experienced by patients, considering the long duration of treatment, having high pain effects, and worrying about expensive treatment costs.[41-43]

In this study, the overall aim is to consolidate the research area of health-related quality of life in breast cancer. The current study clearly found that the trend was an increase in publications during the last decade of the study period. The literature of social support had a strong correlation with the psychological adjustment of adherence in cancer treatment.[44] Interestingly, most of documents about the social support and cancer treatment, previously was published in 2013. The first systematic review was published in 2013 with 14 original studies.[45] Since the number of publications in the previous year was limited, this is normal. The systematic review mentioned that the social support of cancer patients was very important for promoting their emotional, functional, and physical health.[45] China and the USA are the leaders as well as ranked first and second respectively in the number of publications in this field. It is surprising that the incidence rates of breast cancer are rising fast in those two countries. It is important to noted that these countries are leading the world in research, including medicine. The current study showed also that the type of document were article types compare to other type of document. This study emphasized that the scientist around the world focused on doing research related to the health-related quality of life in breast cancer.

A cancer diagnosis can cause physical and emotional stress such as anxiety, fear of undergoing further treatment due to high costs, depression, and even death. This psychological stress is more experienced by older patients. This is because they have more pre-existing chronic diseases, such as impaired physical performance and cognitive function, which are clinically predicted to cause death and toxicity during chemotherapy.[46-51] Meanwhile, adequate social support is necessary for patients to navigate sudden life changes and emotional responses associated with cancer. In a study conducted by Usta (2012), the current the current knowledge of social support strongly associated with cancer progression.[44] It is a positive interactive process that is classified into various types among breast cancer survivorship in the form of instrumental support by giving physical/medical assistance, financial, information support by advising and educating; and emotional support by empathizing. Subsequently, it can be a coping strategy in dealing with the breast cancer experiencing.[25] Luszczynska et al systematically identified primary care providers, family members, and friends as the key persons in reducing their distress of cancer patients who have significantly supported their survival.[45] Depression and severe anxiety might result from a lack of social support from family members and those who are close to the patients.[52] In earlier studies, patients with genuine family support, for example, asking someone to drive them to the doctor, tended not to experience a decline in quality of life.[53] In a cross-sectional study of 1,457 cancer patients, emotional and physical support were also highly associated with quality of life[54], while inadequate social support is closely related to depression.

The current study has some limitations; the database used was merely the Scopus database, which may not fully reflect the completeness, and false-negative results might still be possible. Therefore, future research should concentrate on merging many datasets. Study collaboration between developed and developing countries related to the health-related quality of life needs to be strengthened to facilitate study in resource-limited countries. However, this study has its advantages, as the first bibliometric analysis of peer-reviewed literature on health-related quality of life. Findings from this study might help international health authorities and grant agencies to discover gaps in health-related quality of life.

CONCLUSION

The USA, China, and Hong Kong are the top 3 nations with the most contributions to the social support in quality of life for breast cancer. Evidence was found for connections between the improvement of social support and an increase in breast cancer patients. Based on the Scopus database, bibliometric and visual analyses were conducted to study the characteristics of social support to improve their quality of life. This was conducted with research channels from 2001 to 2021 using 45 publications. Most publications come from the USA, followed by China and Hong Kong. Furthermore, the four domains used are instrumental support comprising of physical/medical assistance, financial, information support including advising and educating, and emotional support by empathizing. These domains are identified as a form of social support needed by breast cancer patients during therapy. Bibliometric analysis of literature may identify hot spot topics to provide significant knowledge in investigating the role of social support to the survival of cancer patients. Furthermore, the findings underlie the framework for developing studies on social support and quality of life to improve the survival of patients.

Data availability: Data may be shared upon contact of corresponding authors.

Conflict of interest: All authors declare no conflict of interest.

Funding

This work supported by the Ministry of Education, Culture, Research and Technology of the Republic Indonesia in 2022 (No: 1988.8/LL5- INT/PG.02.00/2022 and No: 001/PL.PDKN/BRIn.LPPM/VI/2022) for funding led by Solikhah Solikhah.

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